

# PATHSMITH™

## DURABLE SKILLS



# PK-16 Durable Skills Development & Application Guide

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## Methodology

The Pathsmith™ Early Career Performance Rubric, developed by America Succeeds in partnership with CompTIA and shaped by input from more than 800 employers and analysis of over 80 million job postings, established a rigorous, evidence-based standard for what durable skills look like in early-career contexts. The PK-16 Developmental Progression and its companion Development & Application Guide (DAG) take that standard as their foundation and answer a different but related question: what does the developmental trajectory to those competencies look like, beginning in pre-kindergarten? The Developmental Progression is a licensable architecture of 24 skills organized within four clusters and articulated across a five-level, age-agnostic continuum, designed for curriculum developers, assessment providers, professional development organizations, and other institutional partners building tools, services, and systems grounded in durable skills development. The DAG is its free, open-source practitioner-facing complement, translating that same developmental logic into actionable guidance for educators, program leaders, and parents working with learners across the PK-16 span.

Development unfolded across multiple phases of research and validation. The team began with a systematic review of the Performance Rubric and domain-specific literature spanning education and developmental psychology, producing an initial K-12 framework. That framework was then evaluated by 29 subject matter experts representing more than 300 years of collective experience with K-12 learners, and pilot tested over 13 weeks with more than 400 educators nationwide signing up to weigh in. Feedback from these phases drove a fundamental architectural revision: broadening scope from K-12 to PK-16, consolidating 74 subskills into 24, and shifting from grade-banded rubrics to an age-agnostic developmental continuum. A second round of expert review (N=31) followed, conducted through focus groups and interviews evaluating developmental validity, definitional clarity, and contextual applicability, alongside a parallel survey of 113 educators specifically focused on the DAG. The current versions of both products reflect the cumulative synthesis of that work, which was a process designed to ensure that what partners and educators encounter is grounded in both developmental research and the realities of practitioner use.

## Acknowledgments

The PK-16 Developmental Progression reflects the generous contributions of a remarkable community of researchers, educators, and practitioners whose expertise and insight shaped this work at every stage. We extend our sincere gratitude to Dr. Rosemarie Allen (Metropolitan State University of Denver), Dr. Michelle Ament (Human Intelligence Movement/Prosolve), Kwaku Aning (Retro Futurism Consulting), Jillian Balow (MetaMetrics), Abby Benedetto (Core Shifts), Dr. Kelvin Bentley (National Association of Higher Education Systems), Dr. Inga Carboni (College of William & Mary), Ivan Cestero (Cambiar Education), Nancy Chou (Digital Promise), Molly Dengler (World Savvy), Dr. Camille Farrington (University of Chicago), Ellen Galinsky (Families and Work Institute), Dr. David Hansen (University of Kansas), Ed Hidalgo (Educators Collaborative), Dr. Kathy Hirsh-Pasek (The Brookings Institution), Susan Howey (ACE Mentor Program of SE Michigan), Erin Jaques (Boston Public Schools), Dr. Kristie Kauerz (National P-3 Center, University of Colorado – Denver), Dr. Mary Kayyal (University of Massachusetts, Dartmouth), Taylor Kendal (Learning Economy Foundation), Meghan Lawson (Sycamore Community Schools), Dr. Emily Liebttag (Education Reimagined), Dr. Betty Liverman (Shaw University), Dr. Christine Looser, Laura McBain (Stanford University), Alisa Morse (CAPS Network), Kelly Organ (FullScale), Celina Pierrottet (National Association of State Boards of Education), Karen Pittman (Knowledge to Power Catalysts), Dr. Andrea Purcell (Big Picture Learning), Dr. Dorothy Shapland Rodriguez (Metropolitan State University of Denver), Dr. Joseph South (ISTE+ ASCD), Philip Steigman (Georgetown University), Dr. Karen Thierry (Committee for Children), Dr. Chris Unger (Northeastern University), Dr. Kate Walker (University of Minnesota), Dr. De'Shawn C. Washington (Cultivating Changemakers), Mike Yates (Reinvention Lab @ Teach for America), and Ian Zhu (Nimo, a SchoolJoy platform). Their willingness to share time, perspective, and deep subject matter expertise across early childhood, K-12, postsecondary, and workforce contexts strengthened the framework's developmental coherence and grounded its application in the realities of practice.

Finally, this work would not have been possible without Dr. Melody Su (Episteme Nexus) and Dr. Sherri Widen (Sherri Widen Research and Consulting), who served as subject matter expert consultants throughout the entirety of the project. Their time, perspective, and sustained investment shaped this framework from start to finish, and we are deeply grateful for their contributions.

## Purpose of the PK-16 Durable Skills Development & Application Guide

The *PK-16 Durable Skills Development & Application Guide* (DAG) makes the developmental logic of durable skills clear, coherent, and usable across ages and contexts. It is a practitioner-facing reference, not an assessment instrument. The DAG is designed to help educators recognize what durable skills look like as they develop, understand why they develop the way they do, and design learning experiences that support that development deliberately and equitably.

The guide covers **24 skills across four clusters** spanning the PK-16 continuum (approximately ages 4–22). Each skill entry follows the same structure:

- A description of the skill, its components, and a critical insight
- How the skill develops over time, framed as a developmental arc from early to more advanced capacity
- How the skill shows up by grade band/age, with observable expressions, important context for educators, and look-fors
- Reflection prompts for learners, with more advanced prompts for Grades 9 and above
- Design features for designing experiences that support development, with examples and design principles
- Common pitfalls for how the skill is often approached, and what to do instead

## Skill Development Over Time

The Skill Development Over Time section for each skill describes how that skill typically grows from early childhood through young adulthood. It is grounded in developmental research but age-agnostic in emphasis (i.e., the same underlying capacity can look very different depending on a learner’s context, experiences, prior opportunities, and the environments in which they have been supported). The arc is descriptive, not prescriptive.

## How Each Skill Shows Up by Grade Band/Age

The grade-band/age section translates developmental research into practitioner-accessible descriptions of what a skill typically looks like at different ages. Each grade band includes:

- **Common expressions:** how the skill tends to show up behaviorally at that stage
- **Important to understand:** developmental, contextual, and equity considerations that shape how (and whether) the skill is visible
- **Look-fors:** observable indicators that adults can notice without evaluating or ranking

These are illustrative patterns, not checklists. Although we frame development here by grade band/age, learners may be at lower or higher developmental levels.

Cultural context, systemic factors, and individual history shape how the skill is expressed, what strategies are accessible, and what counts as proficiency in a given setting.

## What This Guide Is and Is Not

This Guide IS...	This Guide is NOT...
A developmental reference for typical growth patterns across age bands	A rubric or scoring tool for evaluating individual learners
A resource for designing learning experiences that support skill development	Level-by-level indicators intended for formal evaluation or grading
A “look-fors” guide to help educators recognize skills in action	A checklist of behaviors learners “should” be demonstrating at a given grade/age
Support for educator judgment and learner agency across diverse contexts	Credentialing, placement, or accountability requirements
A framework that acknowledges cultural context, lived experience, and individual variation as shaping how skills develop and are expressed	An assumption that skills develop the same way for all learners, regardless of cultural context, lived experience, or opportunity

A note on language: throughout this guide, “learner” refers to anyone developing these skills, including children, adolescents, and young adults. “Educator” refers to any adult in a facilitative role: classroom teachers, coaches, mentors, advisors, and postsecondary instructors. The guidance applies across all of these contexts.

## Cluster A: Self & Identity

This cluster addresses the inward-facing skills through which learners come to know themselves, manage their responses, and act with integrity. Self-awareness and self-management are distinct but deeply interdependent: awareness of one’s emotions and patterns is the foundation on which regulation is built, and regulation capacity shapes how and when self-awareness can be applied. Together, these skills form the foundation for learning, relationships, and purposeful action across all settings.

### Skills in this cluster:

- A.1 Self-Awareness
- A.2 Self-Management
- A.3 Metacognition
- A.4 Persistence
- A.5 Integrity
- A.6 Learning Orientation

## A.1 Self-Awareness

### Description

Self-awareness is the ability to recognize one’s emotions, thoughts, strengths, needs, and impact on others, and to use that understanding to make intentional choices in learning, relationships, and work.

### Self-Awareness Components:

- **Emotional awareness:** noticing and naming feelings in the moment
- **Cause recognition:** understanding what triggers emotional or behavioral responses
- **Pattern recognition:** seeing recurring themes in how one learns, reacts, or relates to others
- **Strengths and growth areas:** knowing what one does well and where support is needed
- **Identity and values:** connecting choices to who one is and what matters to them
- **Impact awareness:** understanding how one’s actions and presence affect others

*Critical insight: Self-awareness develops before consistent self-regulation. A learner may recognize a pattern clearly and still struggle to change their response, especially during stress, transition, or identity formation. Insight is not the same as behavior change, and treating awareness as sufficient underestimates how much support learners need to act on what they know.*

### How Self-Awareness Develops Over Time

Across PK-16, self-awareness typically grows as learners move from

- noticing internal states →
- recognizing patterns and causes →
- anticipating responses and intentionally aligning actions with identity and values

Early development is concrete and externally supported. Over time, awareness becomes more reflective, contextual, and integrated with a learner’s sense of self. Growth is not linear and varies based on identity, experience, culture, context, and opportunity to practice.

### How Self-Awareness Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Noticing with Support

#### Common expressions:

- Names common feelings (happy, sad, mad, scared) using simple words, most often when an adult offers the language first

- Expresses emotional states through body and behavior (restlessness, withdrawal, energy shifts, tears) rather than words
- States simple preferences or needs (“I want...” / “I don’t like...”) when asked
- Responds and settles when an adult names their emotion back to them (“You seem frustrated. Is that right?”)

**Important to understand:**

- Awareness at this stage is almost entirely scaffolded by adults; children rely on adult language and reflection to access their own experience
- Emotional naming comes before emotional control; children may be able to say “I’m mad” and still be unable to manage the feeling
- Physical and emotional states are closely linked; tiredness, hunger, and sensory overload are often expressed as emotional dysregulation

**Look-fors:**

- Learner responds when their emotion is named by an adult
- Learner uses common feeling words on their own in familiar contexts
- Learner is beginning to manage strong emotions with consistent adult support

**Grades 1–2 (Approx. Ages 6–8): Naming and Noticing**

**Common expressions:**

- Uses an expanding emotion vocabulary, including more nuanced words (frustrated, excited, worried, proud)
- Begins noticing what causes their feelings, with adult prompting
- Shows early ability to ask for help when struggling emotionally or academically
- Starts to notice emotional states in peers and classmates

**Important to understand:**

- Learners still rely heavily on adult support to make sense of their emotional experience; independent reflection is just emerging
- Can describe feelings in the moment but may not yet see patterns across situations or time
- Beginning to connect emotions to specific triggers, but the link is still fragile and context-dependent

**Look-fors:**

- Learner describes feelings using emotion words in ways that match the situation
- Learner notices and sometimes names emotions in peers without prompting
- Learner is beginning to explain why they feel a certain way

**Grades 3–5 (Approx. Ages 8–11): Connecting Causes and Patterns**

**Common expressions:**

- Identifies what tends to trigger their emotions (“I feel frustrated when people interrupt me”)
- Connects feelings to behavior and can describe the link (“I got upset and couldn’t focus”)
- Names conditions that help them do their best (“I work better when it’s quiet”)
- Acknowledges how their actions affected someone else, often after the fact

**Important to understand:**

- Beginning to notice recurring patterns, but still benefits from adult support in connecting them across situations
- Awareness frequently outpaces regulation at this stage; learners often know what happened after the fact but could not have stopped it in the moment
- Insight may be inconsistent across settings: what a learner knows about themselves at home may not transfer to school or peer contexts

**Look-fors:**

- Learner explains what caused a feeling without needing to be prompted
- Learner can describe what helps them and what makes things harder across more than one context
- Learner reflects on how their actions affected someone else

**Grades 6–8 (Approx. Ages 11–14): Recognizing Patterns Across Contexts**

**Common expressions:**

- Recognizes patterns in how they learn, get motivated, or respond to peers and group dynamics
- Notices early signs of stress, frustration, or disengagement in themselves before they escalate
- Experiments with self-chosen strategies based on growing knowledge of what works for them
- Begins describing strengths and challenges across different settings and roles

**Important to understand:**

- Identity development can temporarily destabilize self-awareness; adolescents may feel less certain about who they are even as their capacity for reflection grows

- Peer dynamics strongly influence whether and how self-knowledge is expressed; what learners share publicly about themselves is often shaped by social risk
- Self-criticism often increases as awareness grows; heightened self-scrutiny is not the same as self-knowledge and should not be mistaken for it

#### **Look-fors:**

- Learner identifies personal patterns without being prompted
- Learner tries strategies based on self-knowledge and reflects on what worked and what did not
- Learner can describe how others might see them in a given situation

### **Grades 9–12 (Approx. Ages 14–18): Strategic Self-Knowledge**

#### **Common expressions:**

- Articulates strengths, growth areas, and learning preferences with specificity and applies them to planning
- Anticipates personal challenges and puts supports in place before they arise
- Aligns actions with personal values and longer-term goals, not only immediate preferences
- Seeks and uses feedback to update their understanding of themselves

#### **Important to understand:**

- Insight does not guarantee consistency, especially under pressure or in high-stakes situations where the emotional stakes are high
- High awareness can intensify self-criticism before it builds confidence; learners may need support in developing a constructive relationship with self-knowledge
- Learners navigating racial or ethnic identity formation, economic stress, or systemic barriers may carry additional complexity in their self-concept that shapes how self-awareness develops and is expressed

#### **Look-fors:**

- Learner approaches challenges based on what they know about themselves, not just on what is required
- Learner adjusts their behavior or strategy after receiving feedback
- Learner connects choices to their values, identity, or longer-term goals

### **Postsecondary (Approx. Ages 18–22): Integrated Application**

#### **Common expressions:**

- Integrates self-knowledge across academic, professional, and personal contexts without needing external prompts
- Plans proactively for high-stakes situations using what they know about their own patterns and tendencies
- Uses self-awareness to improve collaboration, leadership, and relationships, including across difference
- Makes decisions aligned with identity, values, and long-term purpose, including in ambiguous or unfamiliar situations

#### **Important to understand:**

- Development accelerates through real responsibility, meaningful feedback, and genuine consequence
- Insight may still require structures (reflection prompts, mentors, accountability partners) to translate into sustained action; self-awareness alone is not sufficient
- Young adults benefit from reflection support even as their independence grows; asking good questions matters more than having good answers at this stage

#### **Look-fors:**

- Learner proactively plans for known personal challenges
- Learner uses self-knowledge to navigate team dynamics or leadership moments
- Learner can articulate how feedback or experience has shaped how they see themselves

#### **Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *How are you feeling right now? What might be causing that?*
- *What did you notice about yourself during that experience?*
- *What helps you when things get hard? What makes things harder?*
- *What did you learn about yourself?*
- *How do you think your actions affected others?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What does this situation reveal about what matters most to you, or about how you see yourself?*
- *How did your background, identity, or past experience shape how you responded?*
- *What is the difference between what you told yourself in the moment and what you understand now, looking back?*

## Designing Experiences That Support Self-Awareness

Experience	Why It Helps	Examples
Reflection during tasks	Builds self-noticing as a habit, not only a retrospective practice	Mid-project check-ins; “pause and notice” prompts at a decision point; brief written or verbal processing before moving on
Choice and reflection pairing	Connects preferences to emerging self-knowledge; learners see evidence of their own patterns	Choose work location or format; reflect afterward on why it did or did not work for you
Feedback on impact	Makes visible how one’s actions affect others, which is otherwise hard to perceive	Structured peer feedback protocols; growth conversations with an educator focused on observable behavior, not character
Emotion naming	Builds in-the-moment awareness before regulation is possible; naming reduces reactivity	“What are you feeling right now?” at the start or middle of an activity; feelings check-ins as a routine
Goal-setting tied to identity	Connects self-knowledge to values and purpose, not only performance outcomes	Learner-set goals anchored to who they want to be; regular check-ins that ask “is this still what matters to you?”
Narrative and identity work	Supports reflection on how background and experience shape perspective; honors diverse self-knowledge	Personal essays, identity maps, oral storytelling, portfolio reflections across contexts

**Design principle:** Reflection that is embedded during tasks is more likely to build lasting self-awareness habits than end-of-unit or summative reflection. Quick, low-stakes prompts are often more effective than long structured reflections, especially for younger or resistant learners. The goal is frequency and honesty, not depth or polish.

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Self-awareness as compliance	Conflates insight with following rules; teaches performance of reflection rather than genuine self-noticing	Focus on authentic self-noticing; separate reflection from behavioral expectations so learners are not performing awareness to please an adult
Public comparison or sharing	Shames learners and discourages honesty; not all self-knowledge is safe to share publicly, especially across identity groups	Keep reflection private or voluntary; create opt-in sharing structures; never require disclosure of personal content
Expecting regulation without scaffolding	Self-awareness precedes regulation; skipping co-regulation scaffolding sets learners up to fail	Build regulation skills gradually alongside awareness; acknowledge explicitly that knowing something about yourself and changing your response are two different things
Reflection as evaluation	When linked to grades or formal assessment, reflection becomes performance, which undermines the trust required for honest self-noticing	Separate reflection from grading; treat it as a tool for learning, not evidence of it
Assuming insight equals behavior change	One of the most common misreadings educators make, especially when assessing older learners; self-awareness and self-regulation are distinct capacities	Name the gap explicitly: “Knowing something about yourself and changing your response are two different things, and both matter”
Narrative and identity work	Self-awareness is shaped by culture, experience, and environment; frameworks that default to Western or individualistic norms miss this	Use language and examples that reflect diverse identities and self-concepts; offer multiple ways to reflect and multiple valid answers

## A.2 Self-Management

### Description

Self-management is the ability to regulate attention, emotions, behavior, and effort in order to stay engaged, adapt to demands, and work toward goals across learning, social, and professional contexts.

### Self-Management Components:

- **Attentional regulation:** directing and sustaining focus across varying task demands
- **Emotional regulation:** managing and modulating emotional responses so they do not overwhelm behavior
- **Behavioral regulation:** controlling impulses and aligning actions with intentions and expectations
- **Effort regulation:** sustaining energy and persistence toward goals, including through difficulty
- **Adaptive flexibility:** adjusting strategies when demands shift, familiar approaches stop working, or context changes

*Critical insight: Self-management depends on self-awareness but is developmentally distinct from it. A learner may clearly recognize that they are struggling to regulate, yet still not be able to do so in the moment, especially under stress, during transitions, or in the midst of identity formation. Co-regulation with trusted adults is the foundation from which self-management grows; it is not a step to skip.*

### How Self-Management Develops Over Time

Across PK-16, self-management typically develops as learners move from

- responding to external cues and co-regulation →
- using familiar strategies with prompting →
- independently selecting and applying strategies →
- planning proactively and sustaining regulation under complex demands

Early self-management is externally scaffolded and emerges through consistent co-regulation with trusted adults. Over time, regulation becomes more intentional, flexible, and integrated across settings. Development is not linear and is shaped significantly by neurological development, prior experience, relationships, trauma history, and cultural context.

### How Self-Management Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Responding with Support

#### Common expressions:

- Responds to adult cues, prompts, or co-regulation support to redirect behavior
- Stays on task for brief periods when adult support is present
- Follows shared routines and expectations when reminded
- Shows distress, frustration, or overexcitement through behavior rather than words

#### Important to understand:

- Self-regulation at this stage is almost entirely co-regulation; adult presence and predictability are the scaffold
- Executive function development (especially inhibitory control and working memory) is foundational and highly variable
- Dysregulation is developmentally expected and should not be treated as behavioral noncompliance

#### Look-fors:

- Learner responds to adult co-regulation (tone, presence, redirection)
- Learner begins to use simple self-soothing behaviors (fidget toy, deep breath) when modeled
- Learner can stay with a preferred task for an age-appropriate duration

### Grades 1–2 (Approx. Ages 6–8): Using Familiar Strategies

#### Common expressions:

- Begins drawing on a small set of familiar strategies (such as taking a breath or requesting a break) to manage big emotions, usually when prompted
- Moves between activities with minimal adult support when transitions are predictable and well-cued
- Stays with a difficult task when an adult or peer offers encouragement
- Uses emotion words to describe what they are experiencing in the moment

**Important to understand:**

- Strategy use at this stage is mostly prompted; independent application is emerging, not reliable
- Transitions and unexpected changes remain high-demand regulation moments
- Peer dynamics begin to introduce new regulation challenges

**Look-fors:**

- Learner attempts a strategy when reminded or offered a choice of strategies
- Learner completes brief tasks with minimal support when the task is clear and manageable
- Learner is beginning to ask for breaks or help rather than acting out

**Grades 3–5 (Approx. Ages 8–11): Selecting Strategies Independently****Common expressions:**

- Chooses and applies a regulation strategy on their own, without waiting to be prompted
- Maintains focus through tasks that match their developmental capacity, with fewer off-task breaks
- Returns to a task after a mistake or moment of frustration without needing an adult to redirect them
- Begins naming what helps or hinders their focus and regulation across contexts

**Important to understand:**

- Independent strategy use is emerging but inconsistent, especially under high stress or novel demands
- Academic demands increase significantly, raising the regulation load
- Social comparison intensifies, and learners become more reactive to emotions tied to peer relationships; for example, making a mistake in front of peers, perceiving that others are doing better, or feeling left out can all become significant regulation challenges

**Look-fors:**

- Learner uses a regulation strategy without being told to
- Learner returns to a task after a brief disruption without adult intervention
- Learner can describe what helps them stay focused or calm in different situations

**Grades 6–8 (Approx. Ages 11–14): Managing Competing Demands****Common expressions:**

- Begins anticipating challenging situations and prepares a regulation strategy in advance, rather than only responding in the moment
- Sustains focus and follow-through even when juggling several competing academic and social demands
- Stays regulated during group tension or interpersonal conflict rather than escalating or withdrawing
- Notices when familiar strategies are not working and tries an alternative

**Important to understand:**

- Identity development and peer dynamics create new regulation demands that did not exist in earlier grades
- Perceived social risk (judgment, exclusion, embarrassment) is a primary regulation disruptor at this stage
- Academic transitions (multiple teachers, shifting expectations, longer-term projects) require more sustained regulation

**Look-fors:**

- Learner uses strategies in advance of known challenges, not only in response to them
- Learner manages attention across longer tasks with self-imposed structure
- Learner reflects on what helped or did not help after a regulation-demanding situation

**Grades 9–12 (Approx. Ages 14–18): Sustaining Regulation Under Pressure****Common expressions:**

- Maintains regulation across extended periods of stress, high-stakes demands, or situations without a clear resolution
- Recognizes when a familiar regulation strategy is no longer working and shifts to a different approach
- Balances academic, social, and personal demands with intentional effort management
- Applies regulation strategies proactively across varied settings (academic, work, interpersonal)

**Important to understand:**

- High-stakes environments (grades, college applications, social identity) can temporarily destabilize even well-developed regulation
- Adolescents often know what to do but have difficulty doing it consistently under pressure. This gap is developmentally expected
- The regulation demands adolescents face are not equally distributed; learners navigating greater economic stress, racial or ethnic identity formation, or systemic barriers may carry a higher baseline regulation load than peers, which affects both capacity and consistency

**Look-fors:**

- Learner plans for regulation challenges in advance (e.g., schedules tasks around known energy patterns)
- Learner shifts strategies when an initial approach is not working
- Learner reflects on effort and regulation, not only on outcomes

**Postsecondary (Approx. Ages 18–22): Integrated and Adaptive Regulation****Common expressions:**

- Sustains regulation across academic, professional, and personal domains simultaneously
- Adjusts regulation approaches in response to feedback, changing demands, or new contexts
- Supports others in developing regulation skills (e.g., in team, mentorship, or leadership roles) while maintaining their own
- Aligns effort and attention with long-term goals even when short-term demands compete

**Important to understand:**

- Real-world consequences and genuine responsibility accelerate regulation development and expose gaps
- Without continued structures (accountability systems, reflection practices, mentors), hard-won regulation skills can erode under stress
- Young adults benefit from support in transferring strategies developed in educational settings to workplace and personal contexts

**Look-fors:**

- Learner proactively structures their environment to support regulation (time blocking, distraction management, recovery habits)
- Learner adjusts strategies in response to what is and is not working, without prompting
- Learner can articulate how they manage stress, attention, and effort and demonstrate it consistently across contexts

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *How did you feel during that experience? Did your feelings change as it went on?*
- *Was there a moment when it got hard to focus or keep going? What did you do?*
- *What helped you stay on task? What made it harder?*
- *Did you use a strategy to help yourself? What was it, and did it work?*
- *What would you do differently next time to make it easier to stay on task?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What patterns do you notice about when and how you struggle to regulate? Are those patterns consistent across contexts, or specific to certain conditions?*
- *How did your environment, relationships, or external demands affect your ability to manage yourself? How much of that was within your control?*
- *How did your effort and regulation affect the people around you? What responsibility do you carry for the conditions you create in shared spaces?*

**Designing Experiences That Support Self-Management**

Experience	Why It Helps	Examples
Regulation strategy practice	Builds a repertoire of strategies learners can draw on before challenges arise	Breathing techniques, sensory breaks, body scans, physical movement; practiced during calm, not only during crisis
Structured transitions and routines	Predictable routines reduce the cognitive load of shifting demands, supporting emerging regulation	Morning check-ins, end-of-class reflection, visual schedules with transition cues
Graduated challenge with support	Helps learners practice regulation under low-stakes difficulty before demands increase	Timed tasks with built-in reflection pauses; projects with checkpoints; stretch goals paired with coaching
Effort and reflection pairing	Separates effort (what I put in) from outcome (what I got), which builds persistence and growth-oriented thinking	“What did you try? What kept you going?” prompts; process portfolios; reflection on productive struggle

Experience	Why It Helps	Examples
Self-monitoring tools	Externalizes regulation so learners can observe and adjust their own patterns over time	Focus trackers, mood logs, self-evaluation rubrics, goal-tracking sheets
Autonomy within structure	Builds executive regulation when learners manage their own choices within clear expectations	Student-chosen work sequences; flexible seating with accountability; independent project time with planning requirements

**Design principle:** *Self-management develops most durably through consistent practice in low-stakes conditions. Learners who only encounter regulation demands during high-stress moments have few opportunities to build and test strategies. Embedding brief, low-pressure regulation practice into daily routines is more effective than occasional high-intensity intervention.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Compliance as regulation	Equates following rules with self-management; learners appear regulated but have not internalized strategies or developed genuine capacity	Distinguish between external control and internal regulation; build in opportunities for learners to practice managing themselves, not just behaving
Crisis-only strategy instruction	Teaching coping strategies only during dysregulation means learners cannot access them when most needed	Practice regulation strategies during calm; build them into daily routines so they become automatic
Punishing dysregulation	Treats a skill deficit as a behavioral choice; increases shame and reduces trust, making regulation harder	Respond to dysregulation as a signal that the learner needs support; co-regulate before redirecting
Assuming one strategy works for all	Regulation strategies are not universal; what works for one learner may not work for another due to neurodevelopment, culture, experience, or context	Offer a menu of strategies; support learners in identifying what works for them specifically
Treating self-management as an individual trait	Frames regulation as a fixed internal capacity rather than a skill developed in relationship with environment, co-regulators, and context	Recognize that classroom conditions, relationships, and predictability directly affect learners' ability to regulate
Skipping co-regulation	Younger and less-developed learners cannot self-regulate until they have experienced consistent co-regulation from trusted adults	Prioritize relationship and predictability as the foundation; self-regulation emerges from co-regulation, not instead of it

## A.3 Metacognition

### Description

Metacognition is the ability to plan, monitor, and reflect on one's thinking, learning, and problem-solving processes in order to improve understanding, performance, and outcomes.

### Metacognition Components:

- **Planning:** selecting a strategy or approach before beginning a task
- **Monitoring:** noticing during a task whether understanding is developing or a strategy is working
- **Evaluating:** reflecting after a task on what worked, what did not, and why
- **Adjusting:** changing approach in response to monitoring and evaluation
- **Transfer:** applying cognitive strategies deliberately to new or different kinds of tasks

*Critical insight: Metacognition is not the same as intelligence or effort. Learners who struggle academically often have underdeveloped planning and monitoring habits, not limited capacity. Explicit instruction in how to think about thinking is one of the highest-leverage investments educators can make, and its effects compound over time.*

## How Metacognition Develops Over Time

Across PK-16, metacognition typically develops as learners move from

- responding to questions about their thinking →
- describing strategies and noticing whether they worked →
- planning, monitoring, and adjusting in real time →
- evaluating their thinking processes systematically and transferring strategies to new domains

Early metacognition is largely retrospective and externally prompted. Over time, learners develop the capacity to monitor and adjust during tasks, not only after them. The highest levels involve deliberate strategy transfer and making one's thinking visible to support others. Development depends heavily on having explicit instruction, modeling, and structured practice.

### How Metacognition Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK-K (Approx. Ages 4–6): Noticing Thinking with Support

#### Common expressions:

- Notices when a task feels hard or confusing and can name that feeling with support
- Responds to simple questions about how they figured something out (“How did you do that?”)
- Shows signs of confusion or stops working when they do not understand, before asking for help

#### Important to understand:

- Metacognitive awareness at this stage is fragile and externally prompted; children are not yet monitoring their own thinking independently
- The capacity to distinguish between knowing and not knowing (sometimes called feeling of knowing) is just beginning to develop
- Adults who narrate their own thinking while working aloud give children early access to what metacognition looks like

#### Look-fors:

- Learner can say whether a task felt easy or hard
- Learner responds to “How did you figure that out?” with some description of what they did
- Learner notices and signals when they do not understand, rather than guessing or stopping silently

### Grades 1–2 (Approx. Ages 6–8): Describing Strategies

#### Common expressions:

- Describes the steps or strategies they used to complete a task when asked
- Can say whether a strategy worked or did not work, with adult support to structure the reflection
- Names what helped them get through a challenge (“I sounded it out” / “I drew a picture”)

#### Important to understand:

- Learners can describe their process after the fact but are not yet consistently monitoring while working
- Strategy awareness is mostly limited to familiar, practiced tasks; novel demands often bypass strategy use entirely
- Adults who ask process questions routinely build the habit of noticing how thinking works, not just what the answer was

#### Look-fors:

- Learner describes what they did to complete a task, not only whether they got it right
- Learner can say whether a strategy helped or did not help, with prompting
- Learner is beginning to identify what kinds of support or conditions help them think well

### Grades 3–5 (Approx. Ages 8–11): Planning and Monitoring

#### Common expressions:

- Selects a strategy before starting a task and can explain the choice
- Notices confusion or error while working and makes an adjustment rather than continuing on the same path
- Reflects after a task on what worked and what they would do differently next time

**Important to understand:**

- Planning is emerging but inconsistent; learners may select a strategy in discussion and then abandon it under pressure when working independently
- In-the-moment monitoring is the hardest metacognitive skill to develop; it requires cognitive resources that are often consumed by the task itself
- Learners at this stage benefit significantly from structured pause points built into tasks that prompt monitoring explicitly

**Look-fors:**

- Learner describes their planned approach before beginning, not only after finishing
- Learner notices they are stuck or going in the wrong direction and tries something different
- Learner can say specifically what they would do differently, not just that they would “try harder”

**Grades 6–8 (Approx. Ages 11–14): Evaluating and Adjusting****Common expressions:**

- Evaluates whether their approach to a task was effective, not only whether their answer was correct
- Uses that evaluation to plan a different approach before starting the next task
- Sets specific, process-focused goals for improving how they think or learn

**Important to understand:**

- Increased academic complexity creates more opportunities for metacognitive failure; learners who rely on familiarity and habit rather than strategic planning struggle significantly as demands increase
- Adolescents may resist metacognitive reflection if it feels like an admission of difficulty; framing it as a learning tool rather than a diagnostic helps
- Peer learning contexts can support metacognition when learners are asked to explain their reasoning to others, not just share answers

**Look-fors:**

- Learner identifies not just what went wrong but where in their thinking process it went wrong
- Learner uses a prior reflection to make a specific change to their next approach
- Learner sets goals about how they will think or learn, not only what they will produce

**Grades 9–12 (Approx. Ages 14–18): Strategic and Cross-Domain Thinking****Common expressions:**

- Articulates how they think and learn across different types of tasks and subjects
- Monitors their thinking in real time during complex or unfamiliar tasks and adjusts without external prompting
- Transfers cognitive strategies intentionally from familiar to new contexts

**Important to understand:**

- High-stakes pressure (testing, grades, college applications) often causes learners to abandon strategic thinking and revert to familiar but less effective habits
- Metacognitive sophistication is uneven across domains; a learner may be a strong strategic thinker in one subject and unreflective in another
- Learners who have been taught to rely on teacher direction may underdevelop the independent planning and monitoring capacity needed for postsecondary and professional contexts

**Look-fors:**

- Learner can describe their cognitive approach to a task with specificity, not just say “I studied” or “I re-read it”
- Learner recognizes mid-task when their approach is not working and shifts strategy without waiting for a prompt
- Learner applies strategies learned in one subject or context to a new one, and can articulate the connection

**Postsecondary (Approx. Ages 18–22): Integrating and Modeling****Common expressions:**

- Manages their own learning across multiple complex domains with deliberate, self-directed strategy use
- Transfers cognitive strategies intentionally to novel or high-stakes problems across academic, professional, and personal contexts
- Makes their thinking visible to support others’ learning by explaining reasoning, modeling process, or giving metacognitive feedback

**Important to understand:**

- Postsecondary environments often remove the structured metacognitive scaffolds (check-ins, planning prompts, formative feedback) that supported development in K–12; learners who relied on those structures may not have internalized the habits
- Self-directed learning demands increase sharply; learners who lack planning and monitoring skills often attribute difficulty to ability rather than strategy, which compounds over time
- Teaching others is one of the strongest metacognitive experiences available; courses, internships, and leadership roles that require explaining thinking are high-value development opportunities

### Look-fors:

- Learner approaches new domains with deliberate strategy selection rather than relying on whatever worked before
- Learner identifies gaps in their thinking before they become failures, and seeks out the knowledge or support needed
- Learner can articulate their learning process in ways that are useful to others, not only to themselves

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What did you try first? Did it work?*
- *Was there a moment when you felt stuck or confused? What did you do?*
- *What helped you figure it out? What made it harder?*
- *What would you do differently if you did this again?*
- *What did this task teach you about how you learn?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What was your plan before you started, and how well did it hold up as you worked?*
- *At what point did you realize your approach wasn't working? What does that tell you about how you monitor your own thinking?*
- *How would you approach a similar task in a different subject or context? What would you carry over, and what would you change?*

## Designing Experiences That Support Metacognition

Experience	Why It Helps	Examples
Think-alouds and process modeling	Makes thinking visible; learners see that skilled learners monitor and adjust, not just produce answers	Educator narrates their own reasoning during a problem; learners take turns talking through their approach before and while working
Pre-task planning prompts	Builds the habit of selecting a strategy before starting, rather than defaulting to whatever feels familiar	“What is this task asking you to do? What approach will you use? Why?” before independent work begins
Mid-task monitoring check-ins	Develops in-the-moment awareness of whether a strategy is working, which is distinct from end-of-task reflection	Pause points during longer tasks: “Is what you’re doing working? Do you need to adjust?”
Post-task process reflection	Shifts attention from product to process; learners develop a vocabulary for how they think and learn	“What did you try first? What did you change and why? What would you do differently?” after completing work
Error analysis	Treats mistakes as information rather than failure; builds cognitive flexibility and growth orientation	Reviewing incorrect answers together to identify where thinking went wrong and what it reveals about approach
Goal-setting for learning process	Focuses improvement on how learners think and learn, not only what they produce	Learner-set goals tied to cognitive strategies (e.g., “I will check my work at each step” rather than “I will get an A”)

**Design principle:** *Metacognition cannot develop through reflection alone. Learners need explicit instruction in what planning, monitoring, and evaluating look like, followed by structured practice with feedback. The goal is to build habits that eventually become automatic, so that strategic thinking is the default, not an add-on.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Conflating metacognition with self-reporting	Learners can say the right words about their thinking without actually monitoring or adjusting; self-report is not evidence of metacognitive skill	Look for behavioral evidence: did the learner actually change their approach? Ask follow-up questions that require specificity

Pitfall	Why It's Problematic	Instead
Treating reflection as an add-on	When metacognitive prompts appear only after tasks are complete, learners do not develop the capacity to monitor in real time	Build planning and monitoring into the task itself, not only the debrief
Asking “what did you learn?” instead of “how did you learn it?”	Content-focused reflection misses metacognition entirely; learners describe outcomes, not processes	Shift the question to the process: “What strategy did you use? Did it work? How do you know?”
Assuming metacognition develops automatically with age	Without explicit support and practice, many learners never develop systematic planning and monitoring habits, even as adults	Teach metacognitive strategies directly; model them explicitly; build in structured practice across subjects and contexts
Focusing only on academic tasks	Metacognition applies across every domain where thinking and problem-solving occur; limiting it to academics narrows transfer	Prompt metacognitive reflection in collaborative, creative, and social contexts as well as academic ones

## A.4 Persistence

### Description

Persistence is the ability to sustain effort, commitment, and engagement through challenge, setbacks, frustration, or prolonged difficulty in order to achieve meaningful goals.

### Persistence Components:

- **Sustained effort:** continuing to work toward a goal when progress is slow or difficult
- **Recovery after setback:** returning to a task or goal after stopping, failing, or being disrupted
- **Adaptive adjustment:** changing approach when the current one is not working, while keeping the goal in view
- **Tolerance for frustration:** managing the emotional discomfort of difficulty without disengaging
- **Commitment over time:** maintaining engagement with longer-term or complex goals across multiple sessions or contexts

*Critical insight: Persistence is not the same as stubbornness or compliance. The most productive persistence involves knowing when to adjust strategy, seek help, or step back temporarily, as well as knowing when to push through. Learners who persist without adjusting may be working hard in the wrong direction. The goal is sustained, strategic engagement, not mere endurance.*

### How Persistence Develops Over Time

Across PK-16, persistence typically develops as learners move from

- brief engagement with support →
- persisting through short difficulty with encouragement →
- sustaining effort independently and recovering from setbacks →
- maintaining commitment through complex, long-term challenges while adapting approach

Early persistence depends heavily on adult support and encouragement. Over time, learners develop internal resources for sustaining effort, including strategy repertoires, tolerance for frustration, and a growing sense of their own capacity to work through difficulty. Development is shaped by prior experiences of success and failure, the degree to which effort has been recognized and valued, and the quality of the challenges available to learners.

### How Persistence Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Staying Engaged with Support

#### Common expressions:

- Stays engaged briefly with a challenging task when an adult is nearby and offering support

- Tries again after a mistake when an adult or peer encourages them to
- Returns to a stopped activity when supported by an adult who helps re-engage

**Important to understand:**

- Persistence at this stage is almost entirely dependent on adult co-regulation and encouragement; it is not yet an internal resource
- Young children’s tolerance for frustration is developmentally limited; what looks like low persistence is often appropriate developmental behavior
- The experience of trying again and succeeding, however small the task, is the foundation for building a sense of efficacy over time

**Look-fors:**

- Learner stays with a preferred activity past the first moment of difficulty when supported
- Learner tries again after a first attempt fails, with adult encouragement
- Learner can be re-engaged by a familiar adult after stopping

**Grades 1–2 (Approx. Ages 6–8): Persisting with Encouragement**

**Common expressions:**

- Persists through brief difficulty when reminded or encouraged by an adult
- Completes tasks that require sustained effort when guidance is available
- Recovers from minor setbacks (a wrong answer, a frustrated feeling) and resumes work

**Important to understand:**

- Independent persistence is beginning to develop but remains fragile, especially under social pressure or when mistakes are visible to peers
- Encouragement is most effective when it focuses on effort and strategy rather than ability or outcome
- Learners are beginning to form beliefs about whether they are “good at” things, which shapes willingness to persist; these early beliefs matter

**Look-fors:**

- Learner returns to a task after a moment of frustration with minimal redirection
- Learner completes work that requires effort across more than one sitting or attempt
- Learner is beginning to say things like “I’ll try again” without being told to

**Grades 3–5 (Approx. Ages 8–11): Persisting Independently**

**Common expressions:**

- Continues working despite frustration or slow progress, drawing on personal strategies or available support
- Applies consistent effort until a task is completed, without needing repeated redirection
- Pushes through difficulty without waiting for external encouragement

**Important to understand:**

- Persistence is increasingly self-sustaining but can collapse quickly under high-stakes pressure, social comparison, or perceived failure
- Learners who have experienced persistent failure in a domain may disengage as a self-protective strategy; this should not be read as low persistence as a trait
- The shift from extrinsic to intrinsic motivation is underway; tasks that feel meaningful to the learner are significantly easier to persist through

**Look-fors:**

- Learner keeps working on a difficult task without being redirected by an adult
- Learner finishes work that required real effort across an appropriate time frame
- Learner names what helped them keep going, or what made it hard

**Grades 6–8 (Approx. Ages 11–14): Sustaining and Adjusting**

**Common expressions:**

- Sustains effort across longer or more complex tasks, returning to them across multiple work sessions
- Maintains commitment despite obstacles or delays that interrupt progress
- Adjusts approach when the current strategy is not working, rather than giving up or continuing ineffectively

**Important to understand:**

- Identity stakes increase; learners may disengage from domains where they feel they cannot succeed without losing face
- Persistence is harder to sustain when feedback is public or when effort itself is seen as uncool; peer culture shapes persistence significantly at this stage
- Longer-term projects and multi-step tasks expose persistence capacity in ways that short tasks cannot; these are important development opportunities if well-supported

**Look-fors:**

- Learner returns to a complex task across multiple sessions without being required to
- Learner tries a different strategy when stuck, rather than stopping or repeating the same approach
- Learner can describe what helped them keep going in a challenging situation

**Grades 9–12 (Approx. Ages 14–18): Sustaining Long-Term Commitment****Common expressions:**

- Sustains effort across long-term or high-stakes goals through significant setbacks or failure
- Balances determination with flexibility, recognizing when a current approach needs to change while keeping the goal in view
- Draws on a personal repertoire of strategies, supports, and recovery practices to sustain engagement over time

**Important to understand:**

- Persistence in high-stakes contexts (academic performance, social identity, future plans) is qualitatively different from task-level persistence and requires more sustained emotional regulation
- Learners who have internalized fixed mindset beliefs about their abilities in a domain may require significant reframing before persistence-building strategies take effect
- The capacity to persist is shaped by whether effort has historically been seen and valued; learners in under-resourced or unsupportive environments may have well-founded reasons for their disengagement that go beyond individual skill

**Look-fors:**

- Learner pursues a goal through multiple rounds of difficulty or failure without abandoning it
- Learner adjusts strategy or approach based on what is not working, while maintaining commitment to the goal
- Learner can name what they do to recover motivation or energy after a setback

**Postsecondary (Approx. Ages 18–22): Resilient, Goal-Directed Engagement****Common expressions:**

- Maintains commitment to long-term goals through significant setbacks, ambiguity, or failure across multiple domains simultaneously
- Balances determination with strategic flexibility, knowing when to push harder and when to change course
- Supports others' persistence through modeling, encouragement, or helping them work through difficulty

**Important to understand:**

- Postsecondary and early career contexts introduce genuine high-stakes failure in ways that many learners have not previously encountered; persistence development at this stage is shaped by whether early failures are processed as information or identity threats
- The ability to persist is connected to self-efficacy beliefs built over years; learners who arrive with chronic patterns of disengagement need structured early success experiences, not just exhortations to try harder
- Persistence in collaborative contexts adds complexity: sustaining engagement when others are not pulling their weight, or when group dynamics are difficult, requires a different skill set than individual task persistence

**Look-fors:**

- Learner continues pursuing meaningful long-term goals through genuine adversity, adjusting approach as needed
- Learner draws on a developed repertoire of internal and external supports to recover from setbacks
- Learner can articulate what they have learned about their own persistence patterns and how they use that knowledge

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *Was there a moment when you wanted to stop? What kept you going?*
- *What did you do when it got really hard?*
- *Did you change your approach at any point? What made you try something different?*
- *What helped you get back on track after a setback?*
- *What does this experience tell you about what you are capable of?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What is the difference between persistence that is helping you and persistence that is getting in the way? How do you know the difference in the moment?*
- *What personal resources, strategies, or supports do you draw on when you are close to giving up? How did you develop those?*
- *How does what is at stake affect how you persist? What does that tell you about your relationship to difficulty and failure?*

## Designing Experiences That Support Persistence

Experience	Why It Helps	Examples
Appropriately challenging tasks	Persistence cannot develop without genuine difficulty; tasks that are too easy or too hard both undermine it	Tasks calibrated to be hard enough to require sustained effort but achievable with good strategy; Goldilocks difficulty, not learned helplessness
Normalizing struggle	Removes the stigma from difficulty; learners who believe struggle means failure disengage faster	Sharing examples of productive struggle; naming confusion as a sign of learning, not inability; educators modeling their own moments of sticking with hard things
Process recognition	Shifts praise from talent to effort and strategy, which sustains persistence more reliably than ability-focused feedback	“You kept trying even when it was frustrating”; “You changed your approach, and that made a difference”
Incremental goals with checkpoints	Breaks long or complex tasks into achievable steps so learners can experience progress, which sustains motivation	Project milestones; self-set sub-goals; visible progress tracking
Recovery after setback	Builds the specific capacity to re-engage after stopping, which is distinct from staying engaged throughout	Structured protocols for returning to abandoned work; reflection on what made it possible to try again
Autonomy and meaning	Persistence is much harder to sustain in tasks learners find meaningless; connection to purpose and choice increases willingness to push through difficulty	Learner choice in topic, format, or approach; explicit connection between a task and something the learner cares about

**Design principle:** *Persistence develops through productive struggle, not suffering. The goal is to calibrate challenge so that learners experience genuine difficulty and genuine success in close proximity. Too easy, and there is nothing to persist through. Too hard, and disengagement is a rational response. Getting the difficulty calibration right matters more than any particular strategy for building persistence.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Praising persistence regardless of strategy	Encourages learners to keep doing something that is not working; effort without adjustment is not the goal	Recognize persistence and strategy together: “You kept going and you tried a different approach”
Treating all quitting as failure	Some stopping is appropriate; knowing when to change strategy, ask for help, or step away temporarily is part of mature persistence, not its absence	Distinguish between giving up and strategic disengagement; help learners recognize the difference
Ignoring the role of environment	Persistence is harder in classrooms where mistakes are public, help-seeking is stigmatized, or the task feels irrelevant; framing it as a purely individual trait misses this	Examine whether the environment supports risk-taking and effort; persistence develops in psychologically safe contexts
Conflating persistence with compliance	Sitting quietly and staying on a task is not the same as genuine engagement through difficulty; compliance can mask disengagement	Look for evidence of actual effort and adjustment, not only on-task behavior
Assuming persistence is fixed	Treating some learners as naturally persistent and others as not undermines the skill-development framing and leads to differential expectations	Frame persistence explicitly as a learnable skill; hold consistent expectations while differentiating support

## A.5 Integrity

### Description

Integrity is the ability to act honestly and reliably in alignment with values and commitments, to take ownership of actions and outcomes, and to make ethical choices across contexts.

### Integrity Components:

- **Honesty:** telling the truth and representing oneself and one's actions accurately, even when it is difficult
- **Reliability:** following through on commitments and meeting expectations consistently, not only when convenient
- **Accountability:** taking ownership of one's actions and their consequences, including mistakes, without deflecting or minimizing
- **Ethical reasoning:** weighing values, consequences, and competing pressures when making decisions
- **Values alignment:** acting in ways that reflect what one actually believes is right, including when unobserved or under pressure

*Critical insight: Integrity cannot be taught through rules alone. Rules describe what to do when someone is watching; integrity describes what a person does when no one is. Development requires opportunities to practice decision-making under real, low-stakes pressure, to see adults model accountability authentically, and to experience that honesty is safe and that mistakes can be repaired.*

### How Integrity Develops Over Time

Across PK-16, integrity typically develops as learners move from

- demonstrating honesty in familiar, supported situations →
- meeting basic commitments with guidance and acknowledging mistakes when asked →
- following through reliably and taking responsibility without prompting →
- making values-based decisions under competing pressures and taking responsibility for shared outcomes

Early integrity is scaffolded and situational. Over time, learners develop the internal referents, ethical reasoning capacity, and habit of follow-through that make integrity reliable across contexts. Development is shaped by whether honesty has been safe in the learner's experience, whether accountability has been modeled by trusted adults, and whether mistakes have led to repair or to shame.

### How Integrity Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Honesty in Familiar Situations

#### Common expressions:

- Demonstrates honesty in familiar, everyday situations, especially when an adult creates a safe context for it
- Follows shared expectations with adult support and reminders
- Takes responsibility for simple actions when prompted (“Who spilled this?”)

#### Important to understand:

- Young children are still developing the capacity for perspective-taking, which is foundational to understanding why honesty and reliability matter to others
- Honesty at this stage is often situational; children may be honest in one context and not in another, based on perceived consequence or safety
- The goal is not perfection but establishing that honesty is valued and that mistakes are survivable, not catastrophic

#### Look-fors:

- Learner is generally honest in familiar, supported contexts
- Learner follows shared expectations when reminded
- Learner acknowledges simple actions (breaking something, taking something) when asked directly by a trusted adult

### Grades 1–2 (Approx. Ages 6–8): Keeping Commitments with Guidance

#### Common expressions:

- Completes assigned roles or tasks and keeps basic commitments with guidance and check-ins

- Acknowledges mistakes when asked and attempts to make it right in some way
- Respects shared materials, norms, and agreements in familiar group settings

**Important to understand:**

- Understanding of why commitments matter to others is growing but incomplete; learners may not yet fully grasp the impact of unreliability
- Social dynamics begin to introduce pressure around honesty; admitting mistakes to peers is harder than admitting them to trusted adults
- Repair and restitution are more developmentally accessible than abstract concepts of honesty; focusing on “what can you do to make it right?” is more effective than asking for explanation of motives

**Look-fors:**

- Learner completes their part of a group or shared task with adult follow-up
- Learner acknowledges a mistake and makes a simple attempt to repair it
- Learner respects shared agreements in familiar settings

**Grades 3–5 (Approx. Ages 8–11): Reliable Follow-Through**

**Common expressions:**

- Meets expectations reliably without reminders across familiar situations
- Takes responsibility for actions and their consequences without being prompted
- Follows through on commitments even when it requires effort or inconvenience

**Important to understand:**

- Peer pressure begins to create real tension with integrity; honesty in front of peers carries social risk that it may not with adults
- Learners are developing a more stable internal sense of who they are and what they believe is right; connecting integrity to identity (“This is the kind of person I am”) is increasingly accessible
- Learners who have experienced consistent, fair follow-through from adults in their lives are more likely to internalize reliability; modeling matters enormously

**Look-fors:**

- Learner meets commitments consistently across familiar contexts, without needing reminders
- Learner names their own role in a problem without being asked
- Learner follows through on something that requires effort or is inconvenient

**Grades 6–8 (Approx. Ages 11–14): Navigating Competing Pressures**

**Common expressions:**

- Makes decisions by weighing values, peer expectations, and likely consequences
- Acts with honesty and reliability in contexts where social pressure or convenience makes it easier not to
- Acknowledges their role when something goes wrong and takes some form of corrective action

**Important to understand:**

- Social identity and peer belonging are powerful forces at this stage; integrity that conflicts with group loyalty or peer approval is genuinely hard to sustain
- Adolescents are developing the capacity for more sophisticated ethical reasoning, including the ability to consider competing values and longer-term consequences
- Performative integrity (appearing honest or responsible to adults while behaving differently with peers) is common; it is not necessarily hypocrisy but a developmental feature of navigating multiple social contexts

**Look-fors:**

- Learner acts reliably in contexts where they could easily avoid it
- Learner names their own responsibility in a situation involving others
- Learner makes a choice aligned with stated values even when it is socially costly

**Grades 9–12 (Approx. Ages 14–18): Values-Based Decision-Making**

**Common expressions:**

- Acts consistently with stated values in complex or ambiguous situations
- Takes responsibility for shared outcomes, not only individual actions
- Navigates situations where honesty, loyalty, and competing obligations are in tension, and can reflect on the reasoning behind their choices

**Important to understand:**

- High-stakes contexts (grades, college applications, social reputation) create intense pressure on integrity; this is when its real strength or fragility becomes visible
- Learners are developing the capacity to examine how systemic pressures, power dynamics, and cultural norms shape what integrity looks like in practice, including for whom it is costly

- Integrity under pressure is different from integrity in safe or low-stakes contexts; supporting learners in anticipating and preparing for high-pressure moments is more effective than relying on character alone

**Look-fors:**

- Learner acts in alignment with their stated values in a situation where it is difficult or costly to do so
- Learner takes responsibility for outcomes that involved their actions, even when others share responsibility
- Learner can articulate the reasoning behind an ethical choice, including the competing considerations they weighed

**Postsecondary (Approx. Ages 18–22): Consistent and Systemic Integrity**

**Common expressions:**

- Acts consistently with stated values across professional, academic, and personal contexts, including in complex or ethically ambiguous situations
- Takes responsibility for shared outcomes and holds others to collective commitments in ways that are constructive, not punitive
- Supports others in navigating ethical complexity by modeling integrity rather than prescribing it

**Important to understand:**

- Professional and institutional contexts introduce new integrity demands (academic honesty, professional ethics, power dynamics) that require applying values in unfamiliar territory
- Young adults are increasingly positioned to influence institutional norms and practices; integrity at this stage has broader implications than in earlier developmental periods
- The capacity for integrity continues to develop through experience; encountering genuine ethical dilemmas with real stakes, and navigating them thoughtfully, is the primary driver of growth

**Look-fors:**

- Learner acts with consistent honesty and reliability across contexts where norms and expectations differ
- Learner takes ownership of their contribution to both successes and failures in collaborative contexts
- Learner can model or explain integrity reasoning to others in ways that are accessible and non-prescriptive

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *Did you do what you said you would do? If not, what happened?*
- *Was there a moment when you were tempted to take the easier or less honest path? What did you do?*
- *If something went wrong, what was your part in it? What did you do about it?*
- *What does it mean to you to be someone others can count on?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *How did you navigate a situation where doing the right thing conflicted with what was easier, expected, or socially safe? What shaped your choice?*
- *What pressures made it harder to act with integrity in this situation? How did you recognize and respond to them?*
- *What is the relationship between your values and your actions? Where do you notice gaps, and what do you do with those?*

**Designing Experiences That Support Integrity**

Experience	Why It Helps	Examples
Explicit discussion of ethical dilemmas	Builds the vocabulary and reasoning capacity to navigate competing values and pressures before they arise in high-stakes situations	Case studies; hypothetical scenarios that mirror real situations learners face; discussion of how values interact with social pressure
Responsibility with real consequence	Integrity develops through contexts where follow-through (or the lack of it) has genuine impact on others	Group projects where individual reliability visibly affects the team; classroom roles with real expectations; community commitments
Modeled ownership of mistakes	Seeing trusted adults take responsibility without deflecting normalizes accountability and lowers the perceived cost of honesty	Educators and mentors who name their own mistakes, describe what they did to address them, and reflect on what they learned

Experience	Why It Helps	Examples
Structured commitments	Gives learners practice making and keeping explicit commitments, which builds the habit of reliability	Learner-made agreements with classmates; project contracts; documented goals with follow-up
Restorative practices	Focuses on repairing harm and restoring relationship rather than punishment, which supports genuine accountability without shame	Restorative conversations; structured opportunities to make things right after a mistake; restitution practices
Connecting choices to values	Helps learners develop an internal referent for decision-making rather than relying entirely on external rule	Discussions that ask “What matters to you, and did this choice reflect that?”; values clarification activities; identity-linked goal work

**Design principle:** *Integrity develops in contexts where honesty is safe, mistakes can be repaired, and follow-through has real meaning to others. Creating those conditions matters more than explicit instruction about ethics. Learners learn integrity by inhabiting communities that practice it, not by hearing about it.*

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Treating integrity as rule-following	Rules are external; integrity is internal. Learners who comply when watched but not when unobserved have learned compliance, not integrity	Frame integrity as alignment between values and action, not adherence to external expectations; ask “What do you believe is right?” not just “What is allowed?”
Shame-based accountability	Public shaming or humiliation in response to dishonesty or failure to follow through damages trust, increases defensiveness, and undermines the honesty required for genuine integrity	Respond to integrity failures as learning opportunities; focus on repair and understanding, not punishment
Holding integrity to adult standards	Developmental capacity for perspective-taking, impulse control, and long-term thinking all affect integrity; expecting adult-level accountability from young children sets them up to fail	Match expectations to developmental stage; scaffold gradually; recognize that honesty and reliability grow with practice and support
Equating integrity with disclosure	Requiring learners to share private information or confess mistakes publicly conflates honesty with vulnerability, which can undermine both	Create conditions where honesty is safe, not coerced; distinguish between being honest and being exposed
Ignoring structural and social pressures	Learners face real social costs for honesty in some contexts; integrity is harder to sustain under peer pressure, power imbalance, or fear of consequence	Acknowledge explicitly that doing the right thing is not always easy or without cost; support learners in naming the pressures they face

## A.6 Learning Orientation

### Description

Learning orientation is the ability to approach learning with openness, effort, and a belief in one’s capacity to grow, embracing challenge, feedback, and mistakes as essential parts of the learning process.

### Learning Orientation Components:

- **Growth belief:** believing that ability and understanding can develop through effort and practice
- **Challenge-seeking:** choosing or welcoming tasks that stretch current capacity rather than avoiding them
- **Feedback receptivity:** receiving and using feedback to improve, rather than defending against it
- **Mistake reframing:** treating errors as information and opportunities for learning rather than as evidence of failure
- **Sustained curiosity:** maintaining interest and engagement across learning experiences, including those that are difficult or unfamiliar

*Critical insight: Learning orientation is not a personality trait. It is a set of learnable beliefs and habits that develop in relationship with the learning environment. Classrooms that reward performance over process, penalize mistakes, or praise innate ability actively undermine learning orientation, regardless of what is said explicitly about growth mindset. The conditions learners experience matter more than the messages they hear.*

### **How Learning Orientation Develops Over Time**

Across PK-16, learning orientation typically develops as learners move from

- trying new things with encouragement and showing early openness to learning →
- accepting feedback with support and persisting briefly through challenge →
- using feedback to improve, reframing mistakes, and choosing strategies that support their growth →
- seeking challenge deliberately, sustaining curiosity over time, and cultivating learning-oriented beliefs in others.

Early learning orientation depends on adult modeling and a safe environment. Over time, learners develop more stable internal beliefs about their capacity to grow and a more sophisticated ability to use challenge and feedback productively. Development is shaped by cumulative experience of success and failure, the quality of feedback received, and whether effort and growth have been genuinely valued in the learner's experience.

### **How Learning Orientation Shows Up by Grade Band**

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### **PK-K (Approx. Ages 4–6): Openness to New Learning**

#### **Common expressions:**

- Tries new or unfamiliar tasks with adult encouragement and a supportive environment
- Shows interest and curiosity in learning something new when it feels safe to do so
- Demonstrates early growth beliefs: accepts that effort can lead to improvement when this is modeled and named by adults

#### **Important to understand:**

- Learning orientation at this stage is almost entirely shaped by adult modeling and the emotional safety of the environment
- Children's beliefs about their own capacity are just forming; early experiences of being supported through difficulty are foundational
- Curiosity is natural at this age; the task is to protect and build on it, not assume it will persist without care

#### **Look-fors:**

- Learner engages with an unfamiliar task when supported and encouraged
- Learner shows interest in trying something new, even if hesitant at first
- Learner accepts "try again" framing from a trusted adult without significant distress

### **Grades 1–2 (Approx. Ages 6–8): Accepting Feedback and Trying Again**

#### **Common expressions:**

- Accepts feedback or correction with adult guidance, without shutting down or becoming defensive
- Persists briefly when tasks become challenging, with encouragement
- Begins to understand that practice and trying different strategies can lead to improvement

#### **Important to understand:**

- Fixed and growth mindset beliefs are forming rapidly at this stage; the feedback learners receive and what adults praise shapes these beliefs significantly
- Defensiveness in response to feedback is developmentally normal; the goal is gradual reduction, not immediate openness
- Comparisons with peers start to affect learning orientation; classrooms that minimize social comparison protect developing growth beliefs

#### **Look-fors:**

- Learner accepts correction without significant emotional shutdown
- Learner is willing to try again after a first attempt does not work
- Learner is beginning to connect effort and practice to improvement

### Grades 3–5 (Approx. Ages 8–11): Using Feedback and Reframing Mistakes

#### Common expressions:

- Uses feedback to make specific improvements to their work, not just to receive a grade
- Reframes mistakes as useful information rather than evidence of failure, at least in familiar or lower-stakes contexts
- Chooses strategies that support their own growth and understanding, not only strategies that feel comfortable

#### Important to understand:

- Academic identity is increasingly tied to performance in specific subjects; learners who develop fixed beliefs about what they are “good at” may disengage from domains where they have struggled
- The shift from trying again (persistence) to using feedback strategically (learning orientation) is a significant developmental step that requires explicit instruction and modeling
- Mistakes in social contexts (in front of peers, in high-visibility moments) are significantly harder to reframe than mistakes in private or low-stakes work

#### Look-fors:

- Learner makes a specific change to their work based on feedback received
- Learner describes a mistake in terms of what it reveals about what to do next, not only what went wrong
- Learner selects a strategy because it helps them learn, not only because it is familiar

### Grades 6–8 (Approx. Ages 11–14): Seeking Feedback and Sustaining Engagement

#### Common expressions:

- Seeks feedback intentionally to improve performance, rather than waiting for it to be given
- Sustains engagement through longer or more complex challenges, including those that involve confusion or uncertainty
- Seeks out tasks that will stretch their skills and knowledge, rather than only tasks where success is assured

#### Important to understand:

- Social pressure to appear competent can suppress learning orientation; adolescents may prefer to perform confidence rather than risk visible confusion or effort
- Domains where learners have experienced persistent failure often require significant reframing before learning orientation can be rebuilt; history matters
- Peer modeling is powerful at this stage; classrooms where learning orientation is visible and socially acceptable among peers support its development far more than those where it is not

#### Look-fors:

- Learner asks for feedback before being told to, or asks follow-up questions about how to improve
- Learner engages with a difficult or unfamiliar task without immediately disengaging or asking for the answer
- Learner names a challenging task or experience as something they found valuable, even if it was hard

### Grades 9–12 (Approx. Ages 14–18): Deliberate Challenge and High-Stakes Learning

#### Common expressions:

- Maintains a learning orientation in high-stakes or uncertain situations where the cost of failure feels real
- Uses challenge deliberately to deepen expertise, choosing harder paths when growth is the goal
- Processes high-stakes feedback (on performance, college applications, significant work) as information rather than verdict

#### Important to understand:

- High-stakes environments create strong pressure to perform rather than learn; maintaining learning orientation when grades and applications are on the line is a qualitatively different challenge than in earlier years
- Learners may hold learning orientation in some domains and not others based on accumulated identity and experience; this is normal and should not be treated as a global trait
- Adults who model learning orientation in high-stakes professional contexts (rather than only encouraging it in low-stakes academic ones) provide the most relevant modeling at this stage

#### Look-fors:

- Learner engages with a high-stakes challenge without entirely shifting into performance mode
- Learner seeks out harder options or more demanding feedback when growth is genuinely the goal
- Learner reflects on what they learned from a high-stakes experience, including a difficult or failed one

### Postsecondary (Approx. Ages 18–22): Sustained Curiosity and Cultivation

#### Common expressions:

- Maintains a learning orientation in genuinely uncertain, high-stakes, or complex professional and personal contexts
- Uses challenge and difficulty deliberately to deepen expertise across self-directed learning
- Cultivates learning-oriented beliefs and habits in others through modeling, mentorship, and the kind of feedback they offer

### Important to understand:

- Postsecondary and early career contexts often emphasize performance and output over learning; maintaining a genuine learning orientation in these environments requires intentional effort and supportive structures
- Imposter syndrome and identity-related self-doubt are common and can undermine learning orientation even in capable, experienced learners; naming and normalizing these experiences matters
- The capacity to model and cultivate learning orientation in others is both a marker of development and a mechanism for sustaining it; teaching others is among the most powerful learning orientation practices available

### Look-fors:

- Learner approaches genuinely unfamiliar or high-stakes domains with curiosity rather than defensiveness
- Learner actively seeks out challenges and feedback that are likely to accelerate their growth
- Learner supports others' learning orientation through the way they model their own process and give feedback

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What did you try that was new or challenging? How did it feel?*
- *Was there a moment when you wanted to give up or avoid something hard? What happened?*
- *What did a mistake or confusion teach you?*
- *How did you use feedback? Did it help? What made it easier or harder to use?*
- *What do you know now that you did not know before?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *Where do you notice the difference between wanting to perform well and wanting to actually learn? How do those orientations feel different, and what pulls you in each direction?*
- *What is your relationship to feedback in this domain? What makes it easier or harder to receive and use honestly?*
- *What conditions support your best learning? How do you create or seek out those conditions when they are not already present?*

## Designing Experiences That Support Learning Orientation

Experience	Why It Helps	Examples
Normalized challenge and confusion	Establishes that difficulty is expected, not a sign of failure; reduces the threat response that shuts down learning orientation	Naming confusion as part of learning (“This is supposed to be hard”); sharing examples of expert learners struggling; celebrating effort alongside outcome
Feedback that is specific, actionable, and process-focused	Teaches learners what to do with feedback rather than just receiving it; builds the connection between feedback and growth	“Here is specifically what you could change and why it would help”; feedback conversations rather than one-way correction; learner response to feedback as part of the task
Error analysis and mistake revisiting	Shifts the relationship with mistakes from something to hide to something to learn from; builds cognitive and emotional flexibility	Reviewing errors together to identify what they reveal about thinking; portfolios that include revised work with reflection on the change
Choice of challenge level	Gives learners agency in calibrating their own challenge, which builds ownership of learning and intrinsic motivation	Tiered task options where learners choose the difficulty level; explicit permission to select a harder version
Long-horizon projects	Builds learning orientation in contexts where results unfold over time and require sustained curiosity and adjustment	Multi-week inquiry projects; independent research; sustained creative work with regular feedback and revision cycles
Reflection on growth over time	Makes learning visible and gives learners evidence of their own development, which strengthens belief in capacity to grow	Portfolio comparisons across time; before-and-after reflections; explicit conversations about how the learner has changed

**Design principle:** *Learning orientation is built or undermined by accumulated experience, not by any single moment. The most powerful thing educators can do is consistently model their own learning orientation, make the learning process (not just the product) visible and valued, and create environments where effort and growth are recognized as more important than performance.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Praising intelligence rather than effort or strategy	Ability-focused praise creates fixed mindset beliefs; learners praised for being smart avoid challenge to protect their reputation	Praise effort, strategy, and process: "You tried a different approach when the first one didn't work"
Making growth mindset a slogan rather than a practice	Telling learners to "believe in themselves" or posting growth mindset posters without structural change has no effect; the environment must actually reward effort and growth, not only performance	Change what is graded, recognized, and valued in the classroom; learning orientation follows from structural conditions, not messaging
Conflating learning orientation with positivity	Learning orientation does not require enthusiasm; it requires willingness to engage with challenge. Forcing positive affect undermines the authenticity required for genuine growth orientation	Accept that learning is sometimes frustrating, uncomfortable, or tedious; the goal is continued engagement, not cheerfulness
Treating feedback as delivery rather than dialogue	Feedback that is given but not processed does not support learning orientation; learners need opportunity to respond, question, and apply feedback to develop the skill of using it	Build in time for learners to respond to feedback and make changes before a task is considered complete
Ignoring the role of belonging and safety	Learning orientation is hardest to sustain in environments where making mistakes is socially costly; psychological safety is a prerequisite for genuine risk-taking and openness to feedback	Build the conditions for learning orientation by prioritizing belonging, safety, and trust; these are not soft prerequisites but essential structural conditions

## Cluster B: Working With Others

This cluster addresses the skills through which learners engage, understand, and collaborate with other people. The six skills in this cluster are distinct but deeply interrelated: listening creates the conditions for communication; perspective-taking makes communication and collaboration more effective; collaboration and conflict resolution both depend on communication, perspective-taking, and regulation; and positive influence draws on all of the above. Together, these skills form the interpersonal and collective intelligence that enables learners to work effectively across differences, in teams, and in communities.

### Skills in this cluster:

- B.1 Active Listening
- B.2 Communication
- B.3 Perspective-Taking
- B.4 Collaboration
- B.5 Conflict Resolution
- B.6 Positive Influence

### B.1 Active Listening

#### Description

Active listening is the ability to attend to, interpret, and respond to others' verbal and nonverbal messages in ways that demonstrate understanding, engagement, and respect.

## Active Listening Components:

- **Attending:** directing full focus to the speaker, including body orientation and management of internal distraction
- **Interpreting:** making sense of both the content and the intent of what is said, including what may be implied or left unsaid
- **Acknowledging:** signaling to the speaker that their message has been received and understood
- **Paraphrasing:** restating the speaker's message in one's own words to verify understanding
- **Responding:** replying in a way that addresses both what was said and what was meant, including asking clarifying or follow-up questions

*Critical insight: Active listening is not a natural default. Most people listen to respond rather than to understand. The deeper capacities, including attending to intent, noticing what is left unsaid, and listening under emotional pressure, require explicit instruction and structured practice. Cultural norms also shape what listening looks and feels like; what counts as attentive, respectful listening varies across communities and should not be reduced to a single set of behavioral expectations.*

## How Active Listening Develops Over Time

Across PK-16, active listening typically develops as learners move from

- orienting toward a speaker and showing basic reception →
- maintaining attention and responding relevantly →
- paraphrasing, questioning, and checking understanding →
- listening for intent, noticing what is implied, and sustaining attention in high-stakes or emotionally complex exchanges.

Early listening is largely physical and externally supported. Over time, learners develop the interpretive and responsive dimensions that make listening a genuine communicative act. Development is shaped by the quality of listening modeled by adults, the conversational structures available in learning environments, and whether listening is treated as a skill to develop or an expectation to comply with.

## How Active Listening Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

## PK-K (Approx. Ages 4–6): Orienting and Receiving

### Common expressions:

- Turns toward the speaker and holds attention for short, engaging exchanges
- Shows they received a message through simple responses: nodding, repeating a word, following a direction
- Responds with a brief reply or gesture when asked directly about what was said

### Important to understand:

- Listening capacity at this stage is short and heavily dependent on adult engagement and the interest level of the content
- Physical orientation (e.g., facing the speaker, making eye contact in contexts where that is natural) is the most observable early indicator, but is not equivalent to comprehension
- Adults who model attentive listening explicitly, including naming what they are doing, give children early access to what the skill looks like

### Look-fors:

- Learner faces the speaker and holds attention briefly during direct, engaging exchanges
- Learner responds in a way that shows they received the message (follows a direction, answers a simple question about what was said)
- Learner is beginning to wait for a speaker to finish before responding

## Grades 1–2 (Approx. Ages 6–8): Sustaining Attention

### Common expressions:

- Maintains attention through a short back-and-forth exchange without adult reminders

- Shows engagement through observable signals (facing the speaker, nodding, brief verbal acknowledgment) during conversation
- Responds in a way that connects to what was said, rather than changing the subject or responding to something unrelated

**Important to understand:**

- Attention span is growing but remains limited, especially in group or whole-class settings where the learner is not the speaker
- Peer interactions introduce new listening demands; listening to a peer is often harder than listening to an adult whose authority structures attention
- The habit of checking whether you understood before responding is beginning to form; it needs explicit modeling and reinforcement

**Look-fors:**

- Learner sustains attention through a short exchange without visible distraction
- Learner’s response connects to what the speaker said
- Learner is beginning to ask “what did you say?” or “can you say that again?” rather than responding to an incorrect interpretation

**Grades 3–5 (Approx. Ages 8–11): Paraphrasing and Questioning**

**Common expressions:**

- Listens through a speaker’s full message without interrupting, then restates key points in their own words
- Asks a clarifying question when meaning is unclear, rather than guessing or moving on
- Can summarize what was said and offer a sense of why it mattered or what the speaker seemed to want

**Important to understand:**

- Paraphrasing is difficult because it requires holding content in working memory while also interpreting and preparing to speak; learners need scaffolded practice
- The impulse to respond to one’s own interpretation rather than the speaker’s actual message is strong at this stage; structured protocols that require restatement help counteract this
- Cultural and family communication patterns shape how learners listen and respond; honoring diverse norms while building shared classroom practices requires care

**Look-fors:**

- Learner can restate what a speaker said in their own words, without prompting
- Learner asks a clarifying question rather than responding to an assumed meaning
- Learner’s summary captures the key point, not just the last thing said

**Grades 6–8 (Approx. Ages 11–14): Listening for Intent**

**Common expressions:**

- Asks follow-up questions that extend understanding beyond the stated content
- Responds in a way that addresses not just what was said but what the speaker seemed to mean or need
- Begins to identify what might be implied, felt, or left unsaid in a message

**Important to understand:**

- Adolescent social dynamics introduce new listening complexity; learners are attending simultaneously to content, social risk, and their own emotional response, all of which compete with genuine listening
- Listening in group settings is harder than listening in one-on-one exchanges; group discussion protocols that structure turn-taking and paraphrase support development
- The ability to hear someone whose viewpoint is very different from one’s own, without defensiveness or dismissal, is beginning to develop and needs direct support

**Look-fors:**

- Learner’s follow-up question shows they understood more than the surface content
- Learner responds to the speaker’s concern or intent, not only their words
- Learner notices and names when something seems to have been left unsaid

**Grades 9–12 (Approx. Ages 14–18): Listening Under Pressure**

**Common expressions:**

- Sustains attentive listening during conversations that are emotionally charged, contentious, or high-stakes
- Responds in ways that show they have understood the speaker’s perspective, even when disagreeing

- Identifies misalignment or misunderstanding and takes steps to address it rather than moving past it

### Important to understand:

- High emotional stakes make listening much harder; the capacity to stay genuinely attentive when one is triggered, anxious, or in disagreement is a distinct skill that requires practice in low-stakes contexts first
- Learners at this stage are capable of sophisticated interpretive listening but may not deploy it consistently, especially in peer contexts where social dynamics compete with attention
- Listening across difference (cultural, ideological, experiential) requires both skill and genuine commitment; assuming one already understands is a significant barrier

### Look-fors:

- Learner demonstrates comprehension of a perspective they disagree with before responding to it
- Learner notices and names a breakdown in understanding and takes steps to repair it
- Learner’s listening behavior shifts meaningfully in high-stakes versus low-stakes conversations, toward greater care and attention

## Postsecondary (Approx. Ages 18–22): Listening as Leadership

### Common expressions:

- Sustains attentive listening in high-stakes, emotionally complex, or adversarial situations
- Uses listening to surface misalignment, restore trust, or move a conversation toward shared understanding
- Actively creates space for quieter voices in group settings and reinforces listening norms through their own behavior

### Important to understand:

- Postsecondary and professional contexts introduce listening demands that are qualitatively different from academic ones: high stakes, power differentials, genuine disagreement, and complex emotional content all challenge even well-developed listening capacity
- Listening as a leadership behavior, using attention and acknowledgment to draw out others and build trust, is a distinct application that requires both skill and intentionality
- Even experienced listeners have gaps; the most important development at this stage is identifying one’s own listening blind spots and developing practices to address them

### Look-fors:

- Learner demonstrates high-quality listening even in conversations that are tense, complex, or personally challenging
- Learner uses listening to draw out others, surface unstated concerns, or shift a group toward more productive exchange
- Learner can name the conditions under which their listening degrades and what they do to counteract that

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What did you notice about how you listened during that conversation?*
- *Did you understand what the other person was really trying to say? How do you know?*
- *Was there a moment when it was hard to stay focused or keep listening? What happened?*
- *Did you check whether you understood correctly before responding? What did that look like?*
- *What would you do differently to listen more carefully next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *When did you find yourself listening to respond rather than listening to understand? What was driving that?*
- *What did you notice about what the speaker left unsaid or implied? How did that shape your understanding?*
- *How does your listening change when the topic is emotionally charged, when you disagree, or when the speaker is very different from you?*

## Designing Experiences That Support Active Listening

Experience	Why It Helps	Examples
Structured listening tasks	Gives learners a clear purpose for listening, which increases attention and engagement	Listen for a specific piece of information; retell what a peer said before responding; take notes while someone speaks

Experience	Why It Helps	Examples
Paraphrasing practice	Builds the habit of checking understanding before responding, which is the core of active listening	“Before you share your idea, say back what you heard in one sentence”; partner shares, listener restates, speaker confirms
Listening for intent, not only content	Develops the deeper capacity to understand what someone means, not just what they said	Discussions that ask “What does the speaker seem to want or need?” or “What is unsaid here?”
Turn-taking protocols	Creates the conditions for listening by removing competition for airtime and slowing down exchanges	Talking chips; structured academic controversy; timed partner sharing with a non-interruption norm
Feedback on listening behavior	Makes listening visible so learners can observe and improve it	Peer or self-assessment on observable listening indicators; video review of group discussions; specific feedback from educator
High-stakes listening contexts	Develops listening capacity in emotionally charged or complex situations, not only low-stakes ones	Mediated conversations about genuine disagreements; listening to unfamiliar or challenging perspectives; cross-cultural exchanges

**Design principle:** *Listening cannot develop without structured practice. Most classroom environments reward speaking, not listening; learners who develop listening skills do so because explicit structures, such as required paraphrase, listening roles, and feedback on listening behavior, make it worth attending to. Embedding listening practice into existing discussion routines is more effective than treating it as a separate topic.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Eye contact as the primary indicator	Eye contact norms vary significantly across cultures and neurodivergent learners; treating it as the marker of listening excludes and miscalculates many learners	Use a range of observable indicators (relevant response, paraphrase, follow-up question) that do not privilege one cultural norm
Confusing quiet with listening	Silence is not listening; a learner can be physically still and entirely disengaged, or visibly active and deeply attending	Look for evidence of comprehension and engagement, not compliance with surface behavior expectations
Listening as passive receiving	Framing listening as “not talking” misses its active, interpretive nature; learners who think listening is waiting to speak do not develop the deeper capacities	Name listening explicitly as an active skill: attending, interpreting, responding, and checking understanding
Skipping paraphrase in favor of response	Moving directly from hearing to responding without checking understanding is the most common breakdown in communication; learners who skip paraphrase often respond to what they assumed was said	Build paraphrase into discussion protocols as a required step, not an optional courtesy
Only practicing listening in calm contexts	Active listening is most difficult under emotional pressure, disagreement, or complexity; limiting practice to low-stakes contexts does not build the capacity that matters most	Include structured listening practice in contexts that involve real disagreement, difference, or emotional weight

## B.2 Communication

### Description

Communication is the ability to express ideas, information, and needs clearly and appropriately for the audience, purpose, and context using verbal, written, and nonverbal forms.

### Communication Components:

- **Clarity:** organizing and expressing ideas in ways that are easy for the intended audience to understand
- **Audience awareness:** adjusting content, tone, vocabulary, and format to fit who is receiving the message and why
- **Purposefulness:** communicating with a clear intent and checking that the message achieves that intent
- **Responsiveness:** monitoring how a message is being received and adjusting when communication breaks down
- **Multimodal range:** communicating effectively across verbal, written, and nonverbal forms depending on context and purpose

*Critical insight: Communication is always relational and contextual. There is no single correct way to communicate; effectiveness depends on audience, purpose, relationship, and cultural context. Developing communication skills means expanding range and flexibility, not replacing learners' home communication styles with a dominant standard. Educators who conflate effective communication with a particular dialect, register, or cultural style narrow the skill and harm learners in the process.*

### How Communication Develops Over Time

Across PK-16, communication typically develops as learners move from

- expressing basic needs and ideas with support →
- communicating in short, organized messages with growing clarity →
- communicating independently and adjusting when breakdowns occur →
- adapting to diverse audiences and contexts, anticipating how messages will be received, and communicating complex or sensitive content with precision.

Early communication is supported and often incomplete; the effort to be understood matters more than the product. Over time, learners develop the capacity to shape their messages intentionally for different audiences and purposes, and to adjust in real time when communication is not landing as intended. Development is shaped by the richness of communicative experience, the quality of feedback received, and whether diverse communication styles have been honored or corrected.

### How Communication Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK-K (Approx. Ages 4–6): Expressing Needs and Ideas

#### Common expressions:

- Expresses needs, wants, or ideas using words, gestures, drawings, or a combination
- Makes genuine attempts to be understood, even when messages are incomplete or unclear
- Relies on adult prompting, modeling, or clarifying questions to convey meaning more fully

#### Important to understand:

- Communication at this stage is highly variable across language development, home language, and individual temperament; the goal is the intent to communicate, not correctness
- Nonverbal communication (gesture, facial expression, drawing) is as developmentally significant as verbal at this stage and should be recognized as communication
- Adults who expand on children's messages ("You want the red one? Here it is") model communication and support language development simultaneously

#### Look-fors:

- Learner attempts to communicate a need, want, or idea in some form

- Learner responds to adult clarifying questions to help make their message clearer
- Learner is beginning to adjust their communication when they are not understood (repeating, gesturing, showing)

### Grades 1–2 (Approx. Ages 6–8): Organized Short Messages

#### Common expressions:

- Communicates ideas in short, organized messages that have a recognizable beginning and point
- Adjusts volume, tone, or format when an adult prompts them to (speaks more quietly, writes in sentences)
- Clarifies or adds to their message when a listener signals confusion or asks a follow-up question

#### Important to understand:

- Organization of thought is developing; learners can communicate ideas but may not yet sequence or structure them effectively without support
- The gap between what a learner understands and what they can express is often large at this stage; comprehension exceeds production
- Writing is typically less developed than speaking; this is normal and should not be treated as a communication deficit

#### Look-fors:

- Learner communicates a simple idea in a way that a listener can follow
- Learner adjusts their communication when prompted (speaks more clearly, adds detail when asked)
- Learner attempts to clarify when a listener signals they did not understand

### Grades 3–5 (Approx. Ages 8–11): Clear and Independent Communication

#### Common expressions:

- Communicates ideas clearly and independently in familiar settings, without relying on adult prompting
- Chooses words, tone, or format that fit the task and context, without being told to
- Checks for understanding and adjusts when communication is not landing

#### Important to understand:

- Independence in communication is growing but context-dependent; learners who communicate clearly in comfortable settings may struggle in unfamiliar ones (new audience, higher stakes, different format)
- Audience awareness is emerging but often limited to familiar audiences; extending it to unfamiliar or diverse audiences requires explicit practice
- Written and verbal communication develop unevenly; learners who are strong in one mode may need extra support in the other

#### Look-fors:

- Learner communicates an idea or request clearly without adult help in familiar contexts
- Learner selects a format or tone that fits the situation (formal vs. informal, spoken vs. written)
- Learner notices when their message was not understood and tries to say it differently

### Grades 6–8 (Approx. Ages 11–14): Adapting to Audience and Purpose

#### Common expressions:

- Adapts communication to different audiences, purposes, and contexts without being told to
- Uses examples, evidence, or structure to make messages stronger and more credible
- Begins to anticipate how an audience might interpret a message and adjusts before communicating

#### Important to understand:

- Adolescents are navigating multiple communication registers simultaneously (peer, school, family, online) and developing a more sophisticated sense of what works where; this is a strength, not a problem
- Written communication in formal academic contexts often lags behind verbal fluency; this is developmentally expected and responds well to structured feedback and revision practice
- Communication about identity, belonging, and emotional experience is particularly complex at this stage and deserves support alongside academic communication skill development

#### Look-fors:

- Learner adjusts their message meaningfully for different audiences (educator vs. peer, written vs. spoken)
- Learner uses evidence or structure to support a point, not only assertion
- Learner considers how their message might be received and makes deliberate choices based on that consideration

## Grades 9–12 (Approx. Ages 14–18): Precision and High-Stakes Communication

### Common expressions:

- Communicates complex or sensitive information in ways that are both clear and appropriately careful
- Makes deliberate choices about what to emphasize, simplify, or qualify in a message to achieve the intended effect
- Anticipates how a message will be received by a specific audience and adjusts accordingly before communicating

### Important to understand:

- High-stakes communication (college essays, important conversations, professional contexts) requires a qualitatively different level of intentionality; learners who have only practiced in low-stakes contexts may underperform here
- The capacity to communicate across difference, including ideological, cultural, and experiential difference, is increasingly important and requires both skill and genuine openness
- Feedback on high-stakes communication can feel threatening to identity; creating conditions where feedback is developmental rather than evaluative supports growth

### Look-fors:

- Learner communicates a complex idea or sensitive topic in a way that is both clear and appropriately nuanced
- Learner makes visible choices about emphasis, qualification, or framing based on the audience and purpose
- Learner reflects on a communication choice and can explain the reasoning behind it

## Postsecondary (Approx. Ages 18–22): Strategic and Systemic Communication

### Common expressions:

- Communicates complex, sensitive, or high-stakes information with precision and care across professional and personal contexts
- Makes deliberate tradeoffs about what to simplify, emphasize, or qualify to achieve the intended effect without distorting the message
- Contributes to establishing shared communication norms or practices that improve the quality of communication in a group or organization

### Important to understand:

- Postsecondary and professional communication environments introduce new demands: audiences with real power, high-stakes written products, and cross-cultural communication all require a level of strategic thinking that exceeds what most K–12 contexts develop
- Communication failures at this stage often have real consequences; learners who have not developed the habit of checking for understanding and adjusting will encounter these consequences as growth opportunities
- The most important communication development at this stage often involves learning what not to say, how to qualify appropriately, and how to hold complexity in a message without losing clarity

### Look-fors:

- Learner communicates high-stakes information in a way that achieves its purpose without unintended harm or confusion
- Learner reflects on a communication choice or failure and extracts a specific, actionable learning from it
- Learner contributes to improving how a team or group communicates, not only how they themselves communicate

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *Did your message come across the way you intended? How do you know?*
- *Was there a moment when communication broke down? What happened?*
- *How did you adjust your communication for your audience or context?*
- *What would you change about how you communicated if you were doing it again?*
- *What helped you express your ideas clearly? What made it harder?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What tradeoffs did you make in how you communicated this, and why? What did you choose to emphasize, simplify, or leave out?*
- *How did your audience's identity, context, or likely interpretation shape the choices you made?*

## Designing Experiences That Support Communication

Experience	Why It Helps	Examples
Audience-specific communication tasks	Builds the habit of adjusting message, format, and tone for context, which is the defining feature of effective communication	Write the same information for two different audiences; practice explaining a concept to someone unfamiliar with it; adjust a presentation for a younger vs. older audience
Low-stakes speaking practice	Reduces anxiety and builds fluency through frequent, low-pressure opportunities to communicate verbally	Partner sharing; brief verbal check-ins; short class discussions where contribution is normalized, not high-stakes
Structured feedback on communication	Helps learners see their communication as others experience it, which is often invisible from the inside	Peer feedback on clarity, word choice, or tone; recorded practice presentations; specific, behavioral feedback rather than global evaluation
Multimodal communication experiences	Develops communication across verbal, written, and nonverbal forms, supporting transfer across contexts	Visual explanations, oral presentations, written summaries, and video messages on the same topic; learner choice of communication format with reflection on tradeoffs
Communication breakdowns as learning material	Uses real moments of misunderstanding to develop awareness of how and why communication fails	Analyzing examples where miscommunication had real consequences; reflecting on a personal communication failure and what it reveals; structured repair conversations
Feedback reception and revision	Builds the communication-related capacity to use external perspective to improve a message	Revision cycles on written communication; practice incorporating feedback before finalizing; asking “what was unclear?” as a standard step

**Design principle:** *Communication develops through practice, feedback, and authentic purpose. Learners who communicate only for evaluation do not develop the flexibility and responsiveness that effective communication requires. Building in frequent, lower-stakes communication tasks with real audiences and meaningful feedback is more effective than occasional high-stakes assessments.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Equating communication with performance	Treating communication primarily as presentation or public speaking narrows its definition and excludes learners who communicate well in other modes	Develop communication across written, verbal, and nonverbal forms; assess the quality of the message, not only its delivery
Correcting dialect or home language	Treating non-dominant dialects or home languages as incorrect communication undermines identity and belonging and conflates communication effectiveness with cultural assimilation	Distinguish between expanding communication range (adding registers) and correcting communication identity; honor home language as a legitimate and sophisticated communication system
Valuing fluency over precision	Confident but imprecise communication can cause as much harm as unclear communication, especially in high-stakes contexts	Teach that precision, accuracy, and appropriate hedging are communication skills; fast and fluent is not always better

Pitfall	Why It's Problematic	Instead
Over-relying on written assessment	Written communication is one mode among several; over-relying on it for assessment disadvantages learners who communicate well verbally or multi-modally	Assess communication across multiple modes; give credit for clarity and impact, not only grammatical correctness

## B.3 Perspective-Taking

### Description

Perspective-taking is the ability to recognize and share others' emotional experiences, to reason about others' viewpoints, beliefs, and motivations, and to use both to navigate interactions, decisions, and disagreements more effectively.

### Perspective-Taking Components:

- **Emotional recognition:** noticing that another person is experiencing an emotion, based on visible and contextual cues
- **Empathic response:** resonating with another's emotional experience and responding with care or concern
- **Cognitive perspective-taking:** reasoning about what another person believes, thinks, or intends, including when it differs from one's own view
- **Accurate representation:** describing another's viewpoint without distorting, projecting onto, or dismissing it
- **Perspective integration:** using multiple viewpoints, including those that conflict, to reach more complete and equitable understanding

*Critical insight: Perspective-taking and empathy are related but distinct. Empathy involves emotional resonance; perspective-taking involves cognitive reasoning about another's viewpoint. Both are necessary for navigating relationships and decisions, and both can be developed, but they do not always travel together. A learner can be emotionally empathic without being accurate in their reasoning about others' beliefs, or cognitively skilled at representing another's view without genuine emotional engagement. Development requires attention to both dimensions.*

### How Perspective-Taking Develops Over Time

Across PK-16, perspective-taking typically develops as learners move from

- noticing others' emotions and responding with early empathy →
- describing how a situation looks from another's point of view →
- accurately representing perspectives different from their own without distorting them →
- integrating multiple and conflicting perspectives, including those of marginalized or underrepresented groups, to produce more complete and equitable understanding.

Early perspective-taking is primarily affective and externally prompted. Over time, learners develop the cognitive capacity to reason about others' beliefs and motivations, and eventually to sustain empathic engagement even when another's experience differs sharply from their own. Development is shaped by the diversity of perspectives encountered, the quality of modeling by adults, and whether perspective-taking has been practiced in contexts that involve genuine emotional weight.

### How Perspective-Taking Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK-K (Approx. Ages 4–6): Noticing Others' Emotions

#### Common expressions:

- Notices when another person appears to be experiencing a strong emotion (upset, happy, scared) based on visible cues
- Responds with care or concern when a peer is distressed, in the earliest form of empathic response
- Begins to show awareness that others may feel or react differently than they do in the same situation

**Important to understand:**

- Theory of mind, the understanding that others have beliefs and experiences different from one's own, is still developing at this stage and is not fully consolidated until around age four to five
- Empathic response at this stage is largely emotional contagion or imitation; genuine empathy requires more developed perspective-taking capacity
- Adults who name others' emotions and model caring responses are the primary scaffolds for early empathy development

**Look-fors:**

- Learner notices when a peer seems upset and shows some form of concern (approaching, offering an object, looking to an adult)
- Learner can identify a common emotion in a peer or story character based on visible cues
- Learner is beginning to show awareness that others feel things differently than they do

**Grades 1–2 (Approx. Ages 6–8): Describing Others' Viewpoints****Common expressions:**

- Shows consideration for others' feelings by adjusting behavior or offering help when someone is distressed
- Describes how a situation looks from another person's point of view when prompted
- Recognizes that people's backgrounds and experiences shape how they see and feel about things

**Important to understand:**

- Perspective-taking at this stage is largely prompted and may not generalize without support; learners can do it when asked but may not apply it spontaneously
- Understanding that people's backgrounds shape their perspectives is beginning to develop; it requires concrete examples and storytelling to become accessible
- Learners may confuse taking a perspective with sharing a perspective; the goal of accurate representation rather than agreement needs to be made explicit

**Look-fors:**

- Learner describes how a character or peer might feel about a situation, with prompting
- Learner adjusts behavior when they notice a peer is upset or struggling
- Learner can identify that two people might see the same event differently, with support

**Grades 3–5 (Approx. Ages 8–11): Representing Different Perspectives****Common expressions:**

- Responds to others based on both how they appear to feel and what they appear to think
- Represents a perspective different from their own without collapsing it into their own view or dismissing it
- Engages with viewpoints and feelings that differ from their own without immediately discounting or minimizing them

**Important to understand:**

- The capacity to hold two genuinely different perspectives simultaneously is developing but fragile; it collapses easily under emotional pressure or when the other perspective challenges something personally important
- Perspective-taking across significant difference (cultural, experiential, ideological) is harder than perspective-taking between people with similar backgrounds; explicit modeling and discussion are needed
- Learners at this stage may intellectually take a perspective but have limited empathic engagement with the emotional dimension of others' experience

**Look-fors:**

- Learner describes another's perspective accurately without immediately inserting their own view
- Learner engages with a differing perspective in a discussion without dismissing it
- Learner can describe both how someone appears to feel and what they appear to think about a situation

**Grades 6–8 (Approx. Ages 11–14): Sustaining Empathy Across Difference****Common expressions:**

- Sustains empathic engagement when another's experience or viewpoint differs sharply from their own
- Reasons about how a person's background, identity, or social position shapes what they notice, feel, and believe
- Begins to recognize when their own perspective or empathic limits are incomplete and tries to understand better

**Important to understand:**

- Adolescent identity development intensifies both the capacity for and the challenges of perspective-taking; learners are simultaneously more able to reason about others and more invested in their own emerging identity
- Perspective-taking across group identities (race, class, gender, religion) becomes increasingly relevant and increasingly charged at this stage; it requires facilitation that is honest about power and difference
- Learners who have been consistently misunderstood or whose perspectives have been dismissed may have learned to protect themselves by withholding perspective-sharing; this should be understood as a rational response, not a deficit

**Look-fors:**

- Learner sustains engagement with a perspective that is genuinely difficult for them to understand or accept
- Learner describes how a person's background or identity shapes their viewpoint, not only their emotion
- Learner names a limit in their own understanding and asks a question to expand it

**Grades 9–12 (Approx. Ages 14–18): Integrating Complex Perspectives****Common expressions:**

- Sustains empathic engagement in interactions that are emotionally demanding or that involve significant difference in experience
- Integrates multiple, potentially conflicting perspectives to reach a more complete understanding of a situation
- Recognizes their own perspective as partial and actively works to fill gaps in their understanding

**Important to understand:**

- High-stakes emotional contexts (conflict, grief, injustice, significant disagreement) severely challenge even well-developed perspective-taking; this is where the skill is most needed and hardest to deploy
- Learners at this stage can engage with the systemic and structural dimensions of perspective: not just how an individual sees things but how shared conditions shape what groups see and experience
- Perspective-taking fatigue is real; learners, particularly those from marginalized groups who are frequently asked to take the perspective of those with more power, deserve recognition of the asymmetry in this work

**Look-fors:**

- Learner integrates multiple perspectives on a situation, including ones that conflict, in analysis or discussion
- Learner identifies and names a gap or limit in their own perspective
- Learner sustains empathic engagement in a high-stakes or emotionally demanding interaction

**Postsecondary (Approx. Ages 18–22): Perspective-Taking in Service of Equity****Common expressions:**

- Uses both empathy and perspective-taking to guide conflict resolution, collaboration, and decisions that affect others' wellbeing
- Integrates multiple, potentially conflicting perspectives including those of marginalized or underrepresented groups to produce more complete and equitable analysis
- Creates space within a group for viewpoints and emotional experiences that are missing or underrepresented

**Important to understand:**

- Postsecondary and professional contexts involve perspective-taking in complex, high-stakes settings: team conflict, institutional decision-making, cross-cultural collaboration, and leadership all demand sophisticated empathy and perspective-taking capacity
- The ability to hold complexity, including the reality that multiple perspectives can be valid without all being equally weighted, is a hallmark of mature perspective-taking and requires ongoing development
- Learners from communities whose perspectives have historically been excluded from dominant institutions bring both lived expertise in perspective-taking and legitimate wariness about whose perspectives get centered; this is a resource, not a gap

**Look-fors:**

- Learner consistently integrates perspectives beyond their own experience in analysis and decision-making
- Learner creates conditions for underrepresented perspectives to be heard and taken seriously in group settings
- Learner can describe the limits of their own perspective with specificity and name what they are doing to address them

## Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *How do you think the other person was feeling? How do you know?*
- *What might the situation look like from someone else's point of view?*
- *Was there a moment when you found it hard to understand someone else's perspective? What made it difficult?*
- *Did you learn something about how another person sees things? What surprised you?*
- *How might someone with a very different background or experience have understood this situation differently?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *Where did you find it hardest to stay genuinely open to another's perspective, and what do you think was driving that?*
- *What is the difference between understanding someone's perspective and agreeing with it? Where does that distinction matter most?*
- *Whose perspective was missing from this conversation or analysis? What difference would it have made if it had been included?*

## Designing Experiences That Support Perspective-Taking

Experience	Why It Helps	Examples
Narrative and storytelling from multiple viewpoints	Builds the cognitive habit of inhabiting other perspectives as a practice, not only an intellectual exercise	Retell a story from a different character's perspective; read texts that center unfamiliar experiences; share personal narratives across groups
Structured perspective-taking tasks	Develops the specific capacity to represent another's viewpoint accurately without distorting or projecting	"What do you think X believes, and why?" before sharing your own view; Socratic seminars where learners argue a position they do not hold; structured academic controversy
Exposure to diverse identities and experiences	Expands the range of perspectives learners can access and reduces the tendency to universalize from one's own experience	Literature, film, and primary sources from diverse communities; guest speakers; cross-cultural exchanges
Empathy practices in context	Develops emotional resonance alongside cognitive perspective-taking; both are needed for navigation of real relationships and decisions	Restorative circles that ask "how was this experienced by others?"; structured reflection after conflict; explicit naming of emotional impact alongside factual account
Reflection on one's own assumptions	Supports the metacognitive dimension of perspective-taking: noticing that one's own viewpoint is partial and shaped by experience	"What assumptions am I making?" prompts; examining where one's beliefs come from; recognizing the difference between one's experience and a universal norm
Perspective-taking in live disagreement	Develops the hardest dimension of the skill: staying genuinely open to another's view when one is emotionally invested	Structured dialogue across genuine difference; facilitated discussions of contested issues; practice restating a disagreeing viewpoint before responding

**Design principle:** *Perspective-taking develops through both cognitive and emotional practice. Intellectual exposure to diverse viewpoints supports the cognitive dimension; structured empathic practice builds the emotional one. Both are necessary, and neither is sufficient alone. The most powerful perspective-taking experiences involve genuine difference, real emotional weight, and enough safety to stay engaged when it becomes difficult.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Projecting rather than inquiring	Assuming one knows how another person feels or thinks without checking is projection, not perspective-taking; it confirms existing assumptions rather than expanding them	Teach the difference between projection and inquiry; model asking rather than assuming; make "is that what you meant?" a habit
Treating perspective-taking as automatic with exposure	Exposure to diverse perspectives does not automatically produce perspective-taking; without structured practice and reflection, it may reinforce stereotypes rather than dismantle them	Build explicit perspective-taking tasks into diverse content experiences; exposure and structure together are more effective than either alone
Equating perspective-taking with agreement	Learners who believe they must agree with a perspective in order to take it seriously will avoid perspectives that conflict with their own values	Make clear that understanding a perspective and agreeing with it are different things; the goal is accurate representation, not endorsement
Ignoring power and identity in whose perspective counts	Perspective-taking exercises that treat all viewpoints as equally worthy may inadvertently normalize harmful perspectives or underweight perspectives from marginalized groups	Attend explicitly to whose perspectives are centered and whose are absent; distinguish between perspective-taking and false equivalence
Treating empathy as a fixed capacity	Framing empathy as something some people have and others do not removes the growth framing and leads to differential expectations	Name empathy and perspective-taking explicitly as learnable and developing; hold consistent expectations while differentiating support

## B.4 Collaboration

### Description

Collaboration is the ability to work productively with others by contributing effort, coordinating roles, sharing responsibility, and supporting collective goals across tasks and contexts.

### Collaboration Components:

- **Contribution:** bringing ideas, effort, and specific skills to shared work
- **Coordination:** aligning individual actions with others' work so the group moves forward together
- **Shared accountability:** taking responsibility for both individual contributions and collective outcomes
- **Role flexibility:** adapting one's role and contribution based on what the group needs
- **Collective goal orientation:** prioritizing what the group needs to succeed alongside one's own interests and preferences

*Critical insight: Collaboration is one of the most commonly claimed and least commonly developed skills in education. Most group work does not require genuine collaboration; it requires parallel individual work in close proximity. For collaboration to develop, tasks must be genuinely interdependent, roles must require coordination, and learners must have structured opportunities to reflect on how the group is working, not only on what it is producing.*

### How Collaboration Develops Over Time

Across PK-16, collaboration typically develops as learners move from

- participating alongside others with support →
- contributing to tasks with clear roles and following group agreements →
- contributing ideas and effort independently and coordinating with others toward shared goals →
- organizing group work, navigating complexity and conflict, and building conditions for sustained collective effectiveness.

Early collaboration is externally structured and supported. Over time, learners develop the capacity to coordinate with others without external direction, to navigate disagreement productively, and eventually to contribute to the conditions that make groups work well. Development depends on the quality and structure of collaborative experiences, not merely their frequency.

### How Collaboration Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Participating Alongside Others

#### Common expressions:

- Participates in a shared activity alongside peers, with adult support and structure
- Shares space and materials when prompted to support a group task
- Shows early awareness that tasks can be done together, not only alone

#### Important to understand:

- Parallel play and parallel work are normal and developmentally appropriate at this stage; true collaborative interdependence is just beginning to develop
- Adult structuring is essential; young children do not yet manage shared work independently and are not expected to
- Early prosocial behaviors (sharing, taking turns, helping) are the foundation on which collaboration builds; they deserve recognition and support

#### Look-fors:

- Learner participates in a shared activity with adult structure
- Learner shares materials or space with peers when prompted
- Learner is beginning to show interest in working together with peers toward a shared outcome

### Grades 1–2 (Approx. Ages 6–8): Contributing with Direction

#### Common expressions:

- Contributes to a group task when given a clear role and direction
- Follows group norms or agreements with adult guidance and reminders
- Completes their assigned part of a shared task as directed, allowing the group to move forward

#### Important to understand:

- Role clarity is essential at this stage; ambiguous expectations produce disengagement or conflict
- Group norms need to be co-created simply and revisited often; learners at this stage internalize rules through consistent reinforcement, not one-time instruction
- Conflict in groups is normal and developmentally expected; learners need adult support to navigate it, not just expectations that they will resolve it independently

#### Look-fors:

- Learner completes their part of a group task when role expectations are clear
- Learner follows group norms with adult support and reminders
- Learner's contribution enables the group to move forward on the task

### Grades 3–5 (Approx. Ages 8–11): Contributing and Coordinating

#### Common expressions:

- Contributes ideas and effort toward shared goals without needing to be assigned a specific role
- Coordinates their actions with others, recognizing that individual work affects the whole group
- Adjusts behavior or approach when it is affecting the group's progress negatively

#### Important to understand:

- Group dynamics become more complex as social relationships deepen; friendships, exclusions, and status dynamics shape who contributes and how
- Independent contribution is growing but coordination (timing, communication, role adjustment) still requires support
- Learners are developing the capacity to see themselves as members of a group, not only as individuals doing tasks near others; this is a significant shift

#### Look-fors:

- Learner contributes to a group task without being assigned a specific role

- Learner notices when their individual work affects the group and adjusts accordingly
- Learner can describe their contribution to the group and how it connected to others' work

### Grades 6–8 (Approx. Ages 11–14): Navigating Group Dynamics

#### Common expressions:

- Helps organize tasks, roles, or timelines to keep group work on track when needed
- Responds to challenges affecting group progress with a focus on solutions rather than blame
- Balances personal contributions and preferences with the collective needs of the group

#### Important to understand:

- Status hierarchies in peer groups become more pronounced and more consequential for collaboration quality; groups with dominant and silent members rarely produce effective collaboration without structural intervention
- Longer-term collaborative projects expose gaps in coordination, accountability, and conflict navigation that short tasks do not; they are development opportunities if well-supported
- Adolescents are developing the capacity to contribute to group norms and culture, not just follow them; this is an important threshold in collaborative development

#### Look-fors:

- Learner helps the group get organized or stay on track without being asked to
- Learner responds to a group challenge in a way that focuses on solutions, not complaint or blame
- Learner adjusts their own behavior when it is getting in the way of group progress

### Grades 9–12 (Approx. Ages 14–18): Sustaining Collective Work

#### Common expressions:

- Sustains effective contribution across long-term or complex collaborative projects through difficulty and disagreement
- Helps the group navigate conflict, competing priorities, or declining morale in productive ways
- Builds or reinforces conditions within the group that support sustained, effective collaboration

#### Important to understand:

- High-stakes collaborative contexts (significant projects, competitive team environments, community commitments) introduce new accountability demands that reveal capacity gaps that lower-stakes work conceals
- Learners who have developed strong individual performance skills sometimes struggle with collaboration because it requires yielding control and crediting others; this is a specific developmental challenge, not a general deficit
- The capacity to contribute to group culture and norms, rather than only working within them, marks a significant developmental transition and should be explicitly developed

#### Look-fors:

- Learner sustains effective contribution through a complex or difficult collaborative project from start to finish
- Learner takes action to address a group challenge (flagging a problem, proposing a solution, facilitating a difficult conversation)
- Learner can describe how their behavior affected the group and what they would do differently

### Postsecondary (Approx. Ages 18–22): Building Collaborative Capacity

#### Common expressions:

- Aligns people, goals, and processes to strengthen group effectiveness in complex and high-stakes settings
- Contributes to group decision-making and accountability in ways that others experience as trustworthy and fair
- Builds conditions within a group that support sustained, effective collaboration, not only participates in them

#### Important to understand:

- Postsecondary and early career collaboration often involves asymmetric power, unclear roles, and conflicting institutional priorities; these are qualitatively different from academic group work and require significant skill transfer
- The ability to build collaborative conditions, not only work within them, is the hallmark of collaborative leadership and represents the most advanced dimension of this skill
- Diverse collaborative experience across different group compositions, tasks, and stakes is the primary driver of development at this stage; reflection on that experience is what converts it into growth

### Look-fors:

- Learner contributes to organizing and sustaining effective group work in a complex or high-stakes context
- Learner takes responsibility for both their individual contributions and the group's collective outcomes
- Learner can describe specific ways their actions shaped the group's functioning, positively or negatively

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What did you contribute to the group? Did it help move things forward?*
- *Was there a moment when the group struggled? What happened, and what did you do?*
- *Did you feel like everyone's contributions were heard and valued? What helped or got in the way?*
- *What would you do differently to be a more effective collaborator next time?*
- *How did the group's work compare to what you could have done alone?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What was your role in shaping how the group functioned, not just what it produced? What do you notice about your collaborative patterns across groups?*
- *Where did individual and collective needs come into tension? How did you navigate that? What does it tell you about your priorities in collaborative work?*
- *What conditions made this collaboration effective or ineffective? Which of those were within the group's control, and what did you do about them?*

## Designing Experiences That Support Collaboration

Experience	Why It Helps	Examples
Genuinely interdependent tasks	Builds collaboration because individual success depends on collective contribution; tasks where learners can succeed alone do not develop collaboration	Jigsaw activities where each person holds a unique piece of information; projects where different roles produce outputs that depend on each other; shared products that require coordination
Explicit role structures with reflection	Gives learners practice in different collaborative roles and builds awareness of how roles affect group functioning	Rotating group roles (facilitator, recorder, devil's advocate); debrief on how roles affected the group; learner-chosen role assignments with rationale
Group norm-setting and maintenance	Gives learners experience creating and sustaining the conditions for collaborative work, not only participating in them	Co-created group norms at the start of a project; mid-project norm check-ins; explicit discussion of when norms were upheld or broken
Process-focused group reflection	Shifts attention from product to collaboration quality; learners develop vocabulary for how groups function	"How did our collaboration work today?" as a regular debrief; team health checks; structured reflection on what helped and what hindered group progress
Navigating real disagreement in groups	Builds the hardest dimension of collaboration: staying productive and respectful when perspectives or interests diverge	Structured decision-making protocols that surface and work through disagreement; facilitated conversations about competing priorities; practice reaching consensus without suppressing dissent
Peer accountability structures	Develops the capacity to hold and be held to commitments within a group, which is the foundation of reliable collaboration	Team contracts with agreed expectations; structured peer feedback on individual contribution; individual reflection on how one's behavior affected the group

**Design principle:** *Collaboration develops through genuinely interdependent work, not proximity. The most important design decision is whether the task requires coordination toward a collective outcome that no individual could produce alone. Without that, learners are practicing parallel work, not collaboration. Getting task design right matters more than any particular collaboration strategy.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Calling group work collaboration	Sitting near other people and working on adjacent tasks is not collaboration; genuine collaboration requires interdependence, shared accountability, and coordination toward collective goals	Design tasks that require genuine interdependence; distinguish between cooperative work (individual parts assembled) and collaborative work (collective meaning-making)
Letting high-status learners dominate	Group work tends to amplify existing status hierarchies unless explicitly structured to prevent this; high-status learners take more airtime and receive more credit, while others disengage	Use status-disrupting structures (assigned roles, equal voice protocols, contributions from quietest member first); explicitly name and address status dynamics
Grading groups on product without assessing collaboration process	Learners cannot develop collaboration through product assessment alone; assessing only the output rewards individual contribution, division of labor, and de facto independent work	Assess collaboration process explicitly and separately; include self and peer assessment of collaboration quality
Treating collaboration as always harmonious	Productive collaboration often involves disagreement, tension, and negotiation; avoiding these does not build collaboration, it avoids it	Normalize productive conflict as a feature of high-functioning collaboration; teach learners to work through disagreement, not around it
Not developing collaboration vocabulary	Learners who lack language for collaborative processes cannot reflect on them, repair them, or improve them	Explicitly teach collaboration vocabulary: consensus, accountability, role, norm, facilitation, contribution, repair; make this language part of ongoing group reflection

## B.5 Conflict Resolution

### Description

Conflict resolution is the ability to navigate disagreement, address harm or misunderstanding, and restore working relationships through honest communication, accountability, and shared problem-solving.

### Conflict Resolution Components:

- **Recognition:** noticing that a conflict, disagreement, or misunderstanding has occurred and naming it
- **Regulation:** managing one's own emotional response well enough to stay engaged and productive during the conflict
- **Perspective-taking:** understanding how the other party experienced the situation, including the gap between intent and impact
- **Communication:** expressing one's own perspective clearly and without escalating, while remaining open to the other party's view
- **Resolution and repair:** reaching a workable outcome and taking active steps to restore the relationship or trust that was affected

*Critical insight: Conflict resolution begins with regulation, not communication. Learners who lack the capacity to manage their emotional response during conflict cannot access resolution skills, no matter how well taught. Co-regulation support from a trusted adult remains important well into adolescence. Teaching conflict resolution skills without building the underlying regulation foundation produces learners who know what to do in theory but cannot do it when it matters most.*

### How Conflict Resolution Develops Over Time

Across PK-16, conflict resolution typically develops as learners move from

- recognizing conflict and seeking adult support →
- describing their own perspective and participating in guided resolution steps →
- expressing perspective clearly, identifying sources of conflict, and reaching resolution without a facilitator →
- navigating complex or emotionally charged conflicts independently and enabling resolution in group conflicts where they are not a primary party.

Early conflict resolution is almost entirely adult-facilitated. Over time, learners develop the regulation, communication, and perspective-taking capacity that make independent conflict navigation possible. Development is not linear; even skilled conflict navigators may need support in high-stakes or identity-laden situations. The capacity to repair relationships, not just resolve disagreements, is a distinct and important dimension that requires its own development.

### **How Conflict Resolution Shows Up by Grade Band**

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### **PK–K (Approx. Ages 4–6): Recognizing and Seeking Help**

#### **Common expressions:**

- Recognizes that a disagreement or conflict has occurred, even if they cannot describe it clearly
- Seeks support from a trusted adult when conflict arises, rather than escalating or withdrawing entirely
- Begins to regulate emotional response after conflict with consistent adult co-regulation

#### **Important to understand:**

- Conflict at this stage is primarily about objects, space, and attention; the capacity for genuine disagreement about ideas or intentions is still developing
- Adult co-regulation and mediation is not a scaffold to be removed as quickly as possible; it is a developmentally appropriate and necessary support
- Simple language for conflict (“I don’t like that”, “That was mine”, “I want a turn”) is the beginning of conflict resolution vocabulary and should be honored and extended

#### **Look-fors:**

- Learner signals a conflict to a trusted adult rather than escalating or shutting down
- Learner can calm down with adult co-regulation support after a conflict
- Learner is beginning to use simple words to describe what happened in a conflict

### **Grades 1–2 (Approx. Ages 6–8): Participating in Guided Resolution**

#### **Common expressions:**

- Describes their own perspective in a conflict when asked, with adult support to structure the conversation
- Listens to the other person’s perspective during a conflict, with adult facilitation and structure
- Participates in guided steps to resolve a conflict or move forward from it

#### **Important to understand:**

- Resolution at this stage requires adult facilitation; expecting children to navigate conflict independently produces either avoidance or escalation
- The concept of multiple valid perspectives in a conflict is beginning to develop but remains fragile; adult validation of both parties’ experiences is important
- Repair and restitution are more accessible than abstract apology; “what can you do to make it better?” is more effective than requiring a scripted apology

#### **Look-fors:**

- Learner can describe their experience of a conflict in simple terms with adult support
- Learner listens to the other party with adult facilitation, without immediately escalating
- Learner participates in a guided resolution process and reaches a workable outcome with adult help

### **Grades 3–5 (Approx. Ages 8–11): Resolving Without a Facilitator**

#### **Common expressions:**

- Expresses their perspective in a conflict clearly and without escalating the situation
- Identifies the source of a conflict or misunderstanding, including when it involves a gap between intent and impact
- Works with the other party to reach a workable resolution without needing adult facilitation for every step

#### **Important to understand:**

- The capacity to de-escalate before engaging in resolution is the key skill to develop at this stage; learners who

try to resolve before they are regulated almost always escalate instead

- Peer conflicts about fairness, belonging, and reputation are particularly charged at this stage and often involve more emotional complexity than appears on the surface
- The gap between what was intended and what was experienced begins to be accessible as a concept; making this distinction explicit is one of the most useful things adults can do for conflict resolution development

**Look-fors:**

- Learner can name the source of a conflict or what caused the disagreement
- Learner expresses their perspective to the other party without escalating
- Learner reaches a workable resolution with the other party without requiring adult facilitation at every step

**Grades 6–8 (Approx. Ages 11–14): Managing Emotions and Repairing Relationships**

**Common expressions:**

- Manages their emotional response throughout a conflict well enough to stay engaged and productive
- Distinguishes between the intent behind an action and its actual impact on the other person
- Takes initiative to repair trust or working relationship after a conflict, not only to resolve the immediate issue

**Important to understand:**

- Social conflicts at this stage often involve identity, belonging, and reputation in ways that make regulation extremely difficult; the stakes feel existential, even when they are not
- The intent-impact distinction is cognitively accessible but emotionally hard to maintain when one is personally implicated; learners need support in holding this distinction under pressure
- Repair is often avoided because it requires vulnerability and accountability; explicitly teaching and structuring repair as a valued practice increases its frequency

**Look-fors:**

- Learner stays regulated enough to maintain a conflict conversation without escalating or shutting down
- Learner names the difference between what they intended and what the other person experienced
- Learner takes a step to repair the relationship after a conflict, not only to resolve the immediate disagreement

**Grades 9–12 (Approx. Ages 14–18): Navigating Complex Conflicts**

**Common expressions:**

- Navigates complex or emotionally charged conflicts independently, without requiring adult facilitation
- Takes responsibility for their part in a conflict, including impacts they did not intend
- Initiates repair in meaningful ways, including in situations where full resolution may not be possible

**Important to understand:**

- Complex conflicts at this stage often involve compounding factors: identity, history between parties, power dynamics, and institutional context; simplistic resolution protocols are often inadequate
- Adolescents may resist engaging with conflict because the social cost of being seen as difficult or problematic is high; building the capacity and the safety to engage is equally important
- Conflict resolution across identity difference requires specific skills and awareness that go beyond interpersonal conflict resolution; explicit development of these capacities is needed

**Look-fors:**

- Learner navigates a difficult conflict without needing adult facilitation
- Learner takes responsibility for the impact of their actions, including unintended impacts
- Learner initiates repair after a conflict, even when it is uncomfortable

**Postsecondary (Approx. Ages 18–22): Enabling Resolution for Others**

**Common expressions:**

- Navigates conflict independently in complex, high-stakes, or emotionally charged situations
- Helps enable resolution and repair in group conflicts where they are not a primary party
- Uses conflict as a source of learning about relationships, communication, and their own patterns

**Important to understand:**

- Postsecondary and professional conflicts often involve power asymmetry, institutional complexity, and high stakes in ways that exceed interpersonal conflict capacity; building the additional skills required for these contexts is an important developmental task
- The capacity to facilitate others' conflict resolution, not only navigate one's own, marks a significant development milestone; it requires both strong personal conflict skills and the ability to hold space for others under pressure

- Learners who have processed significant conflict experiences with support often develop the deepest conflict resolution capacity; the processing, not only the experience, is what drives development

### Look-fors:

- Learner navigates high-stakes or emotionally complex conflict effectively and independently
- Learner helps a group move toward resolution in a conflict where they are not a primary party
- Learner can articulate what they learned from a significant conflict experience and how it changed their approach

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What caused the conflict? What was your part in it?*
- *How did you feel during the conflict? How did that affect how you handled it?*
- *Did you understand what the other person was experiencing? Did they understand you?*
- *What steps did you take to resolve or repair things? Did they work?*
- *What would you do differently if this happened again?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What is the difference between what you intended and what the other person experienced? What does that gap reveal?*
- *How did you manage your own emotions during the conflict? What made that easier or harder? What would have helped?*
- *What did this conflict reveal about the relationship, the communication, or the underlying needs? What would it take to address those, not just the surface disagreement?*

## Designing Experiences That Support Conflict Resolution

Experience	Why It Helps	Examples
Emotion regulation practice before conflict skills	Conflict resolution requires the capacity to stay engaged while emotionally activated; without regulation capacity, resolution strategies cannot be accessed	Breathing and pause practices built into daily routine; explicit teaching of de-escalation before conflict resolution skills; regulation check-ins before difficult conversations
Structured conflict resolution protocols	Gives learners a reliable process to return to when conflict is live; structure reduces the cognitive and emotional load of navigating conflict independently	Peace corners with step-by-step facilitation; restorative conversation frameworks; interest-based negotiation scripts tailored to developmental level
Intent vs. impact distinction	One of the most common sources of unresolved conflict is the gap between what someone meant and what was experienced; teaching this distinction directly reduces defensiveness and increases accountability	“What did you mean to do?” and “What was the impact on the other person?” as explicit discussion questions; restorative conversations that separate these two questions
Repair practices	Builds the specific capacity to restore relationship after conflict, which is distinct from resolving the immediate disagreement	Apology protocols that address impact, not only intent; restitution practices; follow-up conversations after a conflict has been resolved to check whether the relationship has recovered
Exposure to mediated conflict resolution	Builds familiarity with conflict resolution processes and models what skilled navigation looks like	Peer mediation programs; facilitated discussions; case studies of successful and unsuccessful conflict resolution; educator modeling of navigating disagreement
Conflict analysis and debrief	Develops learning from conflict as a source of growth about relationships and communication, not only as a disruption to manage	Structured reflection after a conflict is resolved; “what did this conflict reveal?” questions; analysis of conflicts in literature, history, or current events

**Design principle:** *Conflict resolution skills must be taught before they are needed. Learners who encounter conflict without prior skill development have no tools to draw on; they default to avoidance, escalation, or submission. Building regulation capacity, teaching resolution language, and practicing with low-stakes conflicts creates the foundation for navigating high-stakes ones.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Requiring quick resolution	Pressuring learners to resolve conflict before they are regulated or ready produces superficial resolution that leaves underlying issues unaddressed and damages trust	Allow time for regulation and processing before facilitating resolution; teach that genuine resolution takes time and that the goal is understanding, not speed
Centering the behavior rather than the relationship	Conflict resolution focused primarily on what happened and who was wrong misses the relational dimension that is usually at the heart of the conflict	Frame resolution around restoring the relationship, not adjudicating the incident; ask “what do you need from each other to move forward?” rather than “who was right?”
Treating all conflict as equivalent	Interpersonal misunderstanding, values-based disagreement, and harm caused by power imbalance require different responses; treating them all the same produces inadequate resolution	Distinguish between types of conflict and teach different resolution approaches for different situations; not every conflict is a misunderstanding
Skipping repair	Resolving the immediate conflict without addressing the relational harm leaves relationships damaged even when the surface issue is settled	Build repair explicitly into conflict resolution processes; follow up after resolution to check whether the relationship has recovered
Expecting learners to resolve conflict without skill-building	Telling learners to “work it out” without providing skills, language, or structured support produces either avoidance or escalation	Teach conflict resolution skills explicitly and provide structured support, especially early in development; independence in conflict navigation builds gradually, not automatically
Ignoring systemic and identity-based conflict	Conflict that has roots in racial, cultural, gender, or other identity dynamics requires a different and more careful approach than interpersonal misunderstanding; treating identity-based conflict as ordinary interpersonal conflict can cause harm	Develop facilitation capacity for identity-conscious conflict navigation; do not assume that standard conflict resolution protocols are appropriate for all situations

## B.6 Positive Influence

### Description

Positive influence is the ability to contribute to shared goals by taking initiative, encouraging others, and making decisions that strengthen individuals and groups, whether or not in a formal leadership role.

### Positive Influence Components:

- **Initiative:** taking action to support shared goals without waiting to be asked or assigned
- **Encouragement:** actively supporting others' participation, effort, and confidence through words and actions
- **Contribution:** showing up consistently and reliably in ways that the group can depend on
- **Decision-making for others:** making choices that account for the needs, perspectives, and wellbeing of those around you
- **Capacity-building:** using one's influence to increase others' ability to contribute and lead, not only to direct them

*Critical insight: Positive influence is not the same as formal leadership, and developing it should not be reserved for learners who hold or are expected to hold leadership roles. The most durable forms of positive influence, consistent modeling, genuine encouragement, and accountability to shared goals, are available to every learner and matter in every group context. Developing positive influence means helping learners understand how their behavior affects others and building the intentionality and care to use that effect well.*

### **How Positive Influence Develops Over Time**

Across PK-16, positive influence typically develops as learners move from

- participating responsibly in group settings and showing early awareness that their actions affect others →
- volunteering for responsibilities and encouraging peers →
- taking initiative for shared goals and making decisions that account for others' needs →
- coordinating group effort, motivating others through modeling and feedback, and building conditions that strengthen group culture and capacity.

Early positive influence is expressed primarily through responsible participation and prosocial behavior. Over time, learners develop the capacity to take initiative, motivate and coordinate others, and eventually to strengthen the conditions in which groups operate. Development depends on whether learners have opportunities to contribute, whether their influence is recognized in its many forms, and whether the environment treats influence as something distributed across a group rather than concentrated in a few visible leaders.

### **How Positive Influence Shows Up by Grade Band**

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### **PK-K (Approx. Ages 4–6): Responsible Participation**

#### **Common expressions:**

- Participates responsibly in group settings: takes turns, follows shared expectations, and respects others' space and materials
- Shows early awareness that their actions affect others in the group
- Offers help or encouragement to a peer when invited or prompted by an adult

#### **Important to understand:**

- Positive influence at this stage is expressed primarily through prosocial behavior; the intentional or strategic dimension has not yet developed
- Adults who name the positive impact of children's behavior ("When you shared, it helped your friend feel included") begin building the connection between action and group effect
- Every act of responsible participation is a form of positive influence; recognizing it as such builds the foundation for more intentional influence later

#### **Look-fors:**

- Learner follows shared group expectations consistently
- Learner shows awareness that their behavior affects others ("If I take all the blocks, there won't be enough for everyone")
- Learner offers help or encouragement when prompted by an adult

### **Grades 1–2 (Approx. Ages 6–8): Volunteering and Encouraging**

#### **Common expressions:**

- Volunteers for small responsibilities within the group without being asked
- Encourages a peer's participation or effort through words or actions
- Shows growing awareness that the way they show up shapes the group around them, positively or negatively

#### **Important to understand:**

- Initiative at this stage is typically small in scope but significant in developmental terms; volunteering builds the habit of contributing rather than waiting
- Encouragement from peers is highly meaningful at this age; even simple acknowledgment ("You can do it") shapes participation and effort

- Some learners show strong informal influence in peer groups without being recognized formally; this influence deserves attention and development

**Look-fors:**

- Learner volunteers for a small role or responsibility without being asked
- Learner offers verbal or behavioral encouragement to a peer who is struggling or hesitating
- Learner notices when their behavior (positive or negative) affected the group

**Grades 3–5 (Approx. Ages 8–11): Taking Initiative for Shared Goals**

**Common expressions:**

- Takes initiative to support shared goals without being assigned to or asked to
- Encourages others to contribute and share responsibility rather than doing everything themselves
- Makes decisions that account for the needs and perspectives of others in the group, not only their own preferences

**Important to understand:**

- The shift from volunteering for tasks to taking initiative for shared outcomes is a significant developmental step; it requires seeing oneself as responsible for group success, not only individual contribution
- Peer influence at this stage is powerful; learners who consistently model positive group behavior shape others' behavior more than adults often realize
- Learners who take initiative may sometimes overstep or dominate; helping them develop awareness of when their influence is helping and when it is limiting others is important at this stage

**Look-fors:**

- Learner takes action to support a shared goal without being asked to
- Learner actively encourages others to contribute, not only completes their own work
- Learner makes a decision that accounts for others' needs, even when it requires something from them

**Grades 6–8 (Approx. Ages 11–14): Coordinating and Motivating**

**Common expressions:**

- Helps move the group forward by coordinating tasks, clarifying roles, or providing direction when needed
- Motivates peers through consistent behavior, specific encouragement, and genuine engagement
- Addresses challenges to group morale or progress with transparency and care rather than avoidance or blame

**Important to understand:**

- Adolescent peer influence is extraordinarily powerful; learners who are respected by peers shape group culture in ways that are more lasting than adult direction
- Formal and informal leadership are often disconnected at this stage; the most influential learners are frequently not the elected or assigned ones
- Learners who have not been recognized as leaders may have developed significant positive influence capacity in informal peer contexts; bringing this into view is an important developmental opportunity

**Look-fors:**

- Learner takes action to help the group get organized or move forward when it is stalling
- Learner motivates a peer through specific, genuine encouragement rather than generic affirmation
- Learner names a challenge to group morale or progress and takes a constructive step to address it

**Grades 9–12 (Approx. Ages 14–18): Intentional and Ethical Influence**

**Common expressions:**

- Exercises influence with intention and care in complex or high-stakes group situations
- Takes responsibility for the impact of their influence on others, including unintended impacts
- Works to strengthen the culture, equity, and effectiveness of a group or community, not only to achieve immediate goals

**Important to understand:**

- Learners at this stage are developing the capacity to reflect critically on their own influence: how it works, who it serves, and whether it aligns with their values
- Influence exercised by high-status adolescents can either reinforce or disrupt harmful group norms; developing intentionality about this is one of the most important dimensions of positive influence at this stage
- The responsibility that comes with influence is rarely taught explicitly; learners who are developing significant influence capacity need explicit support in thinking through the ethics and accountability of using it well

**Look-fors:**

- Learner reflects on how their influence affected a group, including unintended impacts
- Learner takes a deliberate action to strengthen the group’s culture, equity, or functioning
- Learner can describe the difference between their intended influence and its actual effect

**Postsecondary (Approx. Ages 18–22): Building Others’ Capacity****Common expressions:**

- Exercises influence with intention and care in complex, uncertain, or high-stakes group and community situations
- Builds others’ capacity to contribute meaningfully and lead in their own right, rather than creating dependence
- Uses influence to strengthen culture, equity, or outcomes within a group or community in ways that outlast their individual presence

**Important to understand:**

- Postsecondary and early career contexts introduce influence in asymmetric power contexts: learners influence up, down, and laterally in ways that require different skills and different ethical awareness
- The most valuable positive influence at this stage is often capacity-building: leaving a group or community stronger and more capable than it was before one arrived
- Influence and accountability are inseparable at this level; learners who exercise significant influence without attending to their accountability to those they affect are developing a deficit in the skill, not an advanced form of it

**Look-fors:**

- Learner exercises significant positive influence in a complex or high-stakes context in ways that others experience as trustworthy and beneficial
- Learner takes deliberate action to build others’ capacity or voice, not only to accomplish their own goals
- Learner can articulate how they think about the responsibility that comes with their influence and demonstrate that in practice

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *How did you contribute to the group’s goals? Did your contribution help move things forward?*
- *Did you encourage anyone else’s participation or effort? What did that look like?*
- *Was there a moment when you could have taken initiative but did not? What held you back?*
- *How did your behavior affect the group’s energy, direction, or effectiveness?*
- *What would it look like to be a more positive presence in this group next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *How did you use your influence in this situation? Was that intentional? Does the effect match the intent?*
- *Whose capacity did you build, and how? Who did not get developed or recognized, and what was your role in that?*
- *What is the difference between influencing others toward your goals and influencing others toward shared goals? Which were you doing, and how do you know?*

**Designing Experiences That Support Positive Influence**

Experience	Why It Helps	Examples
Genuine leadership opportunities with real stakes	Influence develops through practice in contexts where it matters; low-stakes simulations do not build the same capacity as real responsibility	Learner-led projects with genuine goals; peer tutoring with real learners; student-organized events; class governance with actual decision-making authority
Naming and developing non-positional influence	Expands learners’ understanding of what influence looks like and where it comes from; reduces the belief that leadership requires a formal role	Explicit discussion of how encouragement, modeling, and showing up consistently influence groups; recognition of informal leadership; reflection on who influenced the group and how

Experience	Why It Helps	Examples
Feedback on group impact	Makes visible how one's behavior affects others, which is often invisible from the inside	Structured peer feedback on contribution and encouragement; group debrief that names specific members' positive impact; reflection on "how did your behavior shape the group?"
Navigating influence ethically	Develops critical awareness that influence can be used to strengthen or harm; builds intentionality and care	Discussion of the difference between motivation and manipulation; case studies of influence used constructively vs. destructively; reflection on the responsibilities that come with influence
Cross-group and community-facing work	Builds influence capacity in contexts that extend beyond the immediate peer group	Service learning; community projects; cross-school or cross-community collaboration; work that requires representing one's group to an external audience
Developing others explicitly	Builds the dimension of influence that focuses on increasing others' capacity rather than directing their behavior	Peer coaching; mentoring younger learners; structured practices of specific, growth-focused encouragement; modeling that names what is being modeled and why

**Design principle:** *Positive influence develops through genuine responsibility, not simulated leadership. Learners who hold real roles with real stakes in real communities develop influence capacity that classroom simulations cannot replicate. Distributing leadership opportunities broadly, naming non-positional forms of influence, and providing feedback on group impact are the highest-leverage practices for developing this skill across all learners.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Equating influence with formal leadership roles	Reserves leadership development for a small subset of learners and misses the most common forms of influence that affect groups and communities	Develop positive influence as a universal skill; recognize and name influence that does not come with a title or formal role
Selecting the same learners repeatedly	Entrenches leadership identity in some learners while excluding others, who then have fewer opportunities to develop the skill	Distribute leadership opportunities broadly; create roles that foreground different strengths; explicitly develop positive influence in learners who have not been recognized in this way
Focusing on charisma rather than contribution	Charismatic presentation is one narrow form of influence; treating it as the model excludes learners who influence through consistency, care, or skill	Name multiple forms of positive influence; develop learners' capacity to see influence as contribution, not performance
Teaching influence without ethics	Influence skills taught without ethical grounding can be applied manipulatively; learners need to understand the responsibility that comes with the ability to affect others	Connect influence skill development explicitly to values, accountability, and the impact on others; ask "who benefits from this influence?" as a regular question
Ignoring the role of identity and positionality	Positive influence looks different depending on who is exercising it, in what context, and toward whom; ignoring this misses the complexity of developing it equitably	Attend to who is recognized for positive influence and whether that recognition patterns by race, gender, or other identity; create conditions where diverse forms of influence are seen and valued

## Cluster C: Thinking & Problem Solving

This cluster addresses the cognitive skills through which learners make sense of information, generate ideas, and navigate complexity. The six skills are interconnected: critical thinking and inquiry share an evidence-based, questioning orientation; problem solving and creative thinking often work in concert; decision-making draws on critical thinking, systems thinking, and values; and systems thinking provides the structural understanding that makes the others most powerful in complex, real-world contexts. Together, these skills form the intellectual toolkit that enables learners to move beyond knowing toward understanding, and from understanding toward thoughtful action.

### Skills in this cluster:

- C.1 Critical Thinking
- C.2 Problem Solving
- C.3 Creative Thinking
- C.4 Inquiry
- C.5 Decision-Making
- C.6 Systems Thinking

## C.1 Critical Thinking

### Description

Critical thinking is the ability to analyze information, evaluate ideas and evidence, identify assumptions, and apply sound judgment to reach reasoned conclusions and guide decisions and actions.

### Critical Thinking Components:

- **Analysis:** breaking down information, arguments, or situations into their component parts to understand structure and relationships
- **Evaluation:** assessing the quality, credibility, and relevance of evidence, sources, and arguments
- **Inference:** drawing reasoned conclusions that go beyond what is directly stated, based on available evidence
- **Assumption identification:** recognizing the unstated beliefs and premises that underlie arguments and decisions, including one's own
- **Judgment:** making sound decisions in situations where information is incomplete, ambiguous, or contested

*Critical insight: Critical thinking is not an innate ability; it is a set of learnable habits and practices that develop through explicit instruction, modeling, and structured practice. It also does not operate in a vacuum: reasoning is always embedded in cultural context, shaped by assumptions that may not be visible, and applied in situations with real stakes and consequences. Developing critical thinkers means developing both the skill of rigorous reasoning and the wisdom to apply it with care.*

### How Critical Thinking Develops Over Time

Across PK-16, critical thinking typically develops as learners move from noticing what is known versus unknown and asking questions to make sense of things →

- identifying relevant information and giving reasons for conclusions →
- recognizing patterns, using evidence without prompting, and questioning incomplete or contradictory information →
- evaluating sources, identifying assumptions and bias, weighing trade-offs, and exercising sound judgment in ambiguous situations →
- applying rigorous reasoning to complex problems, anticipating unintended consequences, and examining systemic assumptions.

Early critical thinking is externally prompted and focused on concrete, observable situations. Over time, reasoning becomes more abstract, self-directed, and applicable to ambiguous or contested questions. Development is shaped by the quality of questions learners encounter, whether reasoning has been made visible and valued, and whether they have had practice in situations where the answer is not already known.

### How Critical Thinking Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

## PK-K (Approx. Ages 4–6): Noticing and Wondering

### Common expressions:

- Asks questions to find out more about something that puzzles or interests them
- Notices when something unexpected happens and seeks to understand why
- Recognizes simple cause-and-effect relationships in familiar situations

### Important to understand:

- Causal reasoning at this stage is concrete and based on direct observation; abstract or multi-step causation is not yet accessible
- Questions are the earliest form of critical thinking; creating a culture where questions are welcomed and taken seriously is the most important thing adults can do at this stage
- Young children may not yet distinguish between what they know and what they believe; the beginning of epistemic awareness is a significant developmental step

### Look-fors:

- Learner asks why or how when something surprises or puzzles them
- Learner notices when something does not work as expected and tries to figure out why
- Learner identifies a simple cause-and-effect relationship in a familiar situation

## Grades 1–2 (Approx. Ages 6–8): Giving Reasons

### Common expressions:

- Identifies relevant information from what is provided when given guidance on what to look for
- Gives reasons for simple choices or conclusions when asked
- Notices when something seems missing or does not add up, with prompting

### Important to understand:

- Reasoning at this stage is largely prompted and concrete; learners can give reasons but do not yet spontaneously seek evidence or question claims
- The habit of asking “why do you think that?”, modeled consistently by adults, begins to transfer to learners’ own thinking
- Learners are developing the understanding that claims need to be supported; this is a foundational step and should be reinforced across all subjects

### Look-fors:

- Learner can identify the most relevant piece of information in a simple situation
- Learner gives a reason for a conclusion or choice when asked
- Learner notices a gap or inconsistency in a simple situation when pointed toward it

## Grades 3–5 (Approx. Ages 8–11): Using Evidence and Questioning

### Common expressions:

- Identifies patterns or relationships within information across a set of examples or data
- Uses evidence to support a conclusion without being told to
- Questions information that appears incomplete, unclear, or contradictory, rather than accepting it at face value

### Important to understand:

- The shift from giving reasons to using evidence is significant; it requires understanding that claims need external support, not just internal logic
- Learners at this stage can recognize inconsistencies when pointed to them but may not yet seek them out independently
- Critical thinking applied to information that learners care about or that is personally relevant produces stronger engagement and transfer

### Look-fors:

- Learner supports a conclusion with relevant evidence without being asked to
- Learner identifies a pattern or relationship across multiple examples
- Learner questions something that seems incomplete or does not add up, without prompting

## Grades 6–8 (Approx. Ages 11–14): Evaluating and Identifying Assumptions

### Common expressions:

- Evaluates the credibility and relevance of sources and information, not only their surface plausibility
- Identifies assumptions or biases in arguments, representations, or their own reasoning
- Weighs trade-offs and likely consequences when facing a decision or evaluating a claim

**Important to understand:**

- The capacity to evaluate sources requires understanding that information comes from perspectives, not just facts; this is a significant conceptual development
- Identifying one's own assumptions is harder than identifying others'; building the metacognitive habit of examining one's own reasoning is essential and takes time
- Adolescents are increasingly exposed to contested information, media, and arguments; critical thinking in these contexts has real stakes and is highly motivating when framed that way

**Look-fors:**

- Learner evaluates the quality of a source or piece of evidence, not only its content
- Learner identifies an assumption in an argument or in their own reasoning
- Learner weighs competing considerations when making a decision or evaluating a claim

**Grades 9–12 (Approx. Ages 14–18): Reasoning Under Complexity****Common expressions:**

- Applies rigorous reasoning to complex, multi-variable problems where the answer is not obvious
- Anticipates unintended consequences of proposed actions or decisions
- Begins to examine systemic or structural assumptions underlying a problem or argument, not only surface-level claims

**Important to understand:**

- High-stakes critical thinking demands at this stage (college applications, civic participation, complex ethical decisions) require applying reasoning in contexts where social and emotional factors compete
- The capacity to recognize systemic assumptions, not just individual biases, is a qualitative developmental shift that requires explicit support
- Learners who have been rewarded for correct answers may resist the ambiguity required for genuine critical thinking; building tolerance for not having an immediate answer is part of the work

**Look-fors:**

- Learner applies reasoning to a problem with multiple interacting variables
- Learner names a likely unintended consequence of a proposed action or decision
- Learner identifies a structural or systemic assumption embedded in an argument or framing

**Postsecondary (Approx. Ages 18–22): Principled Judgment at Scale****Common expressions:**

- Applies rigorous reasoning to genuinely ambiguous or ethically complex situations where information is incomplete and stakes are real
- Examines systemic and structural assumptions underlying problems and arguments across academic, professional, and civic domains
- Demonstrates sound, principled judgment in high-stakes situations and contributes to reasoned decision-making in groups

**Important to understand:**

- Postsecondary and professional contexts introduce critical thinking demands that are qualitatively different: incomplete information, real consequences, institutional complexity, and competing values all challenge even well-developed reasoning capacity
- The transfer of critical thinking across domains is not automatic; learners who reason well in familiar contexts may not apply the same habits in new ones without deliberate practice
- Intellectual humility, the recognition that one's own reasoning may be incomplete or wrong, is a hallmark of mature critical thinking and requires explicit cultivation alongside confidence in reasoning

**Look-fors:**

- Learner applies rigorous reasoning to a high-stakes or ethically complex situation and explains the reasoning process
- Learner identifies and names a systemic assumption in a professional, academic, or civic context
- Learner contributes to group reasoning in a way that improves the quality of collective decision-making

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What do you know for sure? What are you less certain about?*
- *What evidence supports your conclusion? Is there evidence that points in a different direction?*
- *Is there anything missing from the information you have? Does that gap matter?*
- *What assumptions are you making? How might someone else see this differently?*
- *What would change your mind?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What assumptions underlie this argument or problem framing? Whose interests does that framing serve?*
- *What are the likely unintended consequences of this conclusion or decision? Who might be affected in ways that are not immediately obvious?*
- *How rigorous is your own reasoning here? Where are the weakest links, and what would it take to strengthen them?*

## Designing Experiences That Support Critical Thinking

Experience	Why It Helps	Examples
Socratic questioning	Develops the habit of asking why, looking for evidence, and questioning assumptions rather than accepting the first explanation	Teacher models questions like “How do we know that?” and “What evidence supports this?”; learners generate questions for each other before a discussion
Analysis of real arguments and claims	Builds critical thinking in authentic contexts where the stakes of reasoning matter	Evaluating news articles for credibility and reasoning; examining advertising claims; analyzing historical arguments using primary sources
Evidence-based discussion protocols	Requires learners to ground claims in evidence before others respond, building the habit of supporting rather than asserting	Structured academic controversy; Socratic seminar; discussion norms that require “what’s your evidence?” before counterarguments
Bias and assumption identification	Develops the metacognitive dimension of critical thinking: recognizing that one’s own reasoning is shaped by assumptions that may not be visible	Explicit exercises in identifying assumptions in texts, arguments, and one’s own reasoning; case studies of how bias has shaped historical judgments
Open-ended judgment tasks	Develops the capacity to exercise sound judgment when information is incomplete and there is no single correct answer	Case studies requiring a decision with incomplete information; ethical dilemmas; real-world problems where experts disagree
Cross-disciplinary analysis	Builds the transfer of critical thinking across domains, which is its highest-value application	Applying scientific reasoning to historical claims; applying ethical reasoning to scientific findings; analyzing the same event from multiple disciplinary lenses

**Design principle:** *Critical thinking develops through practice with authentic problems that do not have predetermined answers. Learners who only apply reasoning to questions with known correct answers develop test-taking skill, not critical thinking. The most powerful critical thinking development happens when the stakes are real, the answer is genuinely uncertain, and the quality of reasoning visibly matters.*

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Equating critical thinking with skepticism or negativity	Teaches learners to find fault without the constructive dimension of evaluating and reasoning toward better conclusions	Frame critical thinking as reasoning toward better understanding, not only identifying what is wrong; include constructive synthesis alongside critique
Only practicing critical thinking on low-stakes content	Transfers poorly to contexts that matter; learners who have only critiqued fictional scenarios struggle with real arguments, media, and decisions	Practice critical thinking on real issues, current events, and learners’ own work and decisions

Pitfall	Why It's Problematic	Instead
Treating reasoning as culture-neutral	What counts as valid evidence, appropriate inference, and sound argument varies across cultural and epistemological traditions; treating Western academic reasoning as the default narrows whose thinking counts	Engage explicitly with diverse reasoning traditions; honor multiple epistemologies; distinguish between teaching a particular form of reasoning and treating it as the only form
Separating critical thinking from ethics	Rigorous reasoning applied without ethical awareness can be used to justify harmful conclusions; critical thinking without a values dimension is incomplete	Connect critical thinking explicitly to judgment, values, and consequences; ask not only "is this reasoning sound?" but "what does this reasoning lead to and for whom?"
Grading argumentation rather than reasoning	Assessment of writing quality, debate skill, or confidence in presentation can substitute for assessment of actual reasoning quality	Assess the quality of reasoning directly: Are claims supported by relevant evidence? Are assumptions identified? Are counterarguments engaged?

## C.2 Problem Solving

### Description

Problem solving is the ability to identify problems, generate possible solutions, test approaches, and refine actions in response to results or feedback.

### Problem Solving Components:

- **Problem recognition:** noticing that a problem exists and that something needs to be addressed
- **Problem definition:** understanding what the problem actually is, including its scope, constraints, and underlying causes, before attempting to solve it
- **Solution generation:** producing multiple possible approaches rather than stopping at the first idea
- **Testing and monitoring:** trying a solution and observing what happens, using results to inform next steps
- **Revision and iteration:** refining, adjusting, or replacing an approach based on evidence from testing

*Critical insight: Problem solving is a process, not a talent. The most common failure in problem-solving development is skipping problem definition: learners who jump to solutions before understanding what the problem actually is spend effort in the wrong direction. Explicitly teaching the discipline of defining the problem before generating solutions, and iterating rather than stopping at the first workable answer, builds the habits that distinguish effective problem solvers from people who get lucky.*

### How Problem Solving Develops Over Time

Across PK-16, problem solving typically develops as learners move from

- recognizing that something is not working and attempting solutions with support →
- describing problems concretely and generating possible solutions with guidance →
- defining problems clearly, generating multiple solutions, and using results to decide next steps →
- selecting approaches using criteria, drawing on diverse knowledge sources, anticipating obstacles →
- solving complex problems with multiple constraints, integrating diverse perspectives, and leading problem-solving in ambiguous situations.

### How Problem Solving Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK-K (Approx. Ages 4–6): Noticing and Trying

#### Common expressions:

- Notices when something is not working and shows it through words or behavior
- Attempts a solution by following a model or with adult support
- Tries a different approach when the first one does not work, when prompted

**Important to understand:**

- Problem solving at this stage is largely trial-and-error; the systematic process of defining, generating, and testing is not yet accessible
- Play is the primary context for early problem solving; adults who observe and support rather than immediately solve create space for capacity development
- The disposition to try again when something does not work is the most important thing to build at this stage; it is the motivational foundation of all later problem-solving development

**Look-fors:**

- Learner notices when something is not working and signals it
- Learner tries a solution when shown a model or supported by an adult
- Learner tries a different approach when the first one fails, with prompting

**Grades 1–2 (Approx. Ages 6–8): Describing and Suggesting****Common expressions:**

- Describes a problem in concrete terms: what is happening, what is wrong, what they need
- Suggests possible solutions to a simple problem when guided by an adult
- Tries a solution and notices what happened as a result

**Important to understand:**

- Describing a problem before attempting to solve it is a significant cognitive step; it requires holding the problem in mind and representing it in language
- Learners at this stage can generate one or two solutions but may not yet see the problem as having many possible approaches
- Making the problem-solving process explicit through think-alouds and step-by-step narration gives learners access to what the process looks like from the inside

**Look-fors:**

- Learner can describe what the problem is in their own words
- Learner suggests at least one possible solution with adult guidance
- Learner notices what happened after trying a solution and can describe the result

**Grades 3–5 (Approx. Ages 8–11): Defining and Generating****Common expressions:**

- Defines the problem clearly before attempting a solution, rather than jumping immediately to action
- Generates more than one possible solution and considers the options before choosing
- Tests a solution and uses what happens to decide whether to continue, adjust, or try something different

**Important to understand:**

- The discipline of defining the problem before acting is one of the hardest habits to develop because the pull toward action is strong; explicit practice and reinforcement are needed
- Generating multiple solutions requires divergent thinking that is not always rewarded in school contexts; creating space for multiple ideas before evaluation is important
- Using results to inform next steps (rather than stopping at the first solution that works adequately) requires a growth-oriented relationship with effort and learning

**Look-fors:**

- Learner defines what the problem is before generating solutions
- Learner generates more than one possible approach before choosing
- Learner uses the result of trying a solution to decide what to do next

**Grades 6–8 (Approx. Ages 11–14): Selecting and Anticipating****Common expressions:**

- Selects an approach using stated criteria or goals rather than arbitrary preference
- Draws on knowledge from peers, community members, or multiple sources to strengthen solutions
- Anticipates obstacles before they arise and adjusts the approach proactively

**Important to understand:**

- The shift from generating possible solutions to evaluating them against criteria is a significant development; it requires both the criteria and the metacognitive habit of applying them
- Drawing on diverse knowledge sources extends problem-solving capacity beyond what any individual can generate alone; building this as a habit requires explicit modeling and practice

- Anticipating obstacles is a higher-order problem-solving skill that requires imagining future states; it develops through practice with complex, multi-step problems

#### **Look-fors:**

- Learner selects an approach and can articulate why based on stated criteria or goals
- Learner seeks input from peers or other knowledge sources to improve their solution
- Learner names a likely obstacle before it arises and describes how they would address it

### **Grades 9–12 (Approx. Ages 14–18): Navigating Complexity**

#### **Common expressions:**

- Solves problems with multiple interacting constraints, adapting approach as conditions change
- Integrates perspectives from different disciplines or backgrounds to develop stronger solutions
- Identifies where standard approaches are insufficient and applies original thinking to move forward

#### **Important to understand:**

- Complex problem solving at this stage requires both individual analytical capacity and the social and collaborative skills to draw on others' knowledge; they are not separable
- Learners who have been primarily evaluated on correct answers may struggle with the ambiguity of complex problems; building tolerance for uncertainty and iteration is as important as building analytical skill
- High-stakes problem-solving contexts (genuine community problems, research, entrepreneurship) produce the most durable development; simulated problems have less impact

#### **Look-fors:**

- Learner navigates a problem with multiple constraints without abandoning the process when it becomes difficult
- Learner integrates knowledge from more than one discipline or source to develop a stronger solution
- Learner identifies that a standard approach is not adequate and generates an original alternative

### **Postsecondary (Approx. Ages 18–22): Leading in Ambiguity**

#### **Common expressions:**

- Solves complex, open-ended problems with multiple constraints and competing priorities
- Integrates perspectives from different backgrounds, disciplines, or communities to develop solutions that are more complete and more equitable
- Leads problem-solving efforts in situations where the path forward is genuinely unclear and the stakes are real

#### **Important to understand:**

- The most important problem-solving development at this stage is the capacity to function effectively in genuine ambiguity, where the problem is not fully defined and the solution is not known in advance
- Leadership in problem-solving requires both the analytical skills to navigate complexity and the interpersonal skills to integrate diverse perspectives and sustain group effort under uncertainty
- Problem-solving experience in authentic contexts, including failures and incomplete solutions, is the primary driver of development at this stage; reflection on that experience is what converts it into learning

#### **Look-fors:**

- Learner leads or substantially contributes to a problem-solving effort in a genuinely ambiguous or high-stakes situation
- Learner integrates diverse perspectives in a way that produces a demonstrably stronger solution
- Learner can describe their problem-solving process and what they learned from where it succeeded and where it fell short

#### **Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What was the actual problem? How did you figure that out?*
- *What solutions did you consider? Why did you choose the approach you did?*
- *What happened when you tried your solution? Did it work the way you expected?*
- *What would you change about your approach if you tried again?*
- *What did you learn from where your solution worked and where it did not?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *How did you define the problem, and could it have been defined differently? What would have changed?*
- *What knowledge or perspectives did you draw on? What was missing, and how did that affect your solution?*
- *At what point were you most uncertain about the right direction? How did you navigate that? What does that reveal about how you work through ambiguity?*

## Designing Experiences That Support Problem Solving

Experience	Why It Helps	Examples
Open-ended problems with multiple valid solutions	Develops problem-solving as a process rather than answer-finding; learners practice generating and evaluating approaches rather than identifying the right one	Design challenges; engineering tasks with multiple possible solutions; math problems with more than one valid method; real community problems without obvious solutions
Problem definition practice	Builds the foundational habit of understanding what the problem actually is before attempting to solve it	Structured problem-definition protocols before solution work begins; “What is the actual problem here?” as a required first step; comparing how different framings of the same problem lead to different solutions
Iteration and revision cycles	Builds comfort with imperfect first attempts and develops the capacity to improve solutions based on evidence	Design-test-revise cycles; prototype and feedback loops; explicit expectation that first solutions will need revision; showcasing revision as a sign of learning, not failure
Drawing on diverse knowledge sources	Builds the practice of seeking input beyond one’s own knowledge, which strengthens solutions	Group problem-solving that intentionally includes different knowledge backgrounds; consulting community members as knowledge sources; drawing on multiple disciplines
Obstacle anticipation	Develops proactive problem-solving rather than reactive problem management	Before implementing a solution: “What could go wrong? What would you do?”; project planning that includes risk identification; structured pre-mortem analysis
Real problems with real stakes	Develops transfer and motivation; learners who have only solved practice problems often cannot apply problem-solving to authentic situations	Service learning with genuine problems; student-identified challenges in their school or community; workplace-connected problems; issues that the learner actually cares about solving

**Design principle:** *Problem-solving skill develops through practice with genuine problems that have multiple possible solutions and require real effort. The most important instructional move is building in iteration: treating first solutions as starting points, requiring revision based on evidence, and treating “it didn’t work” as the beginning of problem solving rather than its failure. Getting this norm right matters more than any particular problem-solving framework.*

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Jumping to solutions before defining the problem	The most common problem-solving failure; learners spend effort on solutions to the wrong problem	Make problem definition a required, assessed step; model returning to the problem definition when a solution does not seem to be working
Rewarding speed over process quality	Creates the impression that fast solutions are better; learners who rush sacrifice accuracy, creativity, and depth	Recognize and reward the quality of the problem-solving process, including time spent understanding the problem, generating multiple options, and revising

Pitfall	Why It's Problematic	Instead
Treating problem-solving as individual	Misses the collaborative dimension that produces stronger solutions and more equitable processes	Build in structured collaborative problem-solving; include peer and community input as an explicit part of the process; value diverse knowledge sources explicitly
Using only well-defined problems	Learners who have only solved clearly defined problems with known solution methods are not prepared for the ambiguous problems they will encounter in real life	Include ill-defined, open-ended, and novel problems in which the constraints and valid solutions are not predetermined
Praising the solution without examining the process	Evaluation of outcomes misses the problem-solving development that lives in the process	Assess the quality of the problem-solving approach alongside the quality of the solution; make the process visible and valued through documentation, reflection, and discussion

### C.3 Creative Thinking

#### Description

Creative thinking is the ability to generate original ideas, make unexpected connections, and build on existing ideas or work, using experimentation and iteration to develop new or improved solutions.

#### Creative Thinking Components:

- **Idea generation:** producing multiple original or unexpected ideas rather than stopping at the obvious or familiar
- **Connection-making:** identifying relationships between unrelated elements and using those connections to generate new ideas
- **Building on existing work:** extending, remixing, or transforming prior ideas, work, or traditions rather than starting from nothing
- **Experimentation:** trying approaches without certainty about the outcome, and using what happens to develop ideas further
- **Iteration:** refining creative work through multiple cycles using earlier attempts as material rather than discarding and restarting

*Critical insight: Creative thinking is not a personality trait, and it is not the exclusive territory of the arts. It is a set of learnable cognitive habits that develop through practice, feedback, and exposure. The most valuable form of creative thinking is applied: generating original approaches to real problems within genuine constraints. Developing creative thinkers requires both building the divergent thinking capacity (idea generation, connection-making) and the convergent discipline (iteration, evaluation, craft) that converts interesting ideas into effective solutions.*

#### How Creative Thinking Develops Over Time

Across PK-16, creative thinking typically develops as learners move from

- exploring and experimenting through play and generating variations on existing things →
- deliberately combining elements to create something new and applying creative thinking when straightforward approaches are not working →
- generating multiple original ideas independently and building on prior attempts through iteration →
- applying creative thinking to authentic problems with real constraints and refining solutions based on feedback →
- producing original solutions to complex or ill-defined problems and guiding creative efforts in ambiguous contexts.

Early creative thinking is expressed through play, experimentation, and variation. Over time, learners develop more deliberate generative capacity, the discipline of iteration, and the ability to apply creative thinking to problems with specific goals and constraints. Development depends on access to open-ended creative experience, explicit instruction in creative thinking habits, and environments that treat experimentation and revision as marks of quality, not incompleteness.

## How Creative Thinking Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Exploring and Experimenting

#### Common expressions:

- Explores materials, ideas, or approaches through play and open-ended experimentation
- Generates a new variation on something familiar when prompted or given open-ended materials
- Adds to, changes, or builds on something that already exists to make it different or new

#### Important to understand:

- Creative thinking at this stage is primarily expressed through play; this is its most natural and powerful early form and should be honored, not rushed toward product
- Adults who offer materials, ask open-ended questions (“What else could you do with that?”), and follow the child’s lead rather than directing toward a predetermined output support creative development most effectively
- The disposition to play, experiment, and vary is the motivational foundation of all later creative thinking; protecting and developing it in early childhood is among the most important investments adults can make

#### Look-fors:

- Learner engages with open-ended materials in exploratory ways rather than immediately seeking a predetermined outcome
- Learner generates a variation on or addition to something familiar
- Learner continues to experiment even after a first attempt, rather than stopping at the first result

### Grades 1–2 (Approx. Ages 6–8): Generating and Combining

#### Common expressions:

- Generates ideas that go beyond the first or most obvious response
- Deliberately combines elements from two or more different things to create something new
- Applies creative thinking to find a solution when the straightforward approach is not working

#### Important to understand:

- The shift from variation to deliberate combination is an important developmental step in creative thinking; it requires seeing two separate things as connectable, not just modifiable
- Some learners who were highly exploratory in play contexts become more constrained when creative work is evaluated or public; maintaining a safe, low-stakes context for creative exploration is important
- Connecting creative thinking explicitly to problem-solving at this stage begins to build the applied dimension that makes it most useful

#### Look-fors:

- Learner generates more than one idea before settling on an approach
- Learner combines elements from different sources to create something new
- Learner tries a creative approach when the usual method is not working

### Grades 3–5 (Approx. Ages 8–11): Multiple Ideas and Iteration

#### Common expressions:

- Generates multiple original ideas or approaches independently, without settling for the first idea
- Builds on prior attempts, using earlier work as material to refine rather than discarding it
- Explains the reasoning behind creative choices in relation to the problem or goal being pursued

#### Important to understand:

- Generating multiple ideas before evaluating any of them is a learnable habit that requires specific practice; most learners default to evaluating their first idea rather than generating more
- Iteration, the discipline of building on rather than discarding prior work, is one of the most important creative habits to develop and one of the least naturally occurring in school contexts
- The ability to articulate reasoning behind creative choices connects creative thinking to critical thinking and communication; it is a significant development and should be explicitly supported

**Look-fors:**

- Learner generates several distinct ideas before choosing one to develop
- Learner revises a creative work by building on what was already there rather than starting over
- Learner can explain why they made a specific creative choice in relation to the purpose or problem

**Grades 6–8 (Approx. Ages 11–14): Applying to Authentic Problems****Common expressions:**

- Applies creative thinking to real or authentic problems where the solution is not predetermined
- Builds on established approaches, methods, or others' work to extend or transform it while introducing something genuinely new
- Refines solutions based on feedback, constraints, and the specific requirements of the problem

**Important to understand:**

- The shift to applied creative thinking, in service of a real problem with real constraints, is a significant and sometimes difficult transition for learners who have developed creative thinking primarily as expression
- Adolescents may become more self-conscious about creative risk-taking as social judgment intensifies; environments that normalize creative failure and value experimentation over performance are especially important at this stage
- Building on others' work, distinct from copying it, is a sophisticated creative act that requires understanding how knowledge and creative traditions develop over time; this is worth teaching explicitly

**Look-fors:**

- Learner applies creative thinking to a real problem with specific constraints
- Learner builds on an existing approach in a way that is meaningfully different from the original
- Learner revises a creative solution based on feedback and the specific requirements of the problem

**Grades 9–12 (Approx. Ages 14–18): Original Solutions Under Constraint****Common expressions:**

- Produces original solutions to complex or ill-defined problems by working creatively within and beyond existing constraints
- Builds meaningfully on existing knowledge, traditions, or prior work in a domain in ways that extend or transform what is possible
- Guides creative thinking efforts in group contexts, helping others generate and develop ideas effectively

**Important to understand:**

- High-quality creative work at this stage requires both deep knowledge (knowing what exists and why) and the capacity to depart from it; building domain knowledge alongside creative thinking is essential
- Creative leadership, helping a group generate and develop ideas together, is a distinct skill that requires both strong individual creative capacity and facilitation skills
- Learners who have been primarily rewarded for correct answers may undervalue creative risk-taking; explicit recognition of original approaches, including ones that fail, counteracts this

**Look-fors:**

- Learner produces an original solution to a complex or ill-defined problem that reflects both domain knowledge and creative departure from existing approaches
- Learner builds on a disciplinary tradition or others' work in a way that is analytically sophisticated and adds something new
- Learner helps a group generate ideas more effectively through facilitation or modeling

**Postsecondary (Approx. Ages 18–22): Creative Leadership in Complex Domains****Common expressions:**

- Produces original, meaningful solutions to complex or ill-defined problems by working creatively within and beyond existing constraints
- Builds meaningfully on existing knowledge, traditions, or prior work in a domain, extending, synthesizing, or transforming it in ways that advance what is possible
- Guides creative problem-solving efforts in contexts where the problem itself is not fully defined

**Important to understand:**

- The highest levels of creative thinking require deep domain knowledge; creative contribution that genuinely advances a field or domain requires understanding what exists well enough to know what is missing or possible

- Creative thinking in professional and community contexts is often collaborative and political; navigating the social dimensions of creative work (credit, alignment, competing visions) is as important as the cognitive dimensions
- The capacity to work creatively under genuine ambiguity, where neither the problem nor the solution is clear, is the hallmark of mature creative thinking and requires sustained experience with genuinely open-ended challenges

**Look-fors:**

- Learner produces original work that demonstrates both domain fluency and genuine creative contribution
- Learner leads a creative process in which the problem itself requires definition as part of the work
- Learner can articulate the relationship between their creative work and existing knowledge, traditions, or prior work in the domain

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What was your first idea? What made you try something different?*
- *Where did your ideas come from? What connections did you make?*
- *What did you change or add from earlier versions? Why?*
- *Did any of your experiments surprise you? What did you learn from them?*
- *What would you develop further if you had more time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What existing ideas, traditions, or prior work did you build on? What makes your contribution different from or an extension of those?*
- *Where did the constraints you were working within push your thinking in unexpected directions? How did working within limits shape your creativity?*
- *What is the relationship between your knowledge of this domain and your capacity to do something original in it? What does that tell you about how creative thinking develops?*

**Designing Experiences That Support Creative Thinking**

Experience	Why It Helps	Examples
Open-ended exploration and play	Builds the foundational disposition of creative thinking: curiosity, experimentation, and comfort with not knowing where something is going	Materials exploration with no predetermined product; open-ended making time; permission to experiment without a required outcome
Deliberate combination and connection tasks	Develops the specific habit of generating new ideas by connecting existing elements in unexpected ways	Force connections between unrelated concepts; “What if…” prompts; analogical thinking exercises; remixing and mashing up existing ideas
Iteration with prior work as material	Builds creative thinking that improves rather than restarts; the discipline of refining an idea rather than discarding it is a distinct creative skill	Design cycles that explicitly build on prior drafts; “what from your first attempt is worth keeping and developing?”; creative revision as a regular practice
Authentic problems requiring original solutions	Develops creative thinking in service of real goals, not only as expression; the most transferable form of creative thinking is applied to genuine constraints	Design challenges with real clients or audiences; community problems that require original approaches; creative writing for publication or sharing
Feedback cycles on creative work	Builds the capacity to receive and use critique on work that feels personal and expressive, which is harder than receiving feedback on analytical work	Structured peer feedback on creative work using specific criteria; teaching learners to articulate the reasoning behind creative choices before receiving feedback; separating feedback on craft from feedback on vision

Experience	Why It Helps	Examples
Cross-domain exposure	Expands the range of connections available for creative thinking by building broad knowledge and experience	Drawing on diverse genres, traditions, and disciplines as creative resources; exploring art, music, design, science, and literature as related rather than separate; connecting to learners' own cultural creative traditions

**Design principle:** *Creative thinking develops through a combination of open exploration and disciplined iteration. Open-ended exploration builds the generative capacity; structured iteration builds the quality and effectiveness of what is generated. The most powerful creative learning environments hold both together: they protect space for genuine experimentation and they require the discipline of revision. Neither alone is sufficient.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Treating creativity as a fixed trait	Causes learners who have not been identified as creative to stop trying and educators to stop developing it in them	Frame creative thinking explicitly as a learnable skill; hold consistent expectations while differentiating support; name and develop creative thinking in all learners, not only those who already express it
Separating creativity from rigor	Implies that creative work does not need to be evaluated against standards of quality, craft, or effectiveness	Connect creative thinking to specific quality criteria; help learners articulate what makes creative work effective for its purpose; develop craft alongside idea generation
Rewarding novelty without effectiveness	Produces random or shocking output without the problem-solving dimension that makes creative thinking valuable	Evaluate creative work on both originality and effectiveness for the stated purpose; help learners develop judgment about when an idea is interesting versus when it is good
Only valuing certain forms of creativity	Cultural and disciplinary biases in what counts as creative thinking exclude many learners whose creativity is expressed in other traditions or forms	Explicitly recognize diverse cultural creative traditions as sophisticated and valuable; expand definitions of what creative thinking looks like
Skipping iteration in favor of product	Removes the dimension of creative thinking that produces excellence; first ideas are almost never the best ones	Require iteration as part of creative tasks; assess the quality of the revision process; make the development of an idea over multiple drafts visible and valued

## C.4 Inquiry

### Description

Inquiry is the ability to ask focused questions, seek and evaluate information, and pursue understanding systematically (driven by genuine curiosity about how and why things work), in order to learn, investigate problems, and build knowledge.

### Inquiry Components:

- **Questioning:** generating focused, answerable questions that drive investigation rather than accepting the first formulation
- **Information-seeking:** actively searching for information using appropriate sources and methods
- **Source evaluation:** assessing the credibility, relevance, and completeness of information and sources
- **Synthesis:** combining findings across sources to build a coherent, evidence-based understanding
- **Question refinement:** sharpening or adjusting questions as investigation proceeds and understanding develops

*Critical insight: Inquiry begins with curiosity, but curiosity alone is not sufficient. The capacity to ask a focused, investigable question, to seek information systematically, and to evaluate what is found are learnable skills that require explicit instruction and practice. Equally important is the disposition to keep asking, even after an initial answer is found, and to question one's own conclusions. Inquiry and critical thinking develop together, and both are necessary for genuine knowledge-building.*

### **How Inquiry Develops Over Time**

Across PK-16, inquiry typically develops as learners move from

- asking questions about what interests or puzzles them and exploring through observation →
- asking follow-up questions and using provided sources to find and describe information →
- generating focused questions, using multiple sources, and evaluating whether information answers their question →
- refining questions as investigation proceeds, evaluating source quality, and synthesizing across sources →
- sustaining inquiry in complex domains, framing original questions, and cultivating inquiry in others.

Early inquiry is driven by wonder and expressed through questions and observation. Over time, learners develop more systematic and evaluative practices, including source selection, credibility assessment, and synthesis. At the most developed levels, inquiry becomes original knowledge contribution rather than knowledge acquisition. Development depends on whether curiosity has been welcomed, whether investigation has been taught alongside content, and whether learners have had practice with questions they genuinely wanted to answer.

### **How Inquiry Shows Up by Grade Band**

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### **PK-K (Approx. Ages 4–6): Wondering and Exploring**

#### **Common expressions:**

- Asks questions to find out more about something that interests or puzzles them
- Explores objects, materials, and situations through observation and hands-on investigation to find out what happens
- Notices and points out something unexpected or surprising, making it visible to others

#### **Important to understand:**

- Curiosity is natural and abundant at this stage; the most important thing adults can do is welcome and extend it rather than redirect it toward predetermined content
- Questions at this stage are often broad, personally relevant, and unanswerable by a quick lookup; this is appropriate and should be honored
- The habit of noticing and pointing out the unexpected is the beginning of scientific and investigative thinking; it deserves explicit recognition

#### **Look-fors:**

- Learner asks a genuine question about something they observed or encountered
- Learner explores a material or situation in ways that show they are investigating, not just playing
- Learner points out something unexpected and expresses curiosity about why it happened

### **Grades 1–2 (Approx. Ages 6–8): Following Up and Finding Out**

#### **Common expressions:**

- Asks follow-up questions that go beyond the initial answer to deepen understanding
- Uses a provided source (book, video, trusted person, simple search) to find information that answers their question
- Describes what they found out and connects it back to the question they were asking

#### **Important to understand:**

- The discipline of asking a follow-up question rather than accepting the first answer is a significant and important development; it should be explicitly modeled and reinforced

- Using a source to find information is a learnable skill; many learners at this stage have never been shown how to use an information source purposefully
- Connecting what was found to the original question builds the habit of purposeful inquiry rather than random information accumulation

**Look-fors:**

- Learner asks a follow-up question after receiving an initial answer
- Learner uses a source to find information that answers their question
- Learner can describe what they found out and connect it to what they wanted to know

**Grades 3–5 (Approx. Ages 8–11): Focusing and Evaluating**

**Common expressions:**

- Generates a focused, investigable question to guide their inquiry before searching for information
- Uses more than one source or method to gather information on a question
- Evaluates whether the information they found actually answers the question they asked

**Important to understand:**

- The transition from broad curiosity questions to focused, investigable questions is a significant cognitive step; it requires understanding what kind of answer is possible and how it could be found
- Using multiple sources is a learnable habit that most learners do not develop automatically; it needs to be explicitly required and reflected on
- Evaluating whether information answers the question is a form of metacognition applied to inquiry; it requires holding the original question in mind while reading or researching

**Look-fors:**

- Learner formulates a focused question before beginning to search for information
- Learner uses at least two different sources or methods to investigate their question
- Learner evaluates whether what they found actually answers the question they started with

**Grades 6–8 (Approx. Ages 11–14): Refining and Synthesizing**

**Common expressions:**

- Refines or sharpens their question based on what they are learning as the investigation proceeds
- Evaluates the credibility, relevance, and completeness of sources, not only their surface plausibility
- Synthesizes findings across multiple sources to build a coherent answer or argument

**Important to understand:**

- Question refinement, updating the question based on what investigation reveals, is a mark of genuine inquiry rather than procedural research completion; it should be explicitly valued and assessed
- Source evaluation requires understanding that information comes from perspectives and has purposes; this is a conceptual development that needs explicit instruction, not just exposure
- Synthesis across sources requires holding multiple pieces of information in mind simultaneously and identifying both convergence and divergence; it is cognitively demanding and benefits from structured support

**Look-fors:**

- Learner refines or adjusts their question based on what they have learned so far
- Learner evaluates a source for credibility or bias, not only usefulness
- Learner synthesizes information from multiple sources into a coherent argument or answer

**Grades 9–12 (Approx. Ages 14–18): Sustaining and Contributing**

**Common expressions:**

- Sustains a line of inquiry over time in a complex or unfamiliar domain, adjusting questions as understanding develops
- Evaluates sources with sophisticated attention to bias, methodology, and context
- Begins to frame questions that extend understanding beyond what is easily found or already known

**Important to understand:**

- Sustained inquiry over weeks or months is qualitatively different from short-cycle research tasks; it requires both intellectual commitment and the organizational and emotional capacity to stay engaged through uncertainty
- At this stage, learners can begin to notice the limits of what is known in a domain and to ask questions that might push those limits; this is the beginning of original inquiry and deserves explicit support
- The politics and power dynamics of knowledge, whose questions get researched, whose findings are published, whose knowledge is valued, are accessible at this stage and should be part of inquiry development

**Look-fors:**

- Learner sustains a focused line of inquiry across multiple sessions or weeks, refining their questions as understanding develops
- Learner evaluates a source’s methodology or potential bias, not only its content
- Learner frames a question that goes beyond what existing sources easily answer

**Postsecondary (Approx. Ages 18–22): Original Knowledge-Building****Common expressions:**

- Sustains inquiry in complex or unfamiliar domains, adjusting questions and methods as the investigation develops
- Frames original questions that advance understanding in a domain beyond what is already known or easily found
- Cultivates inquiry habits and practices in others through modeling, questioning, and structured encouragement

**Important to understand:**

- At this stage, inquiry begins to shade into original research and knowledge contribution; the distinction between learning what is known and pushing into what is not yet known is where the most significant development occurs
- Inquiry in professional and community contexts requires navigating institutional access to information, power dynamics around whose questions are funded and pursued, and the ethical dimensions of research and investigation.
- The capacity to mentor others’ inquiry, not just conduct one’s own, is a mark of genuine mastery; it requires being able to articulate what good inquiry looks like and how to develop it

**Look-fors:**

- Learner frames and pursues an original inquiry question in a domain
- Learner explicitly acknowledges the limits of existing knowledge and what their question adds
- Learner models or supports others’ inquiry development in a way that is specific and effective

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What question were you trying to answer? Did it change as you went? How?*
- *What sources did you use? Why did you choose them?*
- *Did you find information that surprised you or contradicted what you expected?*
- *How do you know your information is reliable? What made you trust your sources?*
- *What do you still want to know?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *How did your question develop or sharpen over the course of the investigation? What drove that development?*
- *What are the limits of what your sources can tell you? What would it take to answer the parts of your question that remain open?*
- *Whose knowledge is represented in your sources, and whose is missing? What difference does that make to what you found?*

**Designing Experiences That Support Inquiry**

Experience	Why It Helps	Examples
Learner-generated questions	Honors curiosity as the motivational foundation of inquiry; learners who pursue questions they genuinely want answered develop stronger inquiry habits and deeper engagement than those completing assigned research steps	Curiosity-activation routines before investigation (notice-wonder protocols, open observation time); Question Formulation Technique (QFT); learner choice of inquiry topic; dedicated time to explore what they actually want to know before any structure is applied.
Multi-source investigation	Develops the habit of seeking more than one source and evaluating what they find against each other	Explicitly requiring multiple sources; comparing what different sources say about the same topic; identifying where sources agree and where they conflict

Experience	Why It Helps	Examples
Source evaluation practice	Builds the critical dimension of inquiry: not all information is equally reliable or relevant	Structured exercises in evaluating credibility, bias, and relevance; teaching specific criteria for source evaluation; modeling the process of evaluating a source explicitly
Question refinement	Develops inquiry as an iterative process; good questions get better as investigation progresses	Mid-inquiry check-ins on whether the original question still makes sense; “has your question changed?” as a regular prompt; showing learners how prior investigators revised their questions as their understanding grew
Sustained inquiry over time	Builds the capacity for deep investigation that cannot develop through short, single-session tasks	Multi-week inquiry projects; independent research connected to something the learner genuinely wants to understand; inquiry portfolios that document question development over time
Sharing and examining findings	Develops inquiry as a knowledge-building practice, not only individual knowledge acquisition	Learners share findings and others ask questions; synthesis activities that integrate findings across the class; connecting individual inquiry to larger questions the community cares about

**Design principle:** *Inquiry develops most powerfully when learners are pursuing questions they actually want to answer. The most important design decision is whether the question is real. A learner working on a genuine question develops inquiry skills that transfer; a learner completing a research assignment may develop research procedural knowledge without developing inquiry. Protecting space for genuine curiosity, and building systematic investigation skills around it, is the central challenge of inquiry-based learning.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Treating inquiry as a format rather than a disposition	Completing a research report or following inquiry steps produces a product but does not necessarily develop the disposition of genuine curiosity-driven investigation	Focus on developing genuine questions, not on filling in a research template; assess whether learners are actually following their curiosity, not whether they completed the steps
Accepting the first source found	Produces superficial inquiry and reinforces over-reliance on easy, low-quality information sources	Require multiple sources explicitly; model seeking out better sources; teach that the quality of a source matters as much as its existence
Answering learners' questions directly when they could investigate	Removes the inquiry; learners develop the skill of investigation only through doing it	Use learner questions as launching points for investigation rather than direct answers; model the process of finding out rather than demonstrating the answer
Separating inquiry from real questions learners have	Inquiry exercises disconnected from genuine curiosity produce procedural compliance, not inquiry development	Connect inquiry skill development to things learners actually want to know; the strongest inquiry development happens when the question is real
Ignoring Indigenous, community, and diverse ways of knowing	Privileging formal academic research methods as the only valid form of inquiry excludes rich epistemological traditions and limits the range of knowledge sources available	Explicitly include community knowledge, oral tradition, and diverse epistemological approaches as valid inquiry methods; honor multiple ways of investigating and knowing

## C.5 Decision-Making

### Description

Decision-making is the ability to make thoughtful choices by weighing options, evidence, values, and potential consequences, and by exercising sound judgment across contexts.

### Decision-Making Components:

- **Option generation:** identifying the range of choices available, including non-obvious alternatives
- **Evidence weighing:** using relevant information to evaluate the likely outcomes of different choices
- **Values alignment:** considering whether a choice reflects what one believes is important and right
- **Consequence anticipation:** reasoning about what is likely to happen as a result of different choices, including effects on others
- **Judgment under uncertainty:** making sound decisions when information is incomplete, ambiguous, or contested

*Critical insight: Decision-making is not a purely rational process, and developing it should not treat it as one. Emotions, values, identity, relationships, and cognitive biases all shape how decisions are made; ignoring these dimensions produces decision-making education that does not transfer to real situations. The goal is developing learners who make thoughtful choices by recognizing the full range of factors that shape them, not learners who can fill in a decision matrix.*

### How Decision-Making Develops Over Time

Across PK-16, decision-making typically develops as learners move from

- making choices between concrete options and beginning to recognize that choices have outcomes →
- giving reasons for choices and identifying pros and cons →
- evaluating options against criteria and considering effects on others →
- weighing multiple factors including risks, values, and benefits, and revisiting decisions as new information emerges →
- exercising sound judgment in high-stakes or ambiguous situations and supporting ethical decision-making in groups.

Early decision-making is concrete and preference-based. Over time, learners develop the capacity to evaluate options against explicit criteria, to consider the perspectives and interests of others, and to exercise judgment when information is incomplete. Development depends on having genuine decisions to make, seeing the consequences of choices, and having space to reflect on the process, not only the outcome.

### How Decision-Making Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Choosing and Noticing Outcomes

#### Common expressions:

- Makes a choice between concrete options when invited to do so
- Shows awareness that different choices lead to different outcomes, even in very simple situations
- States a preference when deciding and can say what they wanted

#### Important to understand:

- Decision-making at this stage is preference-based and present-focused; the capacity to reason about future consequences is just beginning to develop
- Adults who name choices and outcomes explicitly (“You chose the blue one. What made you pick that?”) begin building the connection between choice and reasoning
- Supporting children in making genuine small choices, and seeing what happens, is the most developmentally appropriate form of decision-making practice at this stage

#### Look-fors:

- Learner makes a choice between options when presented with a genuine decision
- Learner is beginning to show awareness that choices lead to outcomes
- Learner can state why they made a simple choice when asked

## Grades 1–2 (Approx. Ages 6–8): Giving Reasons and Seeing Consequences

### Common expressions:

- Gives reasons for choices when asked, connecting the decision to their preference or goal
- Identifies something good and something difficult about two different options
- Considers what will happen next as a result of a choice before deciding

### Important to understand:

- The ability to give a reason for a choice is a significant step; it connects decision-making to reasoning rather than pure impulse or preference
- Simple pros and cons analysis is accessible at this stage with support; learners can usually name at least one advantage and one disadvantage of each option when prompted
- Beginning to think forward to consequences is an important development; it starts with immediate, concrete consequences and gradually extends to longer-term and less direct ones

### Look-fors:

- Learner gives a reason for a choice that connects to their goal or preference
- Learner identifies at least one advantage and one disadvantage of each option before choosing
- Learner considers what will happen next before making a simple decision

## Grades 3–5 (Approx. Ages 8–11): Using Criteria and Considering Others

### Common expressions:

- Evaluates options against stated criteria or goals rather than only immediate preference
- Makes decisions independently in familiar situations where the options and stakes are clear
- Considers how a choice will affect others before deciding, not only themselves

### Important to understand:

- The shift from preference to criteria-based decision-making is a significant cognitive development; it requires having a clear goal and using that goal to evaluate options
- Considering others' interests alongside one's own is a major development in decision-making; it connects to perspective-taking and ethical reasoning
- Independent decision-making at this stage is developing in familiar contexts; novel or high-stakes decisions still benefit from adult support and scaffolding

### Look-fors:

- Learner evaluates options against a stated goal or criterion before choosing
- Learner makes a decision in a familiar situation without needing adult direction
- Learner considers how their choice will affect others before deciding

## Grades 6–8 (Approx. Ages 11–14): Weighing Multiple Factors

### Common expressions:

- Weighs multiple factors simultaneously: risks, benefits, values, and effects on others when facing a complex decision
- Revisits and revises a decision when new information emerges rather than staying committed to the original choice
- Explains how values and evidence together shaped a significant decision

### Important to understand:

- Adolescent decision-making is significantly influenced by peer context and emotional state; decisions made in high-social-stakes contexts look different from decisions made independently
- The capacity to revise a decision in light of new information is a mark of intellectual flexibility; learners who treat changing their mind as failure need explicit support to reframe it
- Connecting decision-making to values is an important dimension that is often underdeveloped; helping learners articulate what they value before they face significant decisions is a high-leverage practice

### Look-fors:

- Learner names multiple factors they considered when making a significant decision
- Learner changes course or revises a decision when new information warrants it
- Learner explains how both values and evidence shaped an important choice

## Grades 9–12 (Approx. Ages 14–18): Judgment Under Uncertainty

### Common expressions:

- Exercises sound judgment in high-stakes or ambiguous situations where information is incomplete
- Balances short-term considerations with longer-term consequences and ethical commitments when deciding
- Reflects on their decision-making process and can identify where bias, emotion, or social pressure shaped it

**Important to understand:**

- High-stakes decisions at this stage (academic, social, identity-related, future-oriented) involve real consequence and real emotional weight; the cognitive capacity for sound judgment is developing but not yet fully reliable under pressure
- Cognitive bias in decision-making is a real and largely invisible force; teaching specific common biases and building the habit of checking for them is a high-leverage intervention
- The context in which a decision is made matters enormously; decision-making in high-pressure, peer-influenced, or emotionally activated contexts produces different outcomes than the same decision made in calm reflection

**Look-fors:**

- Learner makes a sound decision in a situation where information is incomplete and explains the reasoning
- Learner reflects on a decision and identifies where bias, emotion, or social pressure shaped the process
- Learner articulates how short-term and long-term considerations were balanced in a significant decision

**Postsecondary (Approx. Ages 18–22): Ethical and Collective Decision-Making****Common expressions:**

- Exercises sound judgment in genuinely high-stakes or ambiguous situations where information is incomplete and consequences are significant
- Balances short-term demands with long-term consequences and ethical commitments in complex real-world decisions
- Contributes to establishing practices that support ethical, evidence-informed decision-making in groups or organizations

**Important to understand:**

- Decision-making at this stage involves institutional and professional authority that makes poor decisions consequential in ways that exceed prior developmental contexts; the development of judgment must keep pace with the expansion of authority
- Collective decision-making, contributing to decisions made by groups and organizations, requires different skills from individual decision-making and is rarely developed explicitly
- The ethics of decision-making, including whose interests are considered and whose are excluded, becomes increasingly important as the scope of decisions expands; connecting decision-making to equity and justice is part of mature development

**Look-fors:**

- Learner exercises sound judgment in a high-stakes, ambiguous situation and can explain the reasoning and the trade-offs made
- Learner contributes to a group decision-making process in a way that improves its quality and ethical grounding
- Learner identifies where their own biases or blind spots affected a significant decision and describes what they did or would do differently

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What were your options? Were there options you did not consider at first?*
- *Why did you make the choice you did? What was most important to you?*
- *What did you think would happen? What actually happened?*
- *How did your choice affect other people?*
- *What would you decide differently, knowing what you know now?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What factors did you weigh, and how did you decide which ones mattered most? Where did your values show up in that weighing?*
- *How did your emotional state, the people around you, or the pressure of the situation affect your decision? How do you distinguish between factors that should influence a decision and factors that simply did?*
- *Looking back, where was your reasoning strong and where was it weak? What does that reveal about your decision-making patterns?*

## Designing Experiences That Support Decision-Making

Experience	Why It Helps	Examples
Structured decision analysis	Builds the habit of explicitly weighing options, evidence, and consequences before deciding, rather than acting on the first impulse or the path of least resistance	Decision matrices; pros and cons analysis; consequence mapping; structured choice scenarios with explicit criteria
Real decisions with real stakes	Develops decision-making in contexts where the quality of the decision visibly matters	Genuine learner voice in classroom decisions; choices about projects, formats, or approaches with real consequences; community decisions in which learners have actual authority
Values clarification	Connects decision-making to the internal compass that gives it ethical grounding	Explicit exploration of what matters and why before facing a decision; reflection on how values shaped a past decision; identifying where values and circumstances came into tension
Decision review and revision	Builds the habit of treating decisions as revisable in light of new information, which distinguishes flexible from rigid decision-makers	Mid-decision check-ins on whether initial choices are still sound; practice changing course when evidence warrants; distinguishing between commitment to a goal and commitment to a specific approach
Decision-making under uncertainty	Develops the specific capacity for exercising judgment when information is incomplete, which is the condition of most real decisions	Scenarios in which not all information is available; practice identifying what would change the decision if known; analyzing decisions made under incomplete information in history, science, or public policy
Examining decision-making processes	Develops metacognitive awareness of how one makes decisions, including recognition of cognitive biases	Debrief on how a decision was made, not only what was decided; identifying where bias, emotion, or social pressure shaped the process; case studies of consequential decisions and the factors that shaped them

**Design principle:** *Decision-making develops through practice with real decisions, not through analysis of hypothetical ones. The most important design move is creating genuine learner authority in age-appropriate domains so that decisions have real stakes and real consequences. Reflection on actual decisions, including ones that did not work out, is more powerful than any structured decision-making exercise.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Removing all decision-making from learners	Deprives them of the practice needed to develop the skill; learners who have no authority to make real choices do not develop genuine decision-making capacity	Create genuine learner authority in age-appropriate domains; distribute decision-making gradually as capacity develops; treat mistakes as learning rather than reasons to remove authority
Treating decision-making as purely rational	Decisions are made by people with emotions, values, identities, and relationships; ignoring these dimensions produces a false model of how decisions actually work	Explicitly address the role of emotion, values, and social context in decision-making; teach learners to recognize when these are shaping their process and how to account for them

Pitfall	Why It's Problematic	Instead
Focusing only on the decision, not the process	Assessment of outcomes misses the decision-making development that lives in the process	Ask learners to explain their decision-making process, not only their decision; assess the quality of reasoning, evidence use, and value-alignment, not only whether the decision worked out
Expecting adult-level judgment from developing learners	Adolescent decision-making is constrained by developing prefrontal cortex function, particularly in emotionally charged or peer-influenced contexts; expecting adult judgment sets learners up for shame rather than growth	Match expectations to developmental capacity; provide more structure and support in high-stakes emotional contexts; treat poor decisions as development data, not character evidence
Ignoring systemic constraints on decision-making	Some learners have significantly constrained decision-making autonomy due to economic, familial, cultural, or institutional factors; ignoring this misses the real complexity of their decision-making context	Acknowledge explicitly that decisions are made within constraints that vary across learners; teach decision-making as working well within real constraints, not only in idealized conditions

## C.6 Systems Thinking

### Description

Systems thinking is the ability to recognize relationships among parts of a system, understand patterns and interdependencies, and anticipate how actions or changes affect outcomes over time.

### Systems Thinking Components:

- **Part-whole recognition:** understanding that systems are composed of parts that work together and that the whole is more than the sum of its parts
- **Relationship mapping:** identifying how parts of a system affect and depend on each other
- **Feedback loop recognition:** noticing how outputs of a system become inputs that reinforce or balance system behavior over time
- **Change consequence analysis:** reasoning about how a change in one part of a system ripples through to affect other parts and the whole
- **Leverage identification:** recognizing where in a system a change would have the most significant effect

*Critical insight: Systems thinking challenges one of the most deeply ingrained cognitive defaults: linear, single-cause thinking. Most people naturally look for the one cause of a problem and the one solution to fix it. Systems thinking requires holding multiple interacting causes and effects simultaneously, recognizing feedback loops, and anticipating consequences that are not immediate or obvious. This is cognitively demanding and requires explicit instruction and sustained practice across multiple contexts. It is also one of the highest-leverage skills for navigating the complex problems that characterize adult life and work.*

### How Systems Thinking Develops Over Time

Across PK-16, systems thinking typically develops as learners move from

- recognizing that parts work together and noticing simple cause-and-effect →
- describing how changes in one part affect another and identifying roles within familiar systems →
- explaining how components interact, identifying feedback loops, and anticipating near-term effects of change →
- analyzing systems for leverage points, considering multiple interacting factors, and examining how systems evolve over time →
- applying systems thinking to complex real-world problems, anticipating unintended consequences, and integrating multiple stakeholder perspectives.

Early systems thinking is concrete and tied to familiar, visible systems. Over time, learners develop the capacity to reason about more abstract systems, to recognize feedback dynamics, and to anticipate consequences that are not immediate or obvious. Development depends on exposure to diverse systems, explicit instruction in systems concepts, and practice analyzing real problems through a systems lens.

## How Systems Thinking Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Parts and Wholes

#### Common expressions:

- Recognizes that some things are made of parts that work together
- Notices when one thing leads to another in a simple sequence
- Identifies what belongs and what does not belong in a familiar grouping or category

#### Important to understand:

- Systems thinking at this stage is concrete and limited to directly observable relationships; abstract systems are not yet accessible
- The most foundational systems thinking concept is part-whole relationship; understanding that things are made of parts that work together is accessible even to very young children with concrete examples
- Adults who narrate systems explicitly (“The roots bring water to the leaves, which make food for the whole plant”) begin building the conceptual vocabulary of systems thinking

#### Look-fors:

- Learner identifies that something is made of parts that work together
- Learner notices a simple sequence where one thing leads to another
- Learner sorts or categorizes objects based on a shared property and identifies what does not belong

### Grades 1–2 (Approx. Ages 6–8): Parts Affecting Parts

#### Common expressions:

- Describes how a change in one part of a familiar system affects another part
- Identifies roles or components within familiar systems such as a classroom, a family, or a simple machine
- Recognizes patterns that repeat over time in familiar contexts

#### Important to understand:

- The ability to reason about one part affecting another, not just about parts in isolation, is a significant development in systems thinking
- Familiar systems like the classroom or the family are the most accessible entry points for developing systems thinking at this stage
- Repeating patterns (seasons, daily routines, recurring events) are early windows into the dynamic dimension of systems thinking

#### Look-fors:

- Learner describes how a change in one part of a familiar system affects another part
- Learner identifies the components and roles within a familiar system
- Learner recognizes a pattern that repeats over time in a familiar context

### Grades 3–5 (Approx. Ages 8–11): Interactions and Anticipation

#### Common expressions:

- Explains how components of a familiar system interact with each other, not just what each component does
- Identifies a feedback loop or reinforcing pattern in a system: how one element’s effect comes back to influence that same element
- Anticipates near-term effects of a change within a system before the change occurs

#### Important to understand:

- The concept of feedback is one of the most important and most difficult in systems thinking; it requires understanding that system outputs become inputs, which is conceptually non-obvious and needs concrete illustration
- Anticipating consequences before they occur is a more demanding form of systems thinking than describing consequences after the fact; it requires holding the system in mind and running a mental simulation

- Environmental, ecological, and community systems provide rich, accessible, and relevant contexts for developing systems thinking at this stage

**Look-fors:**

- Learner explains how two or more components of a system interact, not just what each one does
- Learner identifies a feedback pattern in a system: how one element affects another and comes back to affect itself
- Learner anticipates a likely effect of a change in a system before the change occurs

**Grades 6–8 (Approx. Ages 11–14): Leverage and Evolution**

**Common expressions:**

- Analyzes a system to identify where a change would have the most significant effect
- Considers multiple interacting factors simultaneously when explaining why an outcome occurred
- Examines how a system has changed or evolved in response to pressures over time

**Important to understand:**

- Leverage point analysis, identifying where in a system an intervention would have the most impact, is a sophisticated systems thinking application that requires both mapping the system and reasoning about dynamics
- Multi-factor explanation is one of the most important critical and systems thinking habits; most real problems have multiple interacting causes, and learners who look for single causes systematically underestimate complexity
- Historical and social systems provide rich contexts for developing systems thinking at this stage and connect to content that adolescents are already studying

**Look-fors:**

- Learner identifies a leverage point in a system and explains why a change there would have significant effects
- Learner explains an outcome by naming multiple interacting factors, not a single cause
- Learner describes how a system has changed over time in response to pressure

**Grades 9–12 (Approx. Ages 14–18): Complex Real-World Systems**

**Common expressions:**

- Applies systems thinking to complex, real-world problems where causes are not obvious and interactions are multiple
- Anticipates unintended consequences of proposed interventions or policy changes within a system
- Integrates perspectives from multiple stakeholders or disciplines to develop a more complete understanding of a system

**Important to understand:**

- Complex real-world systems (social, ecological, economic, political) are the contexts where systems thinking matters most and where it is most difficult to apply; learners need explicit support in bridging classroom systems thinking to these domains
- Anticipating unintended consequences requires both a complete map of system interactions and the intellectual humility to recognize that no map is complete; this is a sophisticated disposition to develop
- Systemic analysis of power and equity, whose interests are served by how a system is structured, is an important dimension of systems thinking at this stage and should be integrated explicitly

**Look-fors:**

- Learner applies systems thinking to a complex real-world problem and produces a richer analysis than single-cause explanation would allow
- Learner anticipates an unintended consequence of a proposed intervention in a system
- Learner integrates perspectives from multiple stakeholders or disciplines to develop a more complete systems analysis

**Postsecondary (Approx. Ages 18–22): Systems Change and Integration**

**Common expressions:**

- Applies systems thinking to address complex, real-world problems where causes are non-obvious and standard approaches are insufficient
- Anticipates unintended consequences of interventions and plans for them proactively
- Integrates perspectives from multiple stakeholders and disciplines to improve understanding and outcomes in complex systems

### Important to understand:

- Professional and civic life at this stage involves operating within and sometimes attempting to change large, complex systems; the capacity to understand those systems is one of the most important competencies for effective action
- The gap between systems analysis and systems change is significant; understanding how a system works is not the same as knowing how to intervene in it effectively, and developing both is important
- Equity and justice dimensions of systems thinking are most fully developed at this stage: who benefits from the current system, who is harmed, and how could it be designed differently are not add-ons but central questions for mature systems thinkers

### Look-fors:

- Learner applies systems thinking to a real, complex problem in a way that produces insights and potential leverage points not visible from a simpler analysis
- Learner anticipates and plans for at least one unintended consequence of a proposed intervention
- Learner integrates multiple stakeholder or disciplinary perspectives in a systems analysis and can explain what each perspective adds

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What are the parts of this system? How do they connect to each other?*
- *What happens in the rest of the system when one part changes?*
- *Did anything loop back and affect the thing that caused it?*
- *Where do you think a change would have the biggest effect? Why?*
- *What did thinking about the whole system show you that you would not have seen by looking at just one part?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *Where in this system would an intervention have the most leverage? What evidence supports that judgment?*
- *What unintended consequences might result from the change or intervention you are considering? How would you detect them, and what would you do?*
- *Whose interests are served by how this system is currently structured, and whose are not? How does that shape what you think should change?*

## Designing Experiences That Support Systems Thinking

Experience	Why It Helps	Examples
Mapping relationships and interdependencies	Builds the core habit of looking for connections rather than isolated causes or components	Stock-and-flow diagrams; concept maps of interconnected factors; causal loop diagrams; ecosystem or community mapping activities
Analyzing familiar systems	Develops systems thinking by starting with systems learners already inhabit and understand	Analyzing the classroom as a system; mapping the school ecosystem; exploring how a local water system, food system, or community works; tracing the life cycle of an everyday object
Change consequence analysis	Builds the specific capacity to reason about what happens elsewhere in a system when something changes	Structured “what would happen if...” analysis; exploring historical events as systems changes; analyzing policy proposals for ripple effects
Feedback loop identification	Develops the conceptually difficult but high-leverage capacity to see how system outputs become system inputs	Examples from natural systems, economic systems, and social systems; teaching reinforcing and balancing loops with concrete illustrations; tracing how a behavior produces consequences that loop back to influence the behavior

Experience	Why It Helps	Examples
Cross-disciplinary systems analysis	Builds the transfer of systems thinking across domains, which is its highest-value application	Applying ecological systems thinking to social systems; comparing how feedback loops work in biology and economics; analyzing the same system from multiple disciplinary lenses
Real-world problem analysis through a systems lens	Develops systems thinking in contexts where the complexity is genuine and the stakes are real	Analyzing local issues (housing, transportation, food access) as systems problems; connecting curriculum content to real systems learners live within; action projects that require systems analysis before intervention

**Design principle:** *Systems thinking develops through analysis of real, familiar systems rather than abstract models. Starting with systems learners already inhabit, and building the conceptual tools of relationship-mapping, feedback recognition, and consequence analysis on top of that concrete foundation, is more effective than introducing systems thinking as an abstract framework. Making the thinking visible through mapping, modeling, and discussion is essential; systems thinking that stays inside one's head is harder to develop and harder to assess.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Treating systems thinking as advanced or optional	Misses the developmental foundation that should be built in early childhood; all learners need systems thinking and it should be developed across the lifespan	Build systems thinking from early childhood using concrete, familiar systems; do not wait for high school or advanced coursework
Stopping at description rather than analysis	Identifying parts of a system is not the same as understanding how they interact; many "systems thinking" activities produce labels without understanding	Move explicitly from "what are the parts?" to "how do they affect each other?" and "what changes when one part changes?"
Focusing on linear causation	Single cause-to-single effect thinking is the default; systems thinking requires recognizing multiple interacting causes and feedback loops, which does not develop without explicit instruction	Explicitly challenge linear explanations by asking "what else is affecting this?" and "what does this affect in return?"
Using only natural or scientific systems	Limits transfer; the most important applications of systems thinking are often in social, institutional, and political domains	Include social systems, community systems, and institutional systems alongside ecological and physical ones; make systems thinking explicitly applicable to how power, policy, and community work
Ignoring the role of values and equity in systems	Systems are not neutral; they are built by people with interests and they produce outcomes that are distributed unequally; treating systems as objective structures misses this	Connect systems analysis explicitly to questions of who benefits, who is harmed, and how the system could be designed differently; systems thinking and social justice thinking belong together

## Cluster D: Execution & Adaptation

This cluster addresses the skills through which learners translate intention into action and sustain effective effort across time, complexity, and change. Planning and time management provide the organizational foundation; initiative and accountability ensure that what is planned actually happens and that ownership is maintained when it does not; adaptability ensures that learners can adjust when plans meet reality; and learning transfer ensures that what is learned continues to generate value as circumstances change. Together, these skills form the execution capacity that makes all other skills generative across contexts and over time.

### Skills in this cluster:

- D.1 Planning
- D.2 Time Management
- D.3 Adaptability
- D.4 Initiative
- D.5 Accountability
- D.6 Learning Transfer

## D.1 Planning

### Description

Planning is the ability to think ahead, organize effort, and allocate resources (including setting goals, sequencing steps, and prioritizing tasks), to achieve desired outcomes.

### Planning Components:

- **Goal-setting:** identifying a clear, specific outcome to work toward and articulating what success looks like
- **Sequencing:** identifying the steps required to reach a goal and ordering them logically, including recognizing dependencies
- **Prioritization:** determining what matters most and allocating effort accordingly when time and resources are limited
- **Resource allocation:** identifying what is needed to execute a plan, including time, materials, information, and support from others
- **Plan revision:** adjusting the plan as conditions change, new information emerges, or earlier steps do not go as expected

*Critical insight: Planning is not the same as having a plan. A plan that is created once and never revisited is not planning; it is wishful thinking on paper. The most important dimension of planning development is learning to treat a plan as a living document that is adjusted as work proceeds and conditions change. Learners who can revise their plans in response to what they are learning are far more effective than learners who either rigidly follow an outdated plan or abandon planning altogether when it does not go as expected.*

### How Planning Develops Over Time

Across PK-16, planning typically develops as learners move from

- following a sequence of steps with support and stating simple goals when prompted →
- describing steps before beginning and using provided plans or checklists →
- creating plans with steps and timelines and prioritizing independently →
- developing plans that account for dependencies, resources, and people, and revising proactively as conditions change →
- designing and overseeing plans across multiple people and timelines and supporting others' planning.

Early planning is externally structured and supported. Over time, learners internalize planning as a self-directed habit and develop the capacity to create, monitor, and revise plans for increasingly complex goals. Development depends on having genuine goals to plan toward, structured practice with sequencing and prioritization, and environments that treat plan revision as a sign of skill rather than failure.

### How Planning Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

## PK–K (Approx. Ages 4–6): Following Sequence and Stating Goals

### Common expressions:

- Follows a sequence of familiar steps with adult support and guidance
- Selects what to work on first when given two or three clear options
- States a simple goal when prompted (“I want to build a tower” / “I’m going to draw a dog”)

### Important to understand:

- Planning capacity at this stage is almost entirely externally provided; adults supply the sequence, the materials, and the structure
- Young children can state immediate goals and follow given sequences, but generating their own multi-step plans is not yet developmentally accessible
- Simple choice-making (“Which would you like to do first?”) is the beginning of prioritization and should be recognized and supported

### Look-fors:

- Learner follows a familiar sequence of steps with adult guidance
- Learner chooses what to start with when given a small set of clear options
- Learner can say what they want to accomplish when asked

## Grades 1–2 (Approx. Ages 6–8): Describing Steps and Using Plans

### Common expressions:

- Describes the steps needed to complete a task before beginning, with adult prompting
- Prioritizes two or three tasks by importance or order when guided
- Uses a provided plan, checklist, or visual schedule to organize and complete work

### Important to understand:

- Describing steps before beginning is a significant cognitive step; it requires holding the goal in mind and reasoning forward, which is an early form of planning
- Provided plans and checklists are scaffolds, not substitutes; learners who rely on them with support are developing the internal planning capacity that will eventually not require them
- Prioritization at this stage is most accessible when criteria are concrete and explicit (“Which needs to be done first?” rather than “Which is most important?”)

### Look-fors:

- Learner describes the steps for a familiar task before starting
- Learner uses a provided checklist or visual plan to organize their work
- Learner can identify which of two tasks should come first when given a clear reason

## Grades 3–5 (Approx. Ages 8–11): Creating Plans and Prioritizing

### Common expressions:

- Creates a simple plan to reach a goal, including the main steps and a rough sense of timing
- Prioritizes tasks independently based on deadlines or stated goals without needing adult direction
- Sets a clear goal before beginning a task and can describe what success looks like

### Important to understand:

- Independent planning is developing but applies most reliably to familiar tasks; novel or complex goals still benefit from adult scaffolding
- Prioritization without structure is difficult; learners benefit from explicit criteria (“most urgent”, “most important”, “needs to come first”) before they internalize the habit
- Goal-setting that connects to learners’ own interests and values is more motivating and produces more durable planning habits than goals set by others

### Look-fors:

- Learner creates a plan for a goal that includes the main steps and a rough timeline
- Learner independently identifies what to work on first based on deadlines or goals
- Learner sets a clear goal for a task and can describe what done looks like

## Grades 6–8 (Approx. Ages 11–14): Accounting for Complexity and Revising

### Common expressions:

- Develops plans that account for time, resources, dependencies between steps, and the people involved
- Sets goals that reflect personal values and identifies specific obstacles that might arise
- Revises priorities and plans proactively when conditions change, rather than waiting for a plan to fail

**Important to understand:**

- Planning for multi-week projects with multiple interdependent steps is a qualitatively more complex task than planning for a single-session assignment; the transition from short-horizon to long-horizon planning requires explicit support
- The habit of revisiting and revising a plan is not automatic; most learners need explicit permission and expectation to adjust, rather than the implicit message that a good plan is one that does not need changing
- Personal values as a source of goals becomes increasingly accessible at this stage as identity development deepens; connecting planning to what matters is both motivating and developmentally appropriate

**Look-fors:**

- Learner creates a plan that accounts for multiple steps, timing, and at least one dependency or constraint
- Learner identifies a likely obstacle to their goal and incorporates a response into their plan
- Learner revises their plan when something changes, rather than abandoning it or rigidly continuing

**Grades 9–12 (Approx. Ages 14–18): Long-Horizon and Values-Aligned Planning****Common expressions:**

- Designs plans across long timeframes that account for multiple competing responsibilities and shifting conditions
- Sets personally meaningful long-term goals and builds plans that include obstacle anticipation and course-correction strategies
- Manages planning across multiple active projects simultaneously without losing track of any

**Important to understand:**

- Long-horizon planning (months to years) requires a qualitatively different cognitive and motivational structure than task-level planning; connecting it to genuine personal goals is essential for sustaining the effort
- High-stakes planning contexts (college applications, major commitments, significant projects) expose gaps in planning capacity that everyday schoolwork does not; these are important development opportunities when well-supported
- Learners who have not had genuine planning authority in earlier years may reach this stage without developed planning habits; building foundational skills explicitly and quickly is important

**Look-fors:**

- Learner maintains and updates a plan for a long-term goal across weeks or months
- Learner anticipates specific obstacles to a goal and builds responses into the plan before they arise
- Learner manages planning across multiple concurrent responsibilities without losing track of any

**Postsecondary (Approx. Ages 18–22): Designing and Overseeing Collective Plans****Common expressions:**

- Designs and oversees plans that involve multiple people, projects, and timelines simultaneously
- Sets personally meaningful long-term goals and builds detailed, realistic plans to reach them, including identification of the resources, relationships, and intermediate milestones required
- Supports others in developing plans that are realistic, values-aligned, and actionable

**Important to understand:**

- Postsecondary planning contexts introduce real-world complexity: competing institutional demands, unclear information, and the need to coordinate with others who have different priorities all challenge even well-developed planning capacity
- The most significant planning development at this stage involves moving from planning for oneself to planning with and for others; this requires understanding others' capacities, constraints, and motivations, not only one's own
- Planning that accounts for equity and inclusion, who is involved in setting goals and whose needs are reflected in the plan, is a hallmark of mature planning in shared or organizational contexts

**Look-fors:**

- Learner develops and maintains a plan for a complex goal involving multiple people or workstreams
- Learner supports a peer or collaborator in developing a realistic, values-aligned plan
- Learner can describe how their planning process has developed over time and what they have learned about how they work best

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *What was your plan before you started? Did you follow it?*
- *Did your plan need to change? What caused that, and what did you do?*
- *How did you decide what to work on first?*
- *What would you plan differently if you were starting over?*
- *What did you learn about how to plan better for next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *How well did your plan account for what actually happened? Where were the gaps, and what do they reveal about how you plan?*
- *How did you balance competing priorities or adjust when something unexpected changed your situation? What does that tell you about how you manage complexity?*
- *What is the relationship between your planning and what actually matters to you? Where do your plans reflect your values, and where do they reflect external pressure?*

## Designing Experiences That Support Planning

Experience	Why It Helps	Examples
Structured pre-task planning routines	Builds the habit of thinking before acting; learners who plan before starting make fewer false starts and produce higher-quality work	“Before we begin, what steps will you take?” as a standard prompt; simple planning templates; think-aloud planning before a complex task
Goal-setting with criteria	Develops specific, meaningful goals rather than vague intentions; connects planning to outcomes the learner actually cares about	Learner-set goals anchored to a specific outcome with a named criterion for success; regular check-ins on goal progress; distinguishing between goals and wishes
Sequencing and dependency mapping	Builds the capacity to understand that some steps must come before others and that the order of work matters	Putting task steps in order before beginning; identifying which steps depend on others being completed first; project planning templates that make sequence visible
Plan revision practice	Develops planning as a dynamic process rather than a one-time product; learners who revise plans are more effective than learners who abandon them	Mid-project plan reviews; “your original plan vs. your current plan” reflection; explicit permission and expectation to adjust plans as conditions change
Long-horizon planning	Builds the capacity to work backward from a goal and organize effort across time, which is distinct from single-task planning	Multi-week project planning; backward design from a deadline; semester-level goal-setting with monthly check-ins
Planning for others or in groups	Develops the collaborative dimension of planning: accounting for others’ roles, dependencies, and capacities	Team project planning that assigns roles and timelines; planning with a peer who has different strengths; group plan reviews

**Design principle:** *Planning develops through genuine goal-pursuit, not through planning exercises. The most powerful planning development happens when learners have real goals, make real plans, see real consequences, and have structured opportunities to revise. Separating planning skill development from meaningful goals produces procedural compliance rather than internalized habit.*

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Treating planning as paperwork	When planning is a required form to complete before the “real work” begins, learners do not experience it as useful and do not internalize it	Connect planning directly to task quality; debrief on how the plan did or did not serve the work; make planning revision a visible and valued part of the process

Pitfall	Why It's Problematic	Instead
Setting goals for learners rather than with them	Goals assigned without learner input do not develop goal-setting capacity and are less motivating	Involve learners in setting goals that are meaningful to them; provide structure and criteria for good goals without dictating the content
Expecting adult-level planning from developing learners	Planning capacity is constrained by working memory, temporal reasoning, and executive function, all of which are still developing; over-scaffolding can be as harmful as under-scaffolding	Match planning expectations to developmental capacity; provide external scaffolds (templates, checklists, timelines) that gradually fade as internalization develops
Ignoring the values dimension of goal-setting	Goals disconnected from what learners care about do not sustain motivation; goal-setting without values connection is a procedural exercise	Connect goal-setting explicitly to what matters to the learner; ask not only "what do you want to accomplish?" but "why does this matter to you?"
Planning only for individual work	Most real planning is collaborative; limiting planning development to individual tasks leaves learners unprepared for team planning contexts	Build collaborative planning into group projects explicitly; teach planning as a shared process with shared accountability

## D.2 Time Management

### Description

Time management is the ability to estimate, allocate, and track time across tasks and responsibilities (using organizational tools and systems as needed), in order to meet commitments reliably and sustain follow-through.

### Time Management Components:

- **Time estimation:** accurately predicting how long tasks will take, which is foundational to all subsequent time management
- **Scheduling and allocation:** deliberately assigning time to tasks and responsibilities based on priority and available time
- **Tracking and monitoring:** keeping awareness of what is due, when, and whether current pace is adequate
- **Organization:** managing materials, information, and systems in ways that support reliable follow-through
- **Adjustment and recovery:** recognizing when a time management approach is not working and making changes, including recovering after falling behind

*Critical insight: Time management is built on time estimation, and time estimation is a skill that most people significantly underestimate their need to develop. Learners who chronically misjudge how long tasks take cannot plan or schedule reliably, regardless of how committed they are. Explicitly building time estimation practice, including comparing estimates to actuals and updating mental models, is one of the highest-leverage investments in time management development. Everything else depends on it.*

### How Time Management Develops Over Time

Across PK-16, time management typically develops as learners move from

- following routines and completing tasks within structured timeframes with support →
- estimating time for familiar tasks and meeting deadlines with reminders →
- managing time independently, organizing materials, and adjusting pace when a deadline is at risk →
- planning and tracking time across days and weeks, managing multiple responsibilities simultaneously →
- balancing shifting deadlines across long-term complex responsibilities and helping others develop effective systems.

Early time management is externally structured through routines, schedules, and adult reminders. Over time, learners internalize time awareness and develop personal systems for organizing and tracking their work. Development depends on having genuine deadlines, access to organizational tools, and structured opportunities to reflect on how time was used rather than only whether tasks were completed.

## How Time Management Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Following Routines

#### Common expressions:

- Follows simple routines and schedules when guided by an adult
- Completes brief tasks within a structured, adult-managed timeframe
- Keeps track of materials needed for familiar tasks in familiar settings with adult support

#### Important to understand:

- Time management at this stage is almost entirely externally provided; the adult is the time management system
- Predictable routines are the primary scaffold; young children develop time awareness through the consistent structure of the day, not through personal organization tools
- Transition warnings (“Five more minutes”) and visual timers are developmentally appropriate supports that build time awareness without requiring internalized time management

#### Look-fors:

- Learner follows a familiar routine with adult guidance
- Learner completes a short task within a structured timeframe
- Learner can find or keep track of familiar materials in a consistent setting with support

### Grades 1–2 (Approx. Ages 6–8): Estimating and Meeting Deadlines with Support

#### Common expressions:

- Estimates the time needed for a familiar, straightforward task with reasonable accuracy
- Uses a basic organizational tool (checklist, folder, simple calendar) when guided
- Meets agreed deadlines with adult reminders

#### Important to understand:

- Time estimation is beginning to develop but remains inaccurate, especially for novel or complex tasks; this is expected and should be worked with, not around
- Organizational tools are scaffolds; the goal is not compliance with any particular tool but the development of the underlying habit of tracking what needs to be done
- Adult reminders are appropriate at this stage; the goal is gradual reduction over time as internal tracking develops, not immediate independence

#### Look-fors:

- Learner can estimate how long a familiar task will take with reasonable accuracy
- Learner uses a provided organizational tool to track tasks or materials
- Learner meets a deadline with adult reminders

### Grades 3–5 (Approx. Ages 8–11): Independent Management for Familiar Tasks

#### Common expressions:

- Manages time independently for familiar tasks without needing adult prompting
- Organizes materials or information to support task completion without being told to
- Notices when a deadline is at risk and adjusts pace or approach to get back on track

#### Important to understand:

- Independence in time management is developing for familiar tasks; novel tasks or unusual time pressures still benefit from scaffolding
- The habit of checking whether one is on track, rather than only working until a deadline arrives, is a significant development and needs to be explicitly taught and reinforced
- Organizational habits vary widely at this stage due to differences in working memory, home environment, and prior scaffolding; this variation should be met with differentiated support, not uniform expectation

**Look-fors:**

- Learner manages time for a familiar task without adult prompting
- Learner organizes their materials or workspace to support task completion without being asked
- Learner notices they are behind pace and takes action to catch up before the deadline

**Grades 6–8 (Approx. Ages 11–14): Multi-Task Tracking****Common expressions:**

- Plans and tracks time across work periods spanning multiple days or weeks using a personal organizational system
- Manages multiple assignments or responsibilities simultaneously without losing track of what is due and when
- Maintains organization and follow-through under moderate complexity or when demands compete

**Important to understand:**

- The jump from managing one task at a time to managing multiple concurrent responsibilities is one of the most significant time management transitions; it requires externalized tracking systems because the cognitive load of keeping everything in mind is too high
- Adolescents often face this transition at the same time that social and identity demands on their attention are also increasing; this creates a high-risk period for time management breakdown
- Personal system development, letting learners choose and adapt their own organizational tools, produces more durable time management than imposing a single system; the fit between person and system matters

**Look-fors:**

- Learner maintains a personal organizational system that tracks multiple deadlines or responsibilities
- Learner completes multiple concurrent assignments without losing track of any
- Learner stays organized and follows through under moderate competing demands

**Grades 9–12 (Approx. Ages 14–18): Managing Complexity and Competing Priorities****Common expressions:**

- Balances shifting deadlines and competing priorities across multiple long-term responsibilities without losing quality
- Builds and refines a personal time management system that evolves as demands grow and circumstances change
- Recovers effectively from time management failures without catastrophizing or abandoning the system

**Important to understand:**

- High-stakes time management at this stage (college applications, major assessments, significant personal commitments) exposes gaps in time management capacity that everyday schoolwork does not reveal
- The capacity to recover from falling behind, rather than collapsing or giving up, is a distinct and important time management skill that needs explicit development
- Learners at this stage need genuine autonomy over their time management systems; externally imposed systems that do not match how they actually work will be abandoned or resisted

**Look-fors:**

- Learner manages multiple long-term responsibilities simultaneously without losing quality on any
- Learner adapts their time management system when it is no longer meeting their needs
- Learner recovers effectively when they fall behind, without abandoning the goal or the system

**Postsecondary (Approx. Ages 18–22): Sustaining and Supporting Others****Common expressions:**

- Balances shifting deadlines and competing priorities across genuinely complex, long-term responsibilities at high quality
- Builds, refines, and maintains personal time management systems that remain effective as demands grow and change
- Supports others in developing time management approaches that work for their specific circumstances and constraints

**Important to understand:**

- Postsecondary and early career time management demands are qualitatively more complex than secondary school; multiple overlapping, self-directed responsibilities with real stakes and limited external scaffolding expose every gap in time management capacity

- The removal of school-provided structure is one of the most significant transitions in time management development; learners who have relied primarily on external structure often experience significant difficulty when it is removed
- Helping others develop time management is both a marker of mastery and a reinforcement mechanism; explaining what works and why consolidates one’s own understanding

**Look-fors:**

- Learner manages complex, long-term, overlapping responsibilities at high quality without external structure
- Learner maintains and adapts their time management system as demands increase or change
- Learner supports a peer or colleague in developing a time management approach that actually fits how they work

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *How did you use your time during this task or project? Did it go the way you planned?*
- *How long did you think it would take? How long did it actually take? What does that tell you?*
- *Was there a moment when you felt behind or lost track of what needed to happen? What did you do?*
- *What helped you stay organized and on track? What got in the way?*
- *What would you do differently to manage your time better next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *Where did your time management system hold up, and where did it break down? What does that reveal about how your system needs to change?*
- *How did you recover when you fell behind? What made recovery easier or harder? What does that tell you about how you handle pressure?*
- *What are your personal time management patterns, including when you work best, what kinds of tasks you underestimate, and what conditions tend to derail you? How are you working with rather than against those patterns?*

**Designing Experiences That Support Time Management**

Experience	Why It Helps	Examples
Time estimation practice	Builds accurate time perception, which is foundational to all time management; learners who chronically underestimate or overestimate task duration cannot plan reliably	Before a task: “How long do you think this will take?” After: “How long did it actually take? What does that tell you?” Regular estimation-and-comparison cycles
Personal time management system development	Builds self-directed organization; a system that belongs to the learner and is adapted to their needs is more effective than a system imposed from outside	Learner-chosen tools (planner, digital calendar, whiteboard, sticky notes); regular reflection on whether the current system is working; explicit permission and support to change systems when they stop working
Deadline management with real stakes	Develops time management in contexts where the quality of the work depends on following through; simulated deadlines without real consequences do not develop the same capacity	Project deadlines that have genuine implications; learner-set intermediate checkpoints; consequences that mirror real-world outcomes rather than punishment
Managing multiple concurrent responsibilities	Develops the more complex dimension of time management that most adults face; single-task time management does not transfer directly	Weeks with multiple overlapping deadlines; explicit practice in tracking what is due when; priority-setting when everything seems equally urgent
Recovery after time management failure	Builds the specific capacity to re-engage after getting behind rather than catastrophizing or giving up	Structured conversations about what happened when a deadline was missed; “getting back on track” planning; normalizing recovery as a skill, not a sign of failure

Experience	Why It Helps	Examples
Reflection on time management patterns	Develops the metacognitive dimension that converts experience into improvement	Regular reflection on where time went versus where it was planned to go; identifying personal patterns (time of day, task type, distraction patterns); adjusting systems based on what reflection reveals

**Design principle:** *Time management develops through genuine responsibility and real consequences, not through reminders and rescue. The most important development practice is allowing learners to experience the natural consequences of time management choices, with support for reflection and recovery, rather than removing consequences through adult intervention. Gradual withdrawal of external supports, matched to growing internal capacity, is the developmental arc to aim for.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Doing time management for learners	Reminders, parental scheduling, and teacher tracking remove the cognitive work of time management from the learner, preventing the development of internal capacity	Gradually withdraw external supports as capacity develops; make the transition explicit; allow natural consequences that are developmentally appropriate to provide feedback
Treating time management as a personality trait	Labeling learners as “organized” or “disorganized” removes the growth framing and leads to fixed expectations	Frame time management explicitly as a learnable skill; hold consistent expectations while differentiating support; look for patterns rather than attributing behavior to character
Ignoring neurological and environmental factors	ADHD, anxiety, trauma, and chaotic living conditions all affect time management capacity in ways that are not reflective of effort or character; treating these as attitude problems causes harm	Distinguish between skill deficits that respond to instruction and capacity constraints that require accommodation; approach time management challenges with curiosity rather than judgment
Using one-size-fits-all systems	Time management systems that work for some learners do not work for others due to differences in working memory, attention, learning style, and context	Support learners in identifying and developing systems that work for them specifically; assessment should focus on whether learners are meeting commitments reliably, not on whether they use a particular tool
Focusing only on completion, not quality management	Finishing a task is different from finishing it well; time management that prioritizes completion without attention to quality teaches deadline-meeting at the expense of craftsmanship	Build quality standards and review time into time management structures; help learners budget time for revision and checking, not only production

## D.3 Adaptability

### Description

Adaptability is the ability to adjust thinking, behavior, strategies, or expectations in response to changing conditions, feedback, or new information.

### Adaptability Components:

- **Response to change:** adjusting behavior, expectations, or approach when conditions change unexpectedly
- **Feedback integration:** changing one's approach based on what feedback or results reveal, rather than continuing regardless

- **Strategy flexibility:** shifting from one approach to another when the current one is not working, without abandoning the goal
- **Uncertainty tolerance:** functioning effectively even when not all information is available and the path forward is unclear
- **Learning from disruption:** identifying what can be learned from an unexpected change or failure that improves future responses

*Critical insight: Adaptability is not the same as being easygoing, and it is not the same as having no preferences or plans. The most adaptive people are often those with strong goals and clear plans who have developed the capacity to adjust their approach when circumstances require it, while keeping the goal in view. Developing adaptability means building both the emotional regulation to tolerate disruption and the cognitive flexibility to generate new approaches, not asking learners to simply accept whatever happens.*

### How Adaptability Develops Over Time

Across PK-16, adaptability typically develops as learners move from

- responding to minor changes in routine with support and trying alternate approaches when prompted →
- adjusting with a reminder and trying new approaches with encouragement →
- independently adapting when a plan stops working and recovering from disruption without losing engagement →
- anticipating that conditions may change, preparing multiple approaches, and maintaining effectiveness during transitions →
- leading through ongoing change, supporting others' adaptation, and using change as a deliberate opportunity for improvement.

Early adaptability is reactive and depends on adult support and co-regulation. Over time, learners develop the capacity to recognize when adaptation is needed, generate alternative approaches, and maintain progress through disruption. At the most developed levels, adaptability becomes proactive: learners anticipate change, prepare for it, and use it as a driver of improvement rather than experiencing it only as disruption.

### How Adaptability Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Accepting Change with Support

#### Common expressions:

- Responds to minor, familiar changes in routine with adult co-regulation support
- Tries an alternate approach to a task when an adult prompts them to
- Begins to understand, with support, that plans and routines can change

#### Important to understand:

- Adaptability at this stage depends almost entirely on adult co-regulation; children who can stay regulated during change are displaying significant skill, even when the change is small
- Predictability and consistent routine are the foundation from which adaptability grows; children cannot develop flexibility without a secure base of stability
- Transitions are among the most challenging adaptation demands for young children; explicit preparation (warnings, routines, named next steps) significantly reduces the regulation cost of change

#### Look-fors:

- Learner stays regulated during a familiar, minor change in routine with adult support
- Learner tries a different approach to a task when an adult suggests it
- Learner accepts a change in plan without significant dysregulation when given advance warning and support

### Grades 1–2 (Approx. Ages 6–8): Adjusting with a Reminder

#### Common expressions:

- Adjusts behavior or expectations when reminded by an adult that something has changed
- Describes what changed and what they now need to do differently
- Tries a new approach with adult encouragement when the first one is not working

**Important to understand:**

- Describing the change before acting is an important cognitive step; it requires holding the original plan and the new situation in mind simultaneously
- Encouragement matters at this stage; learners who have experienced support during transitions develop a more positive relationship with change than those who have experienced it as disruption without help
- The beginning of metacognitive adaptability, noticing that one's approach is not working and that a different one might, is beginning to emerge and should be explicitly reinforced

**Look-fors:**

- Learner describes what changed and what they need to do differently
- Learner adjusts their approach when reminded
- Learner tries a new approach with adult encouragement when the first one does not work

**Grades 3–5 (Approx. Ages 8–11): Independent Strategy Adjustment****Common expressions:**

- Independently adapts their approach when a plan stops working or conditions change, without needing a reminder
- Shifts focus or strategy in response to feedback or an unexpected obstacle
- Recovers from a disruption to their work without losing engagement in the goal

**Important to understand:**

- Independent adaptation is developing but is most reliable in familiar, lower-stakes situations; novel disruptions or high emotional stakes still benefit from adult support
- The capacity to recover from disruption, returning to engagement after something goes wrong, is a distinct and important dimension of adaptability that is different from in-the-moment flexibility
- Learners who have been given only well-planned, predictable tasks may not have developed the tolerance for uncertainty that adaptability requires; exposure to appropriate ambiguity is part of development

**Look-fors:**

- Learner adjusts their approach when a plan stops working without being prompted
- Learner shifts to a new strategy in response to feedback or an obstacle
- Learner returns to engagement after a disruption without losing sight of the goal

**Grades 6–8 (Approx. Ages 11–14): Anticipating and Maintaining Effectiveness****Common expressions:**

- Anticipates that conditions may change and prepares more than one approach before starting a complex task
- Identifies what can be learned from a disruption to improve how they respond next time
- Maintains effectiveness and work quality during transitions or sustained uncertainty, not only in isolated moments of change

**Important to understand:**

- The shift from reactive to proactive adaptability is significant; preparing for change before it happens requires imagining future states and tolerating the uncertainty of not knowing which path will be needed
- Identity and social changes at this stage create significant adaptability demands that go beyond academic tasks; developing adaptability in social and interpersonal contexts is as important as developing it in work contexts
- Sustained uncertainty, not just a single disruption but an extended period of not knowing what is coming, is a particularly challenging adaptability demand that benefits from explicit naming and support

**Look-fors:**

- Learner prepares more than one approach before beginning a task that may require adjustment
- Learner names a specific lesson from a disruption and applies it to how they approach the next one
- Learner maintains the quality and direction of their work during a period of change or sustained uncertainty

**Grades 9–12 (Approx. Ages 14–18): Using Change as Opportunity****Common expressions:**

- Leads through ongoing change or ambiguity without losing sight of goals or direction
- Identifies where a disruption or unexpected development creates an opportunity to improve rather than only managing it as a problem
- Supports peers in navigating change they find difficult, not only managing their own adaptation

**Important to understand:**

- High-stakes adaptability demands at this stage (unexpected outcomes on significant work, major life changes, shifting plans) test the depth of adaptability capacity in ways that everyday school variation does not
- The reframing of change as opportunity, rather than only disruption, is a significant development that requires both cognitive flexibility and enough security to tolerate uncertainty without catastrophizing
- Learners who have encountered genuine, significant adversity and navigated it with support often develop deeper adaptability than those who have only encountered managed variation; this should be honored rather than glossed over

**Look-fors:**

- Learner identifies an opportunity for improvement within a significant disruption
- Learner supports a peer through a change that the peer finds difficult
- Learner maintains goal direction and work quality through an extended period of uncertainty or significant change

**Postsecondary (Approx. Ages 18–22): Leading Through Change****Common expressions:**

- Leads effectively through ongoing change or sustained ambiguity without losing sight of goals or collective direction
- Uses significant change or disruption as a deliberate opportunity for improvement or innovation rather than only managing it
- Supports others in adjusting productively to shifts they find difficult, modeling the cognitive and emotional dimensions of adaptive response

**Important to understand:**

- Postsecondary and professional contexts introduce change that is sustained, complex, and often personally consequential in ways that exceed earlier developmental contexts; the capacity to function at high quality under ongoing uncertainty is a significant and difficult achievement
- Adaptability at a leadership level requires not only personal flexibility but the capacity to hold steady for others during turbulence; this is a distinct skill set from personal adaptability and requires its own development
- The most significant adaptability development at this stage often comes from reflecting on how one has navigated genuinely difficult change, not from managing manufactured challenges; processing significant experiences with support is high-value

**Look-fors:**

- Learner leads or significantly contributes to a group navigating significant change without losing direction or cohesion
- Learner identifies and acts on an opportunity within a disruption that others primarily experience as a problem
- Learner supports others' adaptation in ways that are specific, genuine, and effective

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- What changed during this experience? How did you adjust?
- *Was there a moment when your original approach stopped working? What did you do?*
- *How did it feel to adapt? Was it easy or hard? What made it easier or harder?*
- *What did you learn from the disruption or change?*
- *What would you do differently to be more prepared for change next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *When did you find yourself resisting a change that might have been worth adapting to? What drove that resistance, and what did you do with it?*
- *What did you learn from this experience of change or disruption that you could not have learned from a smooth one?*
- *Where do you see change as an opportunity rather than a problem? What makes the difference for you, and how do you access that orientation when change feels threatening?*

## Designing Experiences That Support Adaptability

Experience	Why It Helps	Examples
Planned disruptions to routine	Builds adaptability capacity in controlled, low-stakes conditions rather than only through unplanned disruption	Intentional changes to familiar routines with advance notice and debrief; “today we’re doing things differently” as a regular, low-stakes practice; experimenting with different work formats, sequences, or environments
Feedback response practice	Develops the specific dimension of adaptability that involves changing one’s approach in response to what others say	Revision tasks that require changing direction based on feedback; explicit practice distinguishing between feedback that should change the approach versus feedback that should inform but not redirect; debrief on what was adapted and why
Multi-path challenges	Develops comfort with the idea that there is more than one valid approach and that switching between them is a skill, not a failure	Tasks with multiple valid solution paths; design challenges where the first approach must be abandoned and a new one taken; explicit permission to change direction mid-task
Uncertainty simulation	Develops the capacity to function effectively without all the information; a distinct and difficult dimension of adaptability	Tasks where not all information is given upfront; challenges where requirements shift mid-task; scenarios with incomplete or ambiguous information that require working forward anyway
Reflection on change experiences	Converts experiences of change, disruption, or failure into adaptability learning	“What changed, and how did you adjust?” as a standard debrief; identifying what worked in the adaptation and what would you do differently; recognizing adaptability as a skill that can be developed, not just a response to circumstance
Supporting others through change	Develops the leadership dimension of adaptability: helping others navigate disruption productively	Group work where roles or conditions shift; explicit practice in supporting peers who are struggling with a change; modeling calm, forward-focused adaptation for others

**Design principle:** *Adaptability develops through exposure to variation, disruption, and uncertainty within a secure enough environment that the disruption is challenging but not destabilizing. The sequence matters: build the emotional regulation and secure base first, then introduce planned variation, then work up to genuine uncertainty. Throwing learners into unpredictable conditions without adequate support does not build adaptability; it builds hypervigilance.*

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Treating inflexibility as a character flaw	Pathologizes a developmental capacity gap rather than treating it as something to develop	Approach rigidity and difficulty with change as skill deficits that respond to instruction and support; build adaptability proactively rather than reacting to its absence
Removing all predictability in the name of flexibility	Chronic unpredictability creates anxiety and hypervigilance, which undermines rather than builds adaptability; secure base is a prerequisite for adaptive capacity	Build adaptability into reliably safe and predictable environments; planned variation within stable structure is very different from random disruption

Pitfall	Why It's Problematic	Instead
Conflating adaptability with compliance	Asking learners to simply accept changes imposed by others without voice or agency does not develop adaptability; it develops submission	Develop adaptability in contexts where learners have genuine agency; distinguish between adapting to conditions beyond one's control and being required to accept changes that could be negotiated
Not acknowledging what is genuinely hard about change	Minimizing the difficulty of significant disruptions prevents authentic processing and undermines trust	Acknowledge what is genuinely difficult about change before pivoting to adaptation strategies; the emotional processing dimension is not separate from adaptability development, it is part of it
Only developing adaptability in academic contexts	Adaptability in academic tasks does not transfer automatically to social, interpersonal, and life contexts where it matters most	Develop adaptability across contexts: in team dynamics, in response to social change, in personal circumstances, not only in response to academic task variation

## D.4 Initiative

### Description

Initiative is the ability to begin tasks independently, take purposeful action, and carry responsibilities through to completion.

### Initiative Components:

- **Self-starting:** beginning tasks and taking action without waiting to be told or prompted
- **Gap identification:** noticing what needs to be done, what is missing, or what could be improved before being asked
- **Follow-through:** carrying tasks and responsibilities to completion, not only starting them
- **Quality accountability:** taking ownership not only of whether a task was completed but of how well it was done
- **Proactive action:** identifying and addressing needs, risks, or opportunities before they become problems or are assigned by others

*Critical insight: Initiative and follow-through are two distinct capacities that do not always travel together. Learners who start things readily but do not complete them have the beginning of initiative without the substance. Learners who complete everything assigned but never start anything independently have follow-through without initiative. Developing the full skill requires attention to both dimensions and explicit recognition of the difference between completing what is assigned and acting on what is noticed.*

### How Initiative Develops Over Time

Across PK-16, initiative typically develops as learners move from

- beginning tasks when prompted and continuing with support →
- starting tasks with minimal prompting and following through on short-term responsibilities →
- initiating tasks without being asked and seeking support to ensure quality →
- taking full ownership of responsibilities, proactively identifying gaps and needs, and tracking the quality of their own work →
- initiating work in ambiguous situations, ensuring follow-through across shared responsibilities, and holding themselves and others to high standards of execution.

Early initiative is prompted and supported. Over time, learners develop the capacity to start and sustain their own work without external direction, to notice and act on what is needed before being asked, and to take genuine ownership of quality and outcomes. Development depends on having genuine open-ended opportunities, environments where initiative is trusted and supported, and structured opportunities to reflect on the quality and impact of what was initiated.

### How Initiative Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### **PK–K (Approx. Ages 4–6): Beginning with Prompting**

#### **Common expressions:**

- Begins tasks when prompted by an adult
- Makes an attempt to complete tasks with adult support nearby
- Continues working when reminded, though may need redirection

#### **Important to understand:**

- Initiative at this stage is almost entirely prompt-dependent; this is developmentally expected and should not be treated as a deficit
- The most important development at this stage is the beginning of self-direction in play and exploration contexts, where the absence of a specific prompt creates space for learner-initiated action
- Adults who notice and name learner-initiated action (“You decided to add the red block. That was your idea”) begin building the learner’s awareness of their own agency

#### **Look-fors:**

- Learner begins a task when prompted by an adult
- Learner makes a genuine attempt to complete tasks with adult support
- Learner continues working when reminded

### **Grades 1–2 (Approx. Ages 6–8): Starting with Minimal Prompting**

#### **Common expressions:**

- Starts assigned tasks with minimal adult prompting
- Completes assigned work with guidance and check-ins
- Follows through on short-term responsibilities when reminded

#### **Important to understand:**

- The shift from requiring a direct prompt to starting with minimal prompting is significant; it reflects growing internalization of expectations and beginning self-direction
- Follow-through on short tasks is developing; longer commitments still require adult support and reminder structures
- The beginnings of independent initiative appear most readily in domains where learners have strong intrinsic interest; this is where the habit is most likely to transfer from first

#### **Look-fors:**

- Learner starts assigned tasks without needing a direct prompt from an adult
- Learner completes assigned work with periodic adult check-ins
- Learner follows through on a short-term responsibility when reminded

### **Grades 3–5 (Approx. Ages 8–11): Independent Initiation**

#### **Common expressions:**

- Initiates tasks and work without being asked, in contexts where the expectation is clear
- Carries tasks through to completion and checks their work before finishing
- Seeks clarification or support when needed to ensure a task is done well, rather than guessing or leaving it incomplete

#### **Important to understand:**

- Independent initiation is developing in contexts with clear expectations; it is less reliable in ambiguous contexts or when the task is novel
- The habit of checking work before finishing reflects a growing ownership of quality; it is a significant development beyond simply completing tasks
- Seeking support proactively rather than waiting to be rescued reflects both initiative and self-awareness; it should be recognized as an indicator of initiative, not dependence

#### **Look-fors:**

- Learner begins tasks without needing to be asked in familiar contexts
- Learner checks their own work before declaring it finished
- Learner seeks help or clarification when needed to ensure a task is done well

### **Grades 6–8 (Approx. Ages 11–14): Ownership and Gap Identification**

#### **Common expressions:**

- Takes full ownership of responsibilities and follows through despite obstacles or delays, not only when things go smoothly
- Proactively identifies gaps, needs, or risks and acts on them before being asked
- Tracks the status and quality of their own work across multiple active responsibilities

**Important to understand:**

- The shift from completing what is assigned to proactively identifying what is needed is one of the most significant transitions in initiative development; it requires both the awareness to notice and the agency to act
- Adolescents may develop strong initiative in domains they care about (creative work, athletics, social causes) while showing minimal initiative in others; this is normal and should inform how initiative is developed rather than treated as inconsistency
- Ownership of quality, not just completion, is an important threshold; learners who deliver completed work regardless of quality have not fully developed the accountability dimension of initiative

**Look-fors:**

- Learner takes ownership of a responsibility and follows through despite obstacles
- Learner notices a gap or need and acts on it before being asked
- Learner monitors the quality of their work across multiple responsibilities, not only whether tasks were completed

**Grades 9–12 (Approx. Ages 14–18): Driving Work Under Ambiguity****Common expressions:**

- Initiates and drives work forward in ambiguous or high-responsibility situations where the path is not clear
- Ensures follow-through across shared responsibilities in ways that others can rely on
- Maintains accountability for quality and outcomes, not only completion, across significant responsibilities

**Important to understand:**

- High-responsibility contexts at this stage (significant independent projects, leadership roles, community commitments) reveal the depth of initiative capacity in ways that assigned schoolwork does not
- The social dimension of initiative, ensuring follow-through in shared contexts, is different from individual initiative and requires interpersonal as well as task-management skill
- Learners who have been rewarded primarily for compliance may have developed strong follow-through but underdeveloped initiative; distinguishing between the two and explicitly developing both is important

**Look-fors:**

- Learner takes initiative in an ambiguous or high-responsibility situation without waiting for direction
- Learner follows through on shared responsibilities in a way that others experience as reliable
- Learner maintains accountability for quality, not only completion, in a significant responsibility

**Postsecondary (Approx. Ages 18–22): Initiating and Sustaining at Scale****Common expressions:**

- Initiates and drives work in genuinely ambiguous or high-responsibility situations where the path forward requires judgment, not only effort
- Ensures follow-through across complex shared responsibilities in ways that others can trust and depend on
- Monitors collective progress and surfaces issues before they become problems, holding themselves and others to high standards with care and consistency

**Important to understand:**

- Postsecondary and professional contexts reward initiative in ways that academic contexts often do not; learners who have been primarily rewarded for compliance may need to actively develop their initiative capacity at this stage
- The most consequential form of initiative at this stage is often collective: identifying and starting something that matters to a group or community and sustaining it over time
- The accountability dimension of initiative, being someone that others can rely on not just to start but to finish and to finish well, is the foundation of professional reputation and trustworthiness

**Look-fors:**

- Learner initiates significant work in a genuinely ambiguous or high-stakes context
- Learner is experienced by others as someone who can be relied on to follow through on shared responsibilities at high quality
- Learner surfaces a collective challenge or risk before it becomes a problem, and takes action to address it

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *Did you wait to be told to start, or did you begin on your own? What made you do that?*
- *Did you follow through on everything you started? If not, what happened?*
- *Was there something you noticed that needed to be done that no one asked you to do? Did you do it?*
- *How did you check whether your work was good, not just done?*
- *What would it look like to take more initiative next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What is the difference between completing what is asked and doing what is needed? Where do you operate most naturally, and why?*
- *When you take initiative, how do you judge whether the action is well-directed? What criteria do you use, and how have those developed?*
- *How reliable are you across shared responsibilities, not just individual ones? What does that pattern tell you, and what are you doing about it?*

## Designing Experiences That Support Initiative

Experience	Why It Helps	Examples
Genuine open-ended work time	Develops initiative by removing the prompt; learners who always have a task assigned never develop the capacity to identify and begin their own	Maker spaces with open exploration time; independent reading or project work without a specific assignment; structured but open-ended creative or inquiry time with no predetermined product
Responsibility with real follow-through expectations	Builds the follow-through dimension of initiative by creating genuine accountability for what was started	Learner-led projects with genuine deadlines and real audiences; ongoing responsibilities (class jobs, club roles, community commitments) that require consistent follow-through over time
Proactive identification practice	Develops the specific habit of noticing what needs to be done before being told to, which is the core of initiative	“What does this situation need?” as a regular prompt before assigning tasks; scanning for gaps and needs; practice identifying what would improve a situation before being asked to act
Self-directed learning experiences	Builds initiative in the domain of learning itself, which is the most transferable form	Independent inquiry projects; learner-driven skill development goals; choice in how to demonstrate learning; explicit reflection on what one is choosing to pursue and why
Low-stakes failure experiences	Builds the risk tolerance that initiative requires; learners who have only experienced initiative in high-stakes contexts develop risk aversion	Small-scale, reversible experiments with initiative; permission to try things that might not work; normalized reflection on attempts that did not go as planned
Feedback on initiative quality	Makes the quality of initiative visible; learners need to know not only that they took initiative but whether it was well-directed and well-executed	Specific feedback distinguishing between valuable and misdirected initiative; reflection on whether taking initiative in a given situation was helpful or overstepping; developing judgment about when and how to act

**Design principle:** *Initiative cannot develop in environments where every task is assigned and every moment is structured. Creating genuine open space, real ownership, and contexts where the consequences of initiative (or its absence) are visible is the most important design move. The secondary move is building psychological safety so that acting without explicit permission is experienced as valued, not presumptuous.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Removing all unstructured or open-ended time	Eliminates the contexts in which initiative naturally develops; learners who are always given a task never practice identifying and beginning their own	Build in genuinely open-ended time and tasks; resist filling every moment with assigned work; trust that learners who have space will develop the capacity to use it

Pitfall	Why It's Problematic	Instead
Praising busyness as initiative	Completing assigned work diligently is follow-through, not initiative; conflating the two prevents development of actual initiative	Distinguish clearly between completing what is asked (follow-through) and doing something that was not asked (initiative); recognize and develop both
Expecting initiative without psychological safety	Initiative requires risk tolerance; learners who fear judgment, failure, or negative consequences for acting without explicit permission will not take initiative	Build psychological safety first; ensure that attempting things and sometimes failing is genuinely valued and safe before expecting initiative to emerge
Overriding learner initiative with adult agenda	When adults regularly redirect or correct learner-initiated action, learners learn that their initiative is not trusted and stop taking it	Distinguish between redirecting unsafe or clearly unproductive initiative and allowing initiatives that are merely different from what an adult would have chosen; err toward trusting learner judgment
Treating initiative as always individual	Some of the most important forms of initiative are collective: identifying and acting on shared needs, mobilizing group effort, starting something that others then build on	Develop collective as well as individual initiative; recognize group-level initiative in shared projects and community action

## D.5 Accountability

### Description

Accountability is the ability to take ownership of one's actions, commitments, and outcomes; accepting responsibility when things go wrong, following through on what one has agreed to do, and holding oneself to standards of quality and reliability.

### Accountability Components:

- **Ownership:** taking genuine responsibility for one's actions and their consequences rather than deflecting, minimizing, or externalizing
- **Commitment follow-through:** doing what one has agreed to do, reliably and without requiring external monitoring to stay on track
- **Mistake acknowledgment:** recognizing and admitting when something went wrong, including when one's own actions contributed
- **Corrective action:** taking concrete steps to address a mistake or failure, not only acknowledging it
- **Quality ownership:** taking responsibility not only for whether a task was completed but for how well it was done

*Critical insight: Accountability and integrity are related but distinct. Integrity is about alignment between values and action; accountability is about ownership of what results. A person can have integrity and still struggle with accountability when their mistakes or failures feel too threatening to acknowledge. Developing accountability requires both the emotional safety to admit when things go wrong and the habit of moving from acknowledgment to corrective action, not stopping at apology.*

### How Accountability Develops Over Time

Across PK-16, accountability typically develops as learners move from

- taking responsibility for simple actions when prompted and acknowledging mistakes in familiar situations →
- completing assigned tasks with guidance and acknowledging mistakes when asked →
- taking responsibility without prompting and addressing mistakes through corrective action →
- taking ownership of quality and outcomes, maintaining commitments across multiple responsibilities, and proactively addressing performance issues →
- modeling accountability in complex or high-stakes contexts and supporting others in developing ownership.

Early accountability is externally prompted and limited to familiar, simple situations. Over time, learners develop the capacity to acknowledge and address mistakes without prompting, to maintain commitments even when it is difficult, and to take ownership of quality as well as completion. Development depends on whether honesty has been safe, whether mistakes have led to repair rather than punishment, and whether adults have modeled genuine ownership.

### How Accountability Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Simple Responsibility with Prompting

#### Common expressions:

- Takes responsibility for simple actions in familiar situations when an adult prompts them
- Follows through on small tasks with adult support and reminders
- Acknowledges when they have made a mistake in a familiar, safe context

#### Important to understand:

- Accountability at this stage is almost entirely dependent on adult scaffolding; the expectation is that adults prompt, model, and provide safe conditions for acknowledgment, not that children independently own their mistakes
- The emotional safety of the environment is the primary factor determining whether accountability develops; children who experience shame or harsh consequences for mistakes learn to hide them, not own them
- Simple corrective actions (“You knocked it over. Can you help pick it up?”) are the earliest form of accountability development and should be presented as normal and natural, not punitive

#### Look-fors:

- Learner acknowledges a simple action (breaking something, making a mess) when an adult prompts
- Learner makes a simple corrective action with adult guidance
- Learner follows through on a very small task with adult support

### Grades 1–2 (Approx. Ages 6–8): Basic Follow-Through and Acknowledgment

#### Common expressions:

- Completes assigned tasks and keeps basic commitments with adult guidance and check-ins
- Acknowledges a mistake when asked and makes some attempt to address it
- Shows a sense of responsibility for their role in a shared task

#### Important to understand:

- Acknowledgment of mistakes is developing but remains fragile; social context matters enormously at this stage, and admitting a mistake to peers is harder than admitting it to a trusted adult
- The connection between acknowledging a mistake and doing something about it is beginning to form; making corrective action the expected and supported response to acknowledgment is important
- Responsibility for shared tasks is beginning to emerge as a distinct dimension; learners are starting to understand that what they do or do not do affects others

#### Look-fors:

- Learner acknowledges a mistake when asked and makes a simple attempt to address it
- Learner completes their part of a shared task with adult guidance
- Learner shows some recognition that their actions affected others in a shared context

### Grades 3–5 (Approx. Ages 8–11): Independent Responsibility

#### Common expressions:

- Takes responsibility for actions and their consequences without needing to be prompted
- Follows through on commitments even when it is inconvenient or requires effort beyond what was expected
- Addresses mistakes through corrective action rather than deflection, excuse-making, or simple apology

#### Important to understand:

- Independent accountability is developing for familiar, lower-stakes situations; novel situations, public mistakes, or high-stakes errors still benefit from adult support
- The shift from apology to corrective action is a significant development that requires both understanding the difference and having the support to take action; it should be explicitly taught and modeled
- Peer influence on accountability is increasing; learners are watching how their peers respond to mistakes and developing their own standards in that context

**Look-fors:**

- Learner takes responsibility for a mistake or outcome without being prompted
- Learner follows through on a commitment even when it requires extra effort
- Learner takes a concrete corrective step after a mistake rather than only apologizing

**Grades 6–8 (Approx. Ages 11–14): Quality Ownership and Reliability****Common expressions:**

- Takes ownership of the quality and outcomes of their work, not only whether tasks were completed
- Maintains commitments reliably across multiple responsibilities, not only in high-visibility situations
- Proactively addresses issues affecting their performance or the trust of others before being confronted

**Important to understand:**

- The shift from completion accountability to quality accountability is significant; it requires internalizing a standard of good enough that goes beyond getting it done
- Social and identity stakes at this stage make accountability for mistakes more emotionally costly; the ability to acknowledge and address mistakes with peers requires both skill and courage
- Maintaining commitments across multiple responsibilities requires organizational capacity alongside accountability motivation; the two skills need to develop together

**Look-fors:**

- Learner takes ownership of the quality of their work, not only whether it was submitted
- Learner maintains commitments reliably across multiple concurrent responsibilities
- Learner proactively addresses an issue affecting their performance or a relationship before being confronted about it

**Grades 9–12 (Approx. Ages 14–18): Accountability Under Pressure****Common expressions:**

- Maintains accountability for quality and outcomes in high-stakes or high-visibility contexts where the cost of acknowledging failure is real
- Proactively seeks to address issues that affect others' trust in them before being asked
- Takes ownership of their role in collective failures, not only individual ones

**Important to understand:**

- High-stakes accountability demands at this stage (significant failures, public mistakes, consequential commitments) test the depth of accountability in ways that low-stakes contexts do not
- The capacity to maintain accountability in contexts of genuine social risk, when acknowledgment might have real costs to reputation or relationships, is a significant and difficult achievement
- Learners at this stage are developing accountability not only to external standards but to their own internal standards; accountability that is only responsive to external expectation is fragile

**Look-fors:**

- Learner acknowledges and addresses a significant mistake in a high-stakes context
- Learner proactively addresses an issue affecting others' trust without waiting to be confronted
- Learner takes ownership of their role in a collective failure, not only individual missteps

**Postsecondary (Approx. Ages 18–22): Modeling and Sustaining Collective Accountability****Common expressions:**

- Models accountability in complex, high-stakes, or high-visibility contexts in ways that build rather than damage trust and relationships
- Takes responsibility for shared outcomes and holds collective commitments with care rather than only monitoring individual performance
- Supports others in developing ownership and accountability for their work through modeling, feedback, and constructive challenge

**Important to understand:**

- Accountability in professional contexts often has real and significant consequences; the capacity to maintain genuine ownership under those conditions is a hallmark of trustworthiness
- Collective accountability, taking responsibility for shared outcomes rather than only one's individual contribution, is a qualitatively different and more demanding form that requires both personal accountability and interpersonal skills

- Modeling accountability for others is both a marker of development and a reinforcement mechanism; those who hold themselves visibly accountable create conditions where others do the same

**Look-fors:**

- Learner maintains accountability in a complex, high-stakes situation in a way that builds rather than damages trust
- Learner takes genuine ownership of a shared failure or underperformance without deflecting to others' contributions
- Learner supports a peer or colleague in developing accountability through specific, honest, and caring feedback or modeling

**Reflection Prompts**

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- Did you do what you said you would do? If not, what happened?*
- When something went wrong, what was your part in it? What did you do about it?*
- Did you follow through on your commitments even when it was hard?*
- Was the quality of your work what you wanted it to be? What did you do about the gap?*
- What would it look like to take more ownership next time?*

For older learners (Grades 9 to Postsecondary), consider adding:

- Where do you find it hardest to take ownership, and what do you think drives that? What does it cost you not to, and what would it cost you to change?*
- What is the difference between apologizing and being accountable? Where have you crossed that line in either direction?*
- How does your accountability show up differently when others are watching versus when they are not? What does that tell you about what is driving it?*

**Designing Experiences That Support Accountability**

Experience	Why It Helps	Examples
Real commitments with real consequences	Develops accountability in contexts where the quality of follow-through visibly matters to others; simulated accountability without real stakes does not produce the same development	Ongoing classroom responsibilities with genuine impact; project commitments to real audiences; community roles where absence or poor follow-through affects others
Modeled ownership of mistakes	Establishes that acknowledging and correcting mistakes is normal, valued, and safe; this is the prerequisite for learners to do the same	Educators who name their own mistakes, describe what they are doing to address them, and model corrective action; adults who take responsibility without deflecting or minimizing
Corrective action practice	Builds the specific habit of responding to mistakes with action rather than defense; this is the distinguishing feature of accountability over compliance	Explicit protocols for acknowledging a mistake, identifying its impact, and taking a corrective step; reflection on what was done to address an error rather than only whether the error was admitted
Transparent quality standards	Develops accountability for quality, not just completion; learners who do not know what good looks like cannot take ownership of whether they have achieved it	Clear, learner-accessible quality criteria for significant work; self-assessment against those criteria; peer feedback on quality dimensions; explicit discussion of the difference between done and done well
Accountability structures in collaborative work	Develops the interpersonal dimension of accountability: being someone others can rely on in shared contexts	Team contracts with agreed expectations; structured peer feedback on follow-through; debrief on how individual accountability affected collective outcomes

Experience	Why It Helps	Examples
Reflection on accountability patterns	Develops self-awareness of where and how accountability holds or breaks down in one's own behavior	Regular reflection on commitments made and kept; identifying where accountability was difficult and what made it so; noticing patterns across time and context

**Design principle:** *Accountability develops in environments where ownership is safe, modeled, and expected. The most important conditions are that mistakes can be acknowledged without shame, that corrective action is the normal response to mistakes rather than punishment, and that adults visibly model accountability themselves. Without these conditions, even well-designed accountability structures produce compliance rather than genuine ownership.*

## Common Pitfalls

Pitfall	Why It's Problematic	Instead
Shame-based accountability	Public embarrassment or humiliation in response to failure to follow through damages trust and increases defensiveness; it produces compliance-through-fear, not genuine accountability	Create conditions where acknowledging mistakes is safe; respond to accountability failures with curiosity about what happened and support for corrective action, not punishment or shaming
Conflating accountability with punishment	When accountability is primarily experienced as a prelude to punishment, learners avoid it rather than developing it; they hide mistakes rather than owning them	Distinguish between consequence and punishment; help learners see accountability as self-protective (taking ownership protects trust and relationships) rather than as a risk to avoid
Accepting apology without corrective action	Saying sorry without doing anything different is not accountability; it is a social performance that substitutes for genuine ownership	Distinguish between acknowledging a mistake and addressing it; require and support corrective action alongside acknowledgment; make the distinction explicit and consistent
Removing all natural consequences	Protecting learners from the consequences of their choices removes the feedback loop that drives accountability development	Allow age-appropriate natural consequences to provide feedback; be explicit about the connection between choices and outcomes; support learners in processing consequences as information rather than punishment
Holding accountability only to external standards	Accountability that is only responsive to external expectations does not develop the internal compass that makes it reliable when no one is watching	Connect accountability to learners' own values and to the impact of their actions on people they care about; develop internal standards alongside external ones

## D.6 Learning Transfer

### Description

Learning transfer is the ability to apply knowledge, skills, or strategies learned in one context to new tasks, settings, or problems, adapting understanding to increase effectiveness and impact.

### Learning Transfer Components:

- **Recognition:** noticing when a situation calls for knowledge or a strategy that was learned in a different context
- **Application:** bringing prior knowledge or strategies to bear on a new task in a way that improves performance
- **Adaptation:** identifying which elements of prior knowledge apply as-is, which need modification, and which do not apply

- **Reflection on transfer:** examining whether a transfer attempt worked, why or why not, and what it reveals about how to apply learning in the future
- **Cross-domain integration:** combining knowledge and skills from multiple different contexts to address challenges that no single context's learning could address alone

*Critical insight: Learning transfer is one of the most studied and most consistently underachieved goals in education. Decades of learning science research show that knowledge acquired in one context rarely transfers automatically to another, even when learners genuinely understand the material. Transfer requires explicit instruction in connection-making, deliberate practice applying knowledge to genuinely new contexts, and structured reflection on what works and what needs adjustment. Without this, even deep learning stays context-bound.*

### How Learning Transfer Develops Over Time

Across PK-16, learning transfer typically develops as learners move from

- using a learned skill in the same or a very similar situation and recognizing when something they learned applies again →
- applying learning to slightly different tasks with guidance and explaining how prior learning relates →
- independently applying learning to tasks that differ in form but share underlying structure →
- transferring across genuinely different domains and identifying which elements of prior knowledge apply, need modification, or do not apply →
- applying learning in complex novel situations and integrating knowledge from multiple experiences or fields.

Early transfer is near and often automatic: using a learned skill in a very similar situation. Over time, learners develop the capacity for increasingly far transfer: applying knowledge and strategies across genuinely different contexts, adapting what they know to fit new demands, and eventually integrating knowledge from multiple domains to address novel challenges. Development depends on explicit instruction in connection-making, deliberate practice in genuinely new contexts, and structured reflection on transfer attempts.

### How Learning Transfer Shows Up by Grade Band

- These are illustrative patterns, not checklists.
- Although we frame development here by grade band/age, learners may be in lower or higher developmental levels.
- Cultural context, systemic factors, and individual history also shape what this skill looks like, what strategies are accessible, and what counts as proficiency in a given setting.

### PK–K (Approx. Ages 4–6): Using Learning Again

#### Common expressions:

- Uses a learned skill or strategy in the same or a very similar context to where they learned it
- Applies a learned approach by following a model or example
- Notices and signals when something they learned applies to a new situation that is very similar to the original

#### Important to understand:

- Near transfer, applying a skill in a situation almost identical to where it was learned, is developmentally accessible and important; it is the foundation on which all further transfer builds
- Adults who explicitly name when a prior skill applies (“You used that same strategy in art class!”) begin building learners’ awareness of transfer as a concept
- The disposition to notice that something learned before might apply again is the motivational foundation of transfer development; building this awareness early matters

#### Look-fors:

- Learner applies a learned skill in the same or very similar context
- Learner follows a model to apply prior learning in a new task
- Learner signals or shows awareness when something from before applies to now

### Grades 1–2 (Approx. Ages 6–8): Applying with Guidance

#### Common expressions:

- Applies a learned skill or strategy to a task that is slightly different from where it was learned, with adult guidance

- Explains how what they learned before relates to the current task when asked
- Improves their application of prior knowledge based on feedback

**Important to understand:**

- Slightly near transfer, applying to tasks that are similar but not identical, is beginning to develop; adult prompting to notice the connection is still necessary in most cases
- The ability to articulate the connection between prior and current learning (“This is like when we...”) is both a sign of transfer and a practice that strengthens it; it should be explicitly prompted and reinforced
- Improving application based on feedback reflects the interaction between transfer and accountability; both are needed for the learning to actually improve

**Look-fors:**

- Learner applies a strategy to a task slightly different from where they learned it, with adult guidance
- Learner can explain how what they learned before connects to the current task
- Learner improves their application after receiving specific feedback

**Grades 3–5 (Approx. Ages 8–11): Independent Domain Transfer**

**Common expressions:**

- Applies learning independently to tasks that differ in form but share underlying structure with where the learning occurred
- Adjusts a strategy to fit the requirements of a new task without needing step-by-step guidance on how to adapt it
- Explains specifically how prior knowledge shaped their current approach

**Important to understand:**

- The transition from prompted to independent transfer, noticing the connection and applying it without being told to, is a significant development that requires both the metacognitive habit of looking for connections and the confidence to apply them
- Transfer within a domain (applying a writing strategy to a different type of writing, applying a math concept to a different type of problem) is more accessible than transfer across domains; it is the appropriate developmental focus at this stage
- Explicitly discussing how strategies apply across different types of tasks within a subject area is high-leverage teaching that accelerates transfer development

**Look-fors:**

- Learner applies a strategy to a new task in the same general domain without being told to
- Learner adjusts the strategy to fit the new task’s requirements
- Learner explains specifically how what they already knew shaped their approach to the new task

**Grades 6–8 (Approx. Ages 11–14): Cross-Domain Transfer**

**Common expressions:**

- Transfers knowledge or strategies across genuinely different domains or contexts, where the connection is not immediately obvious
- Identifies which elements of a prior strategy apply to a new situation, which need to be modified, and which do not apply
- Reflects on a transfer attempt, including an unsuccessful one, to refine how they apply learning in the future

**Important to understand:**

- Far transfer, applying across genuinely different domains, is cognitively demanding and does not happen reliably without explicit instruction and practice; the middle school years are a critical time to develop this capacity
- The analytical work of distinguishing what applies, what needs adjustment, and what does not apply is a metacognitive skill that requires both knowledge and self-awareness; it should be taught explicitly
- Unsuccessful transfer attempts are highly informative if reflected on well; building in structured reflection on what did not work and why is at least as important as reflecting on what did

**Look-fors:**

- Learner applies a strategy from one domain to a genuinely different one
- Learner identifies specifically which elements of a prior strategy apply, which need modification, and which do not
- Learner reflects on an unsuccessful transfer attempt and extracts a specific lesson from it

## Grades 9–12 (Approx. Ages 14–18): Complex and Novel Application

### Common expressions:

- Applies learning to complex or novel situations where the connection to prior knowledge requires analysis rather than pattern recognition
- Integrates knowledge from multiple experiences or contexts to address challenges that no single source could address alone
- Supports peers in making connections between what they have learned and new challenges they are facing

### Important to understand:

- Far transfer to complex situations requires both deep knowledge of what was learned and the analytical capacity to identify structural similarities across surface differences; both are needed and both require development
- Integration of knowledge from multiple domains is the highest form of transfer and one of the most valuable intellectual capacities; it requires being able to move fluidly between perspectives and synthesize across them
- Supporting others' transfer development is both a marker of mastery and a practice that deepens one's own transfer capacity; it is worth developing explicitly

### Look-fors:

- Learner applies knowledge to a complex or novel situation by identifying non-obvious structural connections to prior learning
- Learner integrates knowledge from multiple different contexts to address a challenge
- Learner helps a peer make a connection between prior learning and a new challenge they are facing

## Postsecondary (Approx. Ages 18–22): Integration and Modeling Transfer

### Common expressions:

- Applies learning in genuinely complex or novel situations where the relevance of prior knowledge is not obvious and requires original analysis to uncover
- Integrates knowledge from multiple experiences, disciplines, or fields to address challenges that exceed any single domain's resources
- Supports others in making connections between what they have learned and new contexts, modeling the process of transfer explicitly

### Important to understand:

- At this stage, transfer is the mechanism through which education becomes genuinely useful; learners who cannot apply what they know across contexts have learning that is real but largely inert in professional and civic life
- The highest-value transfer at this stage involves synthesizing across disciplines and experiences in ways that produce genuinely new understanding; this is the basis of innovation, creative work, and original contribution
- Modeling transfer for others requires both being able to do it and being able to make the process visible; teaching transfer is a reinforcement mechanism that deepens one's own capacity

### Look-fors:

- Learner applies prior knowledge to a genuinely novel situation through original analysis of structural connections
- Learner integrates knowledge from multiple disciplines or fields to address a challenge in a way that exceeds what any single source could provide
- Learner models the process of transfer for a peer or group in a way that is explicit, accessible, and effective

### Reflection Prompts

Use these reflection prompts to support in-the-moment and post-experience reflection. Adapt language for age, context, and assignment or subject.

- *Did you use anything you already knew to help you with this? What was it?*
- *How is this similar to something you have learned before? How is it different?*
- *Did you change or adjust what you already knew to make it fit this new situation? How?*
- *Did you try to use something that did not quite work here? What happened?*
- *Where else might you use what you learned today?*

For older learners (Grades 9 to Postsecondary), consider adding:

- *What structural similarities did you notice between this challenge and something you have encountered before? How did identifying that connection shape your approach?*

- *Where did you find yourself adjusting or modifying prior knowledge rather than applying it directly? What made you realize adjustment was needed, and how did you know what to keep and what to change?*
- *What knowledge from a different field or context proved unexpectedly useful here? What does that connection reveal, and how might it inform how you approach similar challenges in the future?*

## Designing Experiences That Support Learning Transfer

Experience	Why It Helps	Examples
Explicit connection-making across contexts	Transfer does not happen automatically; learners who are explicitly prompted to identify connections between what they learned and new situations transfer more reliably than those who are not	“Where have you seen this before?” and “Where might you use this?” as standard prompts; making connections across subjects or units visible; explicitly naming when a strategy learned in one context applies to another
Application to genuinely new contexts	Practicing in the same context as learning builds performance, not transfer; genuine transfer requires application to something sufficiently different	Using a strategy learned in math in science; applying a communication skill learned in class to a real conversation; adapting a problem-solving approach from one type of problem to a different type
Reflection on transfer attempts	Develops the metacognitive dimension of transfer: knowing when a strategy applies, when it needs modification, and when it does not apply	“How did your prior knowledge help here? How did you have to adjust it? What didn’t apply?” as standard reflection after a transfer task
Learning from unsuccessful transfer	Builds the specific capacity to learn from attempts that did not work, which requires understanding why the transfer did not succeed	Debrief on what happened when a strategy did not transfer as expected; identifying specifically why it did not work and what a better approach would have been
Cross-domain projects	Creates structured opportunities for transfer across subject boundaries, which is the most valuable and least naturally occurring form	Projects that explicitly draw on learning from multiple subjects; capstone work that requires integrating diverse knowledge and skills; explicitly framed synthesis tasks
Supporting others’ transfer	Deepens transfer by requiring articulation of what was learned, how it applies, and how to adjust it for a new context	Peer teaching; explaining how one’s own learning applies to someone else’s challenge; explicitly making visible the connection between domains for a peer

**Design principle:** *Transfer must be designed for, not assumed. The most consistent error in instructional design is teaching for understanding and assuming that transfer will follow. It usually does not. Building in explicit connection-prompts, applying learning to genuinely new contexts before practice in the original context ends, and structuring reflection on transfer attempts are the specific moves that convert deep learning into transferable learning*

## Common Pitfalls

Pitfall	Why It’s Problematic	Instead
Assuming transfer is automatic	The most consistent finding in learning science is that transfer is not automatic and does not reliably occur without deliberate design; most instruction produces knowledge that is context-bound	Design explicitly for transfer; build connection-making, application to new contexts, and reflection on transfer attempts into curriculum and instruction deliberately
Only assessing near transfer	Near transfer (applying knowledge to very similar tasks) is much easier than far transfer (applying across genuinely different contexts); assessing only near transfer misses the most valuable dimension	Assess far transfer explicitly; include tasks that require applying knowledge in genuinely different contexts; value and recognize cross-domain connection-making

Pitfall	Why It's Problematic	Instead
Teaching strategies without discussing their scope	Learners who learn a strategy without understanding when it applies and when it does not will overapply or underapply it	Explicitly discuss the conditions under which a strategy works, where its limits are, and what would need to be modified for a different context
Separating subjects and skills from each other	Siloed curriculum design prevents learners from seeing and practicing the connections that transfer depends on	Build explicit cross-disciplinary connections into curriculum; use shared vocabulary and frameworks across subjects; create projects that require learners to synthesize across domains
Treating transfer as a sign of giftedness	Framing cross-contextual connection-making as an exceptional ability removes the growth framing and limits who develops it	Frame transfer explicitly as a learnable skill; teach the practices of connection-making and application explicitly; hold consistent expectations while differentiating support

## Appendix A

### Crosswalk: PK-16 Developmental Progression ↔ Early Career Performance Rubric

Durable skills don't magically appear at the point of hire. They're typically cultivated across years of learning, practice, and feedback, in classrooms, on teams, and through lived experience. This crosswalk maps that developmental arc, connecting the PK-16 Developmental Progression to the Early Career Performance Rubric so that educators and employers can answer a practical question: If early career professionals want to demonstrate a given durable skill well, what should they be developing along the way?

#### What This Crosswalk Is

Developed through a structured mapping of each Early Career Performance Rubric subskill to the PK-16 skills most likely to develop it, the crosswalk links two assets that share a common commitment to durable skills but operate at different points in the learner-to-earner continuum:

- **The PK-16 Developmental Progression (PK-16 skills)** describes how 24 durable skills develop across five levels, from early childhood through postsecondary.
- **The Early Career Performance Rubric (Early Career)** describes how 74 durable skills subskills are demonstrated by an early-career professional, across four performance levels.

The crosswalk runs in both directions. For each Early Career subskill, the forward crosswalk identifies 3 to 5 priority-ranked PK-16 skills that most directly support its development. In the reverse crosswalk, it shows which Early Career subskills each PK-16 skill feeds into, sorted by PK-16 skill.

#### What This Crosswalk Isn't

A few clarifications to prevent misreading:

- **It's developmental, not evaluative.** The crosswalk describes how skills build over time, not how to assess or score them.
- **It's about investment priorities, not one-to-one equivalence.** PK-16 skills don't "equal" Early Career subskills. They feed into them, often in combination, and with varying weights.
- **The PK-16 skills listed for each subskill are ranked, not categorical.** The order matters. Top-listed skills carry more developmental weight than those further down.
- **The two directions serve different questions.** The forward and reverse crosswalks aren't mirror images of each other in how they're used.

#### How to Use It

Start with the question you're asking.

If you're asking: "*What PK-16 skills should we develop so that early career professionals can demonstrate a specific durable skill well?*" Use the **forward crosswalk**. It's organized by Early Career subskill and shows the priority-ranked PK-16 investments that support it.

If you're asking: "*Which early career capabilities does a given PK-16 skill feed into?*" **Use the reverse crosswalk**. It's organized by PK-16 skill and shows every Early Career subskill it supports, sorted by priority.

Both directions are drawn from the same underlying mapping. They just enter it from different ends of the continuum.

#### Forward Crosswalk: Early Career Subskill ⇨ PK-16 Investments

This forward crosswalk organizes the mapping by Early Career subskill. It answers the question: what PK-16 skills should learners develop in order to demonstrate a given early career subskill well when they enter the workforce? Each entry lists 3 to 5 priority-ranked PK-16 investments for the subskill, along with a short rationale describing the developmental connection. Priority 1 identifies the most direct antecedent or primary driver. Priorities 2 through 5 identify supporting investments that play enabling, regulatory, or infrastructure roles.

**A note on priority.** The ranking reflects developmental weight, not exclusivity. A priority 1 skill is typically a direct developmental antecedent (often the PK-16 skill of the same or closely related name) while lower-priority skills contribute meaningfully but through a supporting role. Early career subskills are rarely the product of a single PK-16 investment; they emerge from the combined development of several skills working together, with some carrying more weight than others.

**A note on scope.** The PK-16 skills listed for each subskill are not exhaustive. They represent the investments with the strongest and most direct developmental links, selected through a structured mapping process. Other PK-16 skills may also contribute in secondary ways; the intent is to surface where developmental effort most reliably pays off, not to catalog every conceivable connection.

To see which early career subskills a given PK-16 skill feeds into across the full landscape, refer to the reverse crosswalk, which inverts this mapping and shows developmental reach by PK-16 skill.

## 1.0 Communication

### 1.1 Communications (hybrid/remote)

The ability to effectively exchange information, thoughts, and ideas with others in various environments (virtual and in-person) using various channels such as verbal, written, and nonverbal.

Priority PK-16 Investments:

1. **B.2 Communication.** Direct developmental antecedent. Builds the full arc from expressing basic needs to communicating complex information with precision across audiences and contexts.
2. **B.1 Active Listening.** Virtual and hybrid exchange requires attending to meaning when nonverbal cues are reduced; listening quality becomes a larger share of comprehension rather than a smaller one.
3. **A.2 Self-Management.** Staying engaged, present, and focused during virtual communication requires sustained attention regulation.

### 1.2 Presentation

The ability to effectively convey ideas or information to an audience.

Priority PK-16 Investments:

1. **B.2 Communication.** Organizing and delivering ideas clearly for an audience is the expressive core of presentation skill.
2. **D.1 Planning.** Preparing content, sequencing material logically, and managing time within a presentation requires planning capacity.
3. **B.3 Perspective-Taking.** Anticipating what the audience needs, knows, and will respond to shapes effective presentation design.
4. **A.3 Metacognition.** Monitoring one's own delivery in real time and adjusting when material is not landing as intended.

### 1.3 Written Communication

Conveying information, thoughts, or ideas in written form to others.

Priority PK-16 Investments:

1. **B.2 Communication.** Choosing words, tone, and format appropriate to the audience and purpose is the foundation for all written communication.
2. **B.3 Perspective-Taking.** Writing effectively requires anticipating how a reader will interpret the message without the benefit of nonverbal cues.
3. **C.1 Critical Thinking.** Organizing ideas logically and supporting claims with evidence produces clear, well-structured written work.

### 1.4 Verbal Communication

Verbally conveying information, thoughts, or ideas to others.

Priority PK-16 Investments:

1. **B.2 Communication.** Expressing ideas clearly and adjusting tone, volume, and word choice for the context is the core verbal communication capacity.
2. **B.3 Perspective-Taking.** Reading whether the listener is following and adjusting delivery accordingly enables complete, coherent verbal exchange.
3. **B.1 Active Listening.** Effective verbal exchange requires listening to others' responses and adjusting what one says accordingly.

### 1.5 Negotiation

A strategic discussion between two or more parties aimed at reaching agreement or a solution.

Priority PK-16 Investments:

1. **B.5 Conflict Resolution.** Navigating disagreement, distinguishing intent from impact, and working toward mutually workable resolutions is the closest developmental antecedent to negotiation.
2. **B.3 Perspective-Taking.** Understanding the other party's interests, motivations, and constraints is essential to reaching agreement.
3. **B.2 Communication.** Articulating one's own position clearly while remaining open to the other party's perspective.
4. **A.2 Self-Management.** Regulating emotions and maintaining composure so that feelings do not interfere with strategic thinking.
5. **C.5 Decision-Making.** Weighing options and potential consequences to determine when to compromise and when to hold firm.

## 1.6 Social Media

The ability to create, manage, and leverage social media platforms to reach and engage with a target audience, promote brand awareness, and drive business objectives.

Priority PK-16 Investments:

1. **B.2 Communication.** Crafting messages that reach and engage a target audience requires the ability to adapt tone, format, and content to context.
2. **B.3 Perspective-Taking.** Understanding what an audience values, responds to, and how they will interpret content shapes effective social media engagement.
3. **C.1 Critical Thinking.** Evaluating the impact of content and understanding how information spreads requires analytical judgment.

## 1.7 Customer Service

The assistance and guidance a company provides to people before, during, and after they utilize the company's products or services.

Priority PK-16 Investments:

1. **B.1 Active Listening.** Understanding customer needs requires attending to what is being communicated, not just responding with standard answers.
2. **B.2 Communication.** Providing clear guidance and assistance requires the ability to express information in ways the customer can understand and act on.
3. **B.3 Perspective-Taking.** Meeting customer expectations requires understanding their experience, frustrations, and needs from their point of view.
4. **C.2 Problem Solving.** Identifying what the customer needs and finding effective methods to satisfy those needs draws on applied problem-solving capacity.

## 1.8 Public Speaking

Effectively delivering a message to engage, inform, and persuade an audience.

Priority PK-16 Investments:

1. **B.2 Communication.** Delivering messages clearly and adapting to audience response is the expressive foundation of public speaking.
2. **A.2 Self-Management.** Managing anxiety, maintaining composure, and sustaining focus while speaking to an audience.
3. **D.1 Planning.** Preparing content, structuring a narrative arc, and managing time produces compelling rather than script-dependent delivery.
4. **B.3 Perspective-Taking.** Reading the audience and adjusting delivery to engage, inform, and persuade requires understanding their perspective in real time.

## 2.0 Leadership

### 2.1 Management

The ability to plan, organize, and coordinate resources in order to achieve specific goals and objectives.

Priority PK-16 Investments:

1. **D.1 Planning.** Organizing effort, setting goals, sequencing steps, and allocating resources is the structural core of management.
2. **C.6 Systems Thinking.** Understanding how parts of a system interact and where change has the most significant effect supports systematic approaches to organizing work.
3. **B.2 Communication.** Establishing communication channels and keeping people aligned on goals and progress.
4. **B.4 Collaboration.** Coordinating roles, responsibilities, and group processes translates planning into collective action.

### 2.2 Leadership

The ability to motivate and guide a group of people towards achieving a common goal or objective.

Priority PK-16 Investments:

1. **B.6 Positive Influence.** Encouraging others, guiding group direction, and building others' capacity to contribute is the most direct developmental antecedent to leadership.
2. **B.4 Collaboration.** Understanding collaborative skills and cooperating with team members provides the relational foundation that leadership requires.
3. **B.2 Communication.** Motivating and guiding others requires the ability to articulate direction, expectations, and encouragement clearly.
4. **B.3 Perspective-Taking.** Understanding what team members need, feel, and respond to enables leadership that engages rather than alienates.

## 2.3 Mentorship

The ability to provide guidance and support to others in their personal and professional development.

Priority PK-16 Investments:

1. **B.6 Positive Influence.** Building others' capacity to contribute meaningfully and supporting their growth is the developmental core of mentorship.
2. **B.3 Perspective-Taking.** Understanding another person's experience, needs, and development stage enables guidance that is responsive rather than generic.
3. **B.1 Active Listening.** Providing meaningful guidance requires listening carefully to understand what the other person needs, not just advising from one's own perspective.
4. **A.3 Metacognition.** Making one's own thinking visible and modeling process supports others' learning and development.

## 2.4 Decision-Making

The ability to analyze information, evaluate options, and make logical decisions that align with goals and objectives.

Priority PK-16 Investments:

1. **C.5 Decision-Making.** Direct 1:1 antecedent. Develops the full arc from choosing between simple options to making well-reasoned decisions in high-stakes, ambiguous situations.
2. **C.1 Critical Thinking.** Analyzing information, evaluating evidence, and identifying assumptions provides the reasoning foundation for sound decisions.
3. **A.1 Self-Awareness.** Recognizing how emotions and biases influence judgment builds the capacity to distinguish logic from feeling in decision processes.
4. **A.2 Self-Management.** Regulating emotional reactions so that analytical reasoning remains intact under social or emotional pressure, which are the conditions where decision quality most often deteriorates.

## 2.5 Project Management

The use of specific knowledge, skills, tools, and techniques to achieve specific project objectives and deliver value.

Priority PK-16 Investments:

1. **D.1 Planning.** Setting goals, sequencing steps, allocating resources, and accounting for dependencies is the structural backbone of project management.
2. **D.2 Time Management.** Estimating effort, tracking deadlines, and adjusting pace across multiple workstreams keeps projects on schedule.
3. **B.4 Collaboration.** Coordinating roles, responsibilities, and collective effort across a team translates project plans into execution.
4. **C.6 Systems Thinking.** Identifying leverage points and anticipating how changes in one task or resource propagate through a project protects against downstream failures that linear planning cannot catch.

## 2.6 Advocacy

The ability to defend, promote, and support a cause or issue.

Priority PK-16 Investments:

1. **B.2 Communication.** Articulating a position clearly and persuasively is the expressive core of advocacy.
2. **B.3 Perspective-Taking.** Understanding the audience and the context in which advocacy will land determines when and how intervening is appropriate.
3. **C.1 Critical Thinking.** Building a reasoned case with evidence and sound judgment makes advocacy credible rather than merely assertive.
4. **C.4 Inquiry.** Researching and gathering information systematically builds the evidence base that effective advocacy requires.
5. **C.5 Decision-Making.** Judging when to advocate and when to hold back requires weighing context, timing, and potential consequences.

## 2.7 Risk Management

The ability to identify, assess, prioritize, and mitigate potential risks and uncertainties that may cause harm and/or negatively impact the success of a project or organization.

Priority PK-16 Investments:

1. **C.6 Systems Thinking.** Understanding interdependencies and anticipating how changes or actions propagate through a system is the analytical core of risk identification.
2. **C.1 Critical Thinking.** Evaluating the likelihood and significance of potential risks requires analytical reasoning and sound judgment.
3. **C.5 Decision-Making.** Prioritizing risks and selecting mitigation strategies requires weighing options against potential consequences.
4. **D.1 Planning.** Developing mitigation plans and contingencies translates risk assessment into organized preventive action.

## 2.8 Thought Leadership

The ability to develop and communicate innovative and insightful ideas and perspectives that position an individual or organization as a trusted authority in one's industry or field.

Priority PK-16 Investments:

1. **C.1 Critical Thinking.** Developing insightful perspectives requires rigorous analysis, identifying assumptions, and reasoning beyond conventional thinking.
2. **B.2 Communication.** Articulating ideas clearly and compellingly is what makes thinking visible and influential.
3. **C.3 Creative Thinking.** Generating original ideas and making unexpected connections produces the innovative perspectives that distinguish thought leadership.
4. **C.4 Inquiry.** Sustaining investigation over time and framing original questions builds the deep subject matter knowledge that thought leadership requires.
5. **D.6 Learning Transfer.** Synthesizing knowledge across different domains and applying it to new contexts produces perspectives that advance what is possible.

## 3.0 Metacognition

### 3.1 Detail-Oriented

The ability to pay close attention to the small details of a task and to be aware of all details impactful to a task.

Priority PK-16 Investments:

1. **A.3 Metacognition.** Monitoring one's own work process, noticing errors during a task, and checking work before finishing develops the self-regulatory habits that attention to detail requires.
2. **A.2 Self-Management.** Sustaining focused attention and resisting the impulse to prioritize speed over quality.
3. **D.1 Planning.** Using strategic processes and systematic approaches to account for details rather than relying on ad hoc effort.

### 3.2 Planning

The ability to envision the end goal and the process required to achieve the goal.

Priority PK-16 Investments:

1. **D.1 Planning.** Direct 1:1 antecedent. Develops the full arc from following sequences to designing plans across multiple variables, dependencies, and constraints.
2. **C.6 Systems Thinking.** Seeing the bigger picture and understanding how parts relate enables envisioning long-term outcomes rather than planning ad hoc.
3. **C.5 Decision-Making.** Identifying pros and cons of strategies and selecting among alternative pathways requires evaluative judgment.
4. **C.1 Critical Thinking.** Analyzing information and evaluating options ensures plans are grounded in reasoning rather than informal assumptions.

### 3.3 Teaching

An individual's ability to effectively impart or convey knowledge, skills, and/or values to others.

Priority PK-16 Investments:

1. **A.3 Metacognition.** Making one's own thinking visible and modeling process is the cognitive foundation for teaching others effectively.
2. **B.2 Communication.** Conveying knowledge clearly and adapting explanations to the learner's level requires strong expressive skill.
3. **B.3 Perspective-Taking.** Understanding what the learner already knows, where they are confused, and what they need shapes responsive teaching.
4. **B.1 Active Listening.** Attending to the learner's questions and responses ensures knowledge sharing is responsive rather than one-directional.

### 3.4 Organizational Skills

The ability to identify the appropriate resources needed to complete a task and to implement those resources in an effective way.

Priority PK-16 Investments:

1. **D.1 Planning.** Identifying what is needed, organizing effort, and allocating resources is the core planning capacity that organizational skill applies.
2. **D.2 Time Management.** Using systems to track tasks, deadlines, and materials provides the practical infrastructure for staying organized.
3. **A.3 Metacognition.** Monitoring one's own process and noticing when organization is breaking down enables self-correction before tasks are affected.

### 3.5 Time Management

The ability to estimate how long it takes to complete a task, to assess progress against the timeline for completion.

Priority PK-16 Investments:

1. **D.2 Time Management.** Direct 1:1 antecedent. Develops the full arc from following routines to managing complex, shifting priorities across long timeframes.
2. **D.1 Planning.** Sequencing tasks and accounting for dependencies provides the structural logic behind effective time allocation.
3. **C.6 Systems Thinking.** Understanding the interconnectedness and interdependencies of tasks enables realistic time estimation.

### 3.6 Adaptability

The ability to be flexible to changing circumstances and understand the impact of changes to task timelines in order to adjust plans efficiently.

Priority PK-16 Investments:

1. **D.3 Adaptability.** Direct 1:1 antecedent. Develops the full arc from tolerating minor changes to leading effectively through sustained ambiguity and using change as opportunity.
2. **A.2 Self-Management.** Regulating emotional responses to change enables productive adjustment rather than resistance or shutdown.
3. **A.6 Learning Orientation.** Approaching change with openness rather than threat builds the disposition to see alternate options as beneficial.

### 3.7 Goal Setting

The ability to establish clear and achievable objectives and to develop a plan to achieve them.

Priority PK-16 Investments:

1. **D.1 Planning.** Setting goals, building plans to reach them, and revising as conditions change is the direct developmental antecedent.
2. **A.1 Self-Awareness.** Identifying personal strengths, values, and priorities enables setting goals that are personally meaningful and realistic.
3. **A.3 Metacognition.** Setting goals for improving how one thinks or learns, not just what one produces, develops the reflective dimension of goal setting.

### 3.8 Constructive Feedback

The ability to provide specific and actionable feedback to colleagues or employees with the aim of improving their performance.

Priority PK-16 Investments:

1. **B.2 Communication.** Providing specific, actionable feedback requires the ability to express observations clearly, with appropriate tone and sensitivity.
2. **B.3 Perspective-Taking.** Understanding how feedback will be received and how personal bias may shape what one notices ensures feedback is fair and useful.
3. **A.1 Self-Awareness.** Recognizing one's own biases and blind spots prevents those from distorting the feedback one gives.
4. **A.6 Learning Orientation.** Valuing feedback as a tool for growth, both giving and receiving, builds the disposition that constructive feedback serves development, not judgment.

## 4.0 Critical Thinking

### 4.1 Problem Solving

The act of defining a problem; determining the cause of the problem; identifying, prioritizing, and selecting alternatives for a solution; and implementing a solution.

Priority PK-16 Investments:

1. **C.2 Problem Solving.** Direct 1:1 antecedent. Develops the full arc from recognizing problems to solving complex, open-ended challenges with multiple constraints.
2. **C.1 Critical Thinking.** The quality of problem representation (i.e., clearly defining what the problem actually is before acting) is one of the strongest differentiators between novice and expert problem solving.
3. **D.4 Initiative.** Taking ownership of problems and acting on them rather than waiting for direction or escalating prematurely.
4. **C.5 Decision-Making.** Weighing options and committing to a course of action is the selection step within the problem-solving process.

## 4.2 Research

The ability to gather and analyze information systematically to gain insights and solve problems.

Priority PK-16 Investments:

1. **C.4 Inquiry.** Direct developmental antecedent. Builds the capacity to ask focused questions, use multiple sources, and evaluate the quality of information found.
2. **C.1 Critical Thinking.** Evaluating the credibility and relevance of sources ensures research produces reliable insights rather than indiscriminating information gathering.
3. **A.3 Metacognition.** Monitoring one's own search process and adjusting strategies when initial approaches do not yield sufficient or credible information.

## 4.3 Prioritization

The ability to effectively organize and manage tasks according to their level of importance and urgency.

Priority PK-16 Investments:

1. **D.1 Planning.** Organizing effort, sequencing steps, and allocating resources based on goals develops the capacity to order tasks logically.
2. **C.5 Decision-Making.** Weighing options using criteria and goals builds the judgment needed to distinguish importance from ease.
3. **C.1 Critical Thinking.** Evaluating information and identifying what matters most requires analytical reasoning rather than ad hoc sorting.
4. **D.2 Time Management.** Estimating time, tracking deadlines, and adjusting pace provides the practical infrastructure for executing priorities.

## 4.4 Investigation

The ability to gather and analyze information from various sources to identify and resolve problems or issues.

Priority PK-16 Investments:

1. **C.4 Inquiry.** Developing focused questions, using multiple sources, and evaluating findings builds the systematic approach that investigation requires.
2. **C.1 Critical Thinking.** Analyzing information, identifying patterns, and questioning inconsistencies provides the analytical rigor for investigative work.
3. **D.1 Planning.** Organizing the steps of an investigation in advance builds the systematic structure that replaces ad hoc approaches.
4. **C.2 Problem Solving.** Moving from information gathering to identifying and resolving the underlying issue connects investigation to action.

## 4.5 Critical Thinking

The ability to analyze and evaluate information in order to make objective and informed decisions.

Priority PK-16 Investments:

1. **C.1 Critical Thinking.** Direct 1:1 antecedent. Develops the full arc from noticing cause and effect to rigorous reasoning with complex, ambiguous information.
2. **A.2 Self-Management.** Regulating emotional responses so that reasoning is driven by logic rather than reactive feelings.
3. **A.1 Self-Awareness.** Recognizing one's own biases and assumptions prevents them from distorting analysis.
4. **A.3 Metacognition.** Monitoring one's own thought process helps distinguish sound reasoning from rationalization.

## 4.6 Intellectual Curiosity

The willingness and desire to seek knowledge and understand new information by asking questions, exploring ideas, and continuously learning.

Priority PK-16 Investments:

1. **C.4 Inquiry.** Developing the habit of asking focused questions and sustaining investigation to close specific knowledge gaps is the behavioral expression of intellectual curiosity.
2. **A.6 Learning Orientation.** Approaching learning with openness, effort, and a belief in one's capacity to grow cultivates the desire to keep learning.
3. **C.1 Critical Thinking.** Questioning information and identifying assumptions sustains curiosity beyond surface-level interest into deeper understanding.

## 4.7 Analytical Thinking

The ability to evaluate and interpret complex information to draw insights and make informed decisions.

Priority PK-16 Investments:

1. **C.1 Critical Thinking.** Analyzing information, identifying patterns and relationships, and evaluating evidence is the core analytical capacity.
2. **C.6 Systems Thinking.** Recognizing interdependencies and cause-and-effect relationships within complex information enables deeper analysis.
3. **A.3 Metacognition.** Monitoring one's own analytical process, distinguishing pattern recognition from assumption, improves the quality of insights drawn.
4. **C.4 Inquiry.** Gathering information systematically and evaluating its quality ensures analysis is built on reliable data.

## 5.0 Collaboration

### 5.1 Interpersonal Relationships

The ability to communicate effectively and build relationships with others by considering others' thoughts, emotions, and perspectives.

Priority PK-16 Investments:

1. **B.3 Perspective-Taking.** Considering others' thoughts, emotions, and backgrounds is the relational core of building healthy working relationships.
2. **B.2 Communication.** Expressing ideas clearly and adapting language and tone to context determines whether communication builds or hinders relationships.
3. **A.1 Self-Awareness.** Recognizing how one's own language and approach affect others enables intentional relationship-building.
4. **B.1 Active Listening.** Attending to and responding thoughtfully to others' messages demonstrates the engagement that relationships require.
5. **B.5 Conflict Resolution.** Navigating friction and repairing misunderstandings is essential to building and maintaining healthy working relationships over time.

### 5.2 Coordinating

The ability to understand priorities and apply it to the organization of time, people, and resources to achieve a common goal.

Priority PK-16 Investments:

1. **D.1 Planning.** Organizing effort, sequencing steps, and allocating resources provides the structural capacity that coordination requires.
2. **B.4 Collaboration.** Coordinating roles, sharing responsibility, and keeping group work on track develops the interpersonal dimension of coordination.
3. **C.6 Systems Thinking.** Understanding how parts interact and how changes in one area affect others builds awareness of what resources need attention.
4. **B.2 Communication.** Keeping people aligned on priorities and progress requires clear, timely communication across a group.

### 5.3 Teamwork/Team Orientation

The ability to contribute to a team by clearly communicating one's work, leveraging one's unique strengths, and being adaptable in the face of change.

Priority PK-16 Investments:

1. **B.4 Collaboration.** Direct developmental antecedent. Builds the full arc from participating alongside others to aligning people, goals, and processes in complex settings.
2. **B.2 Communication.** Clearly communicating one's own work and contributions keeps the team aligned and functioning.
3. **D.3 Adaptability.** Adjusting approach when conditions change keeps individual contributions aligned with evolving team needs.
4. **A.1 Self-Awareness.** Understanding one's own strengths enables leveraging them effectively within a team context.

### 5.4 Scheduling

The ability to manage time and resource constraints in order to plan for the completion of tasks.

Priority PK-16 Investments:

1. **D.2 Time Management.** Estimating time, tracking deadlines, and using organizational systems builds the practical capacity for managing schedules.
2. **D.1 Planning.** Thinking ahead, sequencing tasks, and accounting for dependencies provides the structural logic behind effective scheduling.
3. **B.3 Perspective-Taking.** Considering others' time and constraints ensures scheduling does not create undue burden on those involved.

## 5.5 Team-Building

The ability to effectively organize a team through actions that contribute to the team's cohesiveness.

Priority PK-16 Investments:

1. **B.6 Positive Influence.** Encouraging others, building group morale, and strengthening culture develops the proactive relationship-building that team building requires.
2. **B.4 Collaboration.** Building shared norms, clear roles, and psychological safety creates the conditions under which team cohesion becomes durable rather than incidental.
3. **B.3 Perspective-Taking.** Recognizing and celebrating others' strengths and acknowledging weaknesses requires understanding individuals' experiences and contributions.
4. **B.2 Communication.** Enhancing relationships and participating meaningfully in team experiences requires clear, encouraging communication.

## 5.6 Cooperation

The ability to prioritize the common goal of a group over one's personal goals for the benefit of the larger group.

Priority PK-16 Investments:

1. **B.4 Collaboration.** Contributing effort toward shared goals and balancing personal contributions with collective needs develops the cooperative orientation.
2. **B.3 Perspective-Taking.** Understanding others' needs and the larger purpose of group work builds the willingness to prioritize collective over individual goals.
3. **D.3 Adaptability.** Being flexible in completing tasks as needed and adjusting when the group's direction shifts.

## 5.7 Remote/Virtual Teams

The ability to effectively collaborate and build relationships with team members who are not in the same physical location.

Priority PK-16 Investments:

1. **B.2 Communication.** Clear, purposeful communication becomes even more critical when nonverbal cues and informal interaction are limited.
2. **A.2 Self-Management.** Managing one's own attention, effort, and engagement without the structure of a shared physical environment.
3. **B.4 Collaboration.** Coordinating work, sharing responsibility, and building trust with others provides the relational foundation that remote work amplifies the need for.
4. **D.4 Initiative.** Taking action and following through without supervision is essential when direct oversight is reduced.

## 6.0 Character

### 6.1 Accountability

The ability to take ownership of one's responsibilities, meet expectations, take corrective action when needed, and accept the consequences of one's actions or decisions.

Priority PK-16 Investments:

1. **D.5 Accountability.** Direct 1:1 antecedent. Develops the full arc from acknowledging mistakes to owning outcomes and maintaining commitments.
2. **A.1 Self-Awareness.** Understanding how one's actions lead to results builds the self-knowledge that accountability requires.
3. **A.5 Integrity.** Acting honestly and reliably in alignment with commitments provides the ethical backbone for accountability.
4. **A.6 Learning Orientation.** Seeing accountability as a path to growth rather than punishment builds willingness to own mistakes.

### 6.2 Self-Motivation

The ability to stay driven, focused, and committed to achieving goals and delivering results without the need for constant direction or supervision.

Priority PK-16 Investments:

1. **D.4 Initiative.** Develops the core capacity to begin and carry through tasks independently without external prompting.
2. **A.1 Self-Awareness.** Clarity about one's own values, strengths, and purpose provides the internal compass that drives self-directed action.
3. **A.4 Persistence.** Sustaining effort and commitment over time without external encouragement.
4. **A.3 Metacognition.** Monitoring whether a current course of action is still producing progress is what distinguishes sustained self-motivation from rigid effort.
5. **D.1 Planning.** Setting goals and organizing effort gives self-directed action a structure to follow.

### 6.3 Trustworthy

Demonstrating honesty, reliability, and ethical behavior during interactions; consistently follows through on commitments and promises made to others.

Priority PK-16 Investments:

1. **A.5 Integrity.** Acting honestly and reliably in alignment with values and commitments is the direct foundation of trustworthiness.
2. **D.5 Accountability.** Following through on what one has agreed to do and taking ownership when things go wrong builds trust over time.
3. **B.2 Communication.** Forming trusting relationships requires the ability to communicate with clarity, honesty, and care.
4. **B.3 Perspective-Taking.** Understanding how one's actions affect others' willingness to trust deepens relational trustworthiness.

### 6.4 Tactfulness

The ability to navigate situations with sensitivity; behaving and communicating in a way that is respectful and considerate of others.

Priority PK-16 Investments:

1. **B.2 Communication.** Adapting tone, words, and format to audience and context is the expressive core of tactful behavior.
2. **B.3 Perspective-Taking.** Anticipating how communication will land requires understanding others' feelings and viewpoints.
3. **A.1 Self-Awareness.** Recognizing the impact of one's own communication style on others.
4. **A.2 Self-Management.** Regulating impulses to say what comes to mind before considering its effect.

### 6.5 Reliability

The ability to consistently produce high-quality work and fulfill commitments.

Priority PK-16 Investments:

1. **D.5 Accountability.** Taking ownership of commitments and following through consistently is the behavioral core of reliability.
2. **D.2 Time Management.** Building routines, tracking deadlines, and organizing effort so commitments are met consistently.
3. **A.2 Self-Management.** Sustaining effort and attention across responsibilities so quality does not slip.
4. **D.1 Planning.** Organizing effort in advance so that commitments are met rather than forgotten.
5. **A.1 Self-Awareness.** Recognizing personal patterns in how one engages and performs enables anticipating where commitments may be at risk before quality slips.

### 6.6 Personal Integrity

The ability to consistently act in accordance with a set of values and principles; to be honest and transparent with others.

Priority PK-16 Investments:

1. **A.5 Integrity.** Direct 1:1 antecedent. Develops the full arc from honesty in simple situations to acting on values in complex, ambiguous ones.
2. **A.1 Self-Awareness.** Articulating personal values and examining biases are prerequisites to acting in accordance with principles.
3. **B.3 Perspective-Taking.** Understanding the impact of one's behavior on others develops the outward orientation that grounds principled action.

## 7.0 Creativity

### 7.1 Innovation

The ability to generate new ideas and creatively apply them to drive business growth and/or solve problems in a unique and effective way.

Priority PK-16 Investments:

1. **C.3 Creative Thinking.** Generating original ideas and building on existing work to develop new or improved solutions is the generative engine of innovation.
2. **C.2 Problem Solving.** Identifying problems, testing approaches, and refining actions provides the applied structure through which creative ideas become workable solutions.
3. **C.1 Critical Thinking.** Evaluating ideas and applying sound judgment ensures creative output is grounded in logic and reasoning.
4. **D.6 Learning Transfer.** Applying knowledge from one context to new problems enables the cross-domain connections that drive innovative thinking.

## 7.2 Creative Thinking

The ability to approach problems or tasks in a non-traditional way; generates new ideas and solutions that can lead to improved outcomes.

Priority PK-16 Investments:

1. **C.3 Creative Thinking.** Direct 1:1 antecedent. Develops the full arc from open-ended exploration to producing original solutions to complex problems.
2. **C.4 Inquiry.** Asking questions and pursuing understanding systematically feeds the curiosity that generates non-traditional approaches.
3. **A.6 Learning Orientation.** Willingness to experiment, make mistakes, and try different strategies creates the conditions for creative risk-taking.

## 7.3 Visionary

The ability to think beyond the present and envision and plan for a future state.

Priority PK-16 Investments:

1. **C.3 Creative Thinking.** Imagining possibilities beyond what currently exists requires the ability to generate original ideas and make unexpected connections.
2. **C.6 Systems Thinking.** Understanding how systems change over time and anticipating consequences of actions builds the capacity to envision future states.
3. **D.1 Planning.** Translating a vision into organized effort with goals, steps, and timelines bridges imagining a future state and working toward it.
4. **D.3 Adaptability.** Openness to change and the ability to adjust thinking in response to new information supports forward-looking rather than status-quo thinking.

## 7.4 Ideation

The generation and development of new ideas with the aim of addressing business challenges.

Priority PK-16 Investments:

1. **C.3 Creative Thinking.** Generating multiple original ideas and building on prior work is the core generative capacity that ideation requires.
2. **B.4 Collaboration.** Contributing ideas in group settings and building on others' contributions develops the collaborative dimension of ideation.
3. **B.2 Communication.** Articulating and developing ideas with others requires the ability to express thinking clearly.

## 7.5 Experimentation

The iterative process of testing and validating ideas, products, and services.

Priority PK-16 Investments:

1. **C.2 Problem Solving.** Testing approaches, observing results, and refining actions in response to feedback is the iterative cycle that experimentation applies.
2. **C.4 Inquiry.** Asking focused questions, seeking information systematically, and evaluating findings develops the investigative rigor behind experimentation.
3. **A.3 Metacognition.** Evaluating whether an approach is working and deliberately adjusting strategy supports the reflective iteration that experimentation requires.
4. **A.6 Learning Orientation.** Treating unexpected results as information rather than failure, and seeking the edge of one's capability rather than avoiding it, sustains the willingness to keep testing when early attempts do not succeed.

## 7.6 Brainstorming

A group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group.

Priority PK-16 Investments:

1. **C.3 Creative Thinking.** Generating ideas spontaneously and building on others' ideas draws directly on creative thinking capacity.
2. **B.4 Collaboration.** Contributing to group processes and coordinating with others is the social infrastructure of brainstorming.
3. **B.2 Communication.** Sharing ideas clearly and building on what others say requires expressive communication in real time.
4. **B.1 Active Listening.** Hearing and building on others' contributions rather than waiting for one's own turn to speak.

## 8.0 Growth Mindset

### 8.1 Self-Starter

The ability to work independently and take initiative to complete tasks without external direction or motivation.

Priority PK-16 Investments:

1. **D.4 Initiative.** Direct 1:1 antecedent. Develops the full arc from beginning tasks when prompted to initiating and driving work independently.
2. **A.2 Self-Management.** Regulating attention and effort without external structure enables independent task completion.
3. **D.1 Planning.** Organizing one's own effort and sequencing steps provides the structure that replaces external direction.

### 8.2 Proactivity

The ability to take initiative and anticipate potential issues or opportunities before they arise.

Priority PK-16 Investments:

1. **D.4 Initiative.** Develops the disposition to act before being asked, including identifying gaps and needs proactively.
2. **C.6 Systems Thinking.** Anticipating future needs requires understanding how parts of a system interact and how changes propagate.
3. **D.1 Planning.** Thinking ahead and organizing effort builds the forward-looking orientation that proactivity requires.
4. **C.1 Critical Thinking.** Analyzing situations to identify what might go wrong or where opportunities exist before they become obvious.
5. **D.3 Adaptability.** Comfort with change and openness to adjusting course grounds the proactive orientation; anticipating issues requires seeing change as opportunity rather than threat.

### 8.3 Curiosity

The eagerness and openness to learn new things, seek out new information, and ask questions to better understand and solve problems.

Priority PK-16 Investments:

1. **C.4 Inquiry.** Direct developmental antecedent. Builds the habit of asking focused questions, seeking information, and pursuing understanding systematically.
2. **A.6 Learning Orientation.** Approaching learning with openness and embracing challenge cultivates the desire to explore beyond what is required.
3. **C.1 Critical Thinking.** Analyzing and questioning information develops the intellectual habits that sustain curiosity beyond surface-level interest.

### 8.4 Resourcefulness

The ability to quickly find effective solutions to problems, even in situations where resources may be limited or unclear.

Priority PK-16 Investments:

1. **C.2 Problem Solving.** Generating possible solutions, testing approaches, and refining actions is the core process that resourcefulness applies under constraint.
2. **C.3 Creative Thinking.** Finding effective solutions when straightforward approaches are unavailable requires generating original ideas and unexpected connections.
3. **D.3 Adaptability.** Adjusting strategies when conditions or available resources change.
4. **D.4 Initiative.** Acting independently to address constraints rather than waiting for direction or additional resources.
5. **D.6 Learning Transfer.** Drawing on knowledge and strategies from other contexts to address problems when familiar resources are unavailable.

### 8.5 Entrepreneurship

The ability to identify and pursue business opportunities by taking calculated risks, creating innovative solutions, and effectively managing resources.

Priority PK-16 Investments:

1. **C.3 Creative Thinking.** Generating original ideas and building on existing approaches to develop new or improved solutions.
2. **C.5 Decision-Making.** Weighing options, evidence, and potential consequences develops the judgment needed for calculated risk-taking.
3. **D.4 Initiative.** Identifying opportunities and acting on them independently rather than waiting for direction.
4. **D.1 Planning.** Organizing effort, allocating resources, and setting goals provides the execution structure for pursuing opportunities.

## 8.6 Action-Oriented

The ability to take initiative, set goals, and actively work towards achieving them; has a strong sense of immediacy.

Priority PK-16 Investments:

1. **D.4 Initiative.** Develops the core capacity to begin tasks, carry them through, and act without waiting for external direction.
2. **C.5 Decision-Making.** Committing to a course of action after weighing options develops decisiveness over indecisiveness.
3. **D.1 Planning.** Setting goals and sequencing steps channels action toward outcomes rather than activity for its own sake.
4. **A.3 Metacognition.** Monitoring whether action is producing meaningful progress is what distinguishes purposeful action from activity for its own sake.
5. **A.4 Persistence.** Sustaining effort through to completion ensures that action translates into results.

## 8.7 Results-Focused

The ability to meet or exceed specific goals and objectives; focuses on the outcomes rather than the process it takes to get there.

Priority PK-16 Investments:

1. **D.1 Planning.** Setting clear goals and building plans to reach them orients effort toward defined outcomes.
2. **A.3 Metacognition.** Evaluating whether one's approach is producing desired results and adjusting accordingly keeps focus on outcomes.
3. **C.5 Decision-Making.** Weighing options against goals and values ensures choices align with intended results.
4. **A.4 Persistence.** Sustaining commitment to goals through obstacles ensures effort translates into outcomes.

## 8.8 Self-Sufficiency

The ability to work independently, take ownership of tasks, and complete them with minimal or any supervision or guidance.

Priority PK-16 Investments:

1. **D.4 Initiative.** Develops the capacity to begin, sustain, and complete work without external prompting or direction.
2. **C.2 Problem Solving.** Working through problems independently rather than relying on others for solutions.
3. **A.2 Self-Management.** Regulating one's own attention, effort, and behavior without external structure or supervision.
4. **A.3 Metacognition.** Monitoring one's own thinking and learning enables self-correction without needing guidance from others.

## 9.0 Mindfulness

### 9.1 Hospitality

The ability to provide friendly, attentive, and welcome service to customers or clients.

Priority PK-16 Investments:

1. **B.3 Perspective-Taking.** Noticing and responding to others' needs requires the ability to read what others are experiencing.
2. **B.2 Communication.** Initiating conversations, giving directions, and engaging warmly are expressive communication skills.
3. **B.1 Active Listening.** Attending to what others need before they ask requires listening for cues beyond explicit requests.
4. **D.4 Initiative.** Developing the habit of acting without being prompted builds the proactive orientation that hospitality requires.

### 9.2 Compassion

The ability to empathize and show kindness and understanding towards others.

Priority PK-16 Investments:

1. **B.3 Perspective-Taking.** Recognizing others' emotional experiences and responding with care is the core of PK-16 Perspective-Taking.
2. **B.6 Positive Influence.** Developing the orientation toward helping and encouraging others without being asked.
3. **A.1 Self-Awareness.** Recognizing one's own impact on others creates the awareness that prompts compassionate action.
4. **B.1 Active Listening.** Attending to others' expressions and experiences enables noticing when compassionate response is needed.

### 9.3 Empathy

The ability to understand and share the feelings, perspectives, and experiences of others.

Priority PK-16 Investments:

1. **B.3 Perspective-Taking.** The most direct antecedent. PK-16 Perspective-Taking explicitly integrates affective empathy with cognitive reasoning about others' viewpoints, which are the two components research identifies as jointly necessary for genuine empathic engagement.
2. **B.1 Active Listening.** Understanding others' experiences requires attending to what they express, not just what is convenient to hear.
3. **A.1 Self-Awareness.** Recognizing one's own emotional patterns and biases is a prerequisite to accurately reading those of others.

### 9.4 Patience

An individual's ability to maintain a calm and composed attitude in the face of challenging situations, and to persevere through difficulties or delays.

Priority PK-16 Investments:

1. **A.2 Self-Management.** Regulating frustration, sustaining engagement, and managing impulses are the core of patience.
2. **A.4 Persistence.** Sustaining steady effort through extended difficulty rather than rushing to finish.
3. **A.1 Self-Awareness.** Recognizing early signs of frustration allows learners to intervene before impatience takes over.
4. **A.3 Metacognition.** Monitoring one's own process prevents hasty task completion with little regard for quality.

### 9.5 Active Listening

An individual's ability to fully concentrate on, understand, and respond to verbal and/or nonverbal communication.

Priority PK-16 Investments:

1. **B.1 Active Listening.** Direct 1:1 antecedent. Develops the full arc from basic attending to listening for what is unsaid.
2. **B.3 Perspective-Taking.** Listening to understand rather than respond requires genuine interest in the speaker's viewpoint.
3. **A.2 Self-Management.** Sustaining attention and resisting the impulse to formulate a response before the speaker finishes.

### 9.6 Emotional Intelligence

An individual's ability to recognize, understand, and manage their own emotions, as well as empathize with and effectively communicate with others.

Priority PK-16 Investments:

1. **A.1 Self-Awareness.** Identifying one's own emotions and understanding their effect on behavior is the intrapersonal foundation of emotional intelligence.
2. **A.2 Self-Management.** Controlling actions in relation to emotions, the regulatory dimension of emotional intelligence.
3. **B.3 Perspective-Taking.** Identifying emotions in others and understanding their impact, the interpersonal dimension.
4. **B.2 Communication.** Effectively communicating with others in emotionally aware ways requires expressive skill.

### 9.7 Humility

The quality or state of having the self-esteem to understand that even though you are doing well, you do not have to brag about it.

Priority PK-16 Investments:

1. **B.3 Perspective-Taking.** Valuing others' contributions requires the ability to see beyond one's own accomplishments and recognize others' worth.
2. **A.1 Self-Awareness.** Accurate self-knowledge, including limitations, prevents inflated self-assessment.
3. **B.4 Collaboration.** Working productively with others and sharing responsibility teaches that outcomes are collective, not individual.
4. **A.6 Learning Orientation.** Approaching learning with openness and embracing feedback builds the disposition that one always has more to learn.

### 9.8 Cultural Sensitivity

The knowledge, awareness, and acceptance of the values, norms, and beliefs characteristic of a cultural, ethnic, racial, or other group that is not one's own.

Priority PK-16 Investments:

1. **B.3 Perspective-Taking.** Reasoning about how background, identity, and position shape what people notice, feel, and believe, including the deliberate effort required when another's experience differs sharply from one's own.
2. **A.1 Self-Awareness.** Examining personal biases and assumptions is a prerequisite to accepting differences.
3. **D.3 Adaptability.** Willingness to adjust one's behavior in response to different cultural contexts.
4. **B.1 Active Listening.** Attending to perspectives and experiences different from one's own without dismissing or filtering.

## 10.0 Fortitude

### 10.1 Resilience

The ability to adapt in the face of adversity in order to successfully recover from unexpected situations and resume or revise a plan.

Priority PK-16 Investments:

1. **A.4 Persistence.** Builds sustained effort through setbacks paired with the flexibility to change course; adaptive persistence rather than rigid continuation of ineffective effort.
2. **D.3 Adaptability.** Develops comfort with change and the ability to recover from disruption productively.
3. **A.2 Self-Management.** Provides the emotional regulation capacity that sustains resilient behavior.
4. **A.6 Learning Orientation.** Builds the habit of interpreting setbacks as learning rather than failure.
5. **A.3 Metacognition.** Monitoring whether a current approach is still working turns stubbornness into flexible resilience.

### 10.2 Motivational Skills

The ability to use contextually appropriate strategies and tactics to elicit a desired reaction from a group.

Priority PK-16 Investments:

1. **B.6 Positive Influence.** Develops awareness of one's motivational impact and the ability to encourage and guide others.
2. **B.3 Perspective-Taking.** Understanding what drives others is prerequisite to knowing how to motivate them.
3. **A.1 Self-Awareness.** Recognizing one's own effect on others underpins intentional motivational action.
4. **B.4 Collaboration.** Organizing and sustaining collective effort requires motivational awareness at higher levels.

### 10.3 Optimism

The ability to maintain a positive attitude and focus on the best possible outcomes for events and tasks.

Priority PK-16 Investments:

1. **A.6 Learning Orientation.** Builds the habit of interpreting difficulty as productive rather than threatening.
2. **A.4 Persistence.** Sustaining effort through difficulty reinforces positive expectation about outcomes.
3. **A.1 Self-Awareness.** Recognizing emotional patterns helps learners catch and redirect negative spirals.

### 10.4 Tenacity

The ability to stay focused on the process and have unwavering determination when completing a task.

Priority PK-16 Investments:

1. **A.4 Persistence.** Direct developmental antecedent across the full arc, including balancing determination with flexibility.
2. **A.2 Self-Management.** Addresses attention regulation and the ability to stay on track through obstacles.
3. **A.3 Metacognition.** Distinguishing productive persistence from rigid commitment requires monitoring one's own process.

### 10.5 Assertiveness

The ability to be confident and willing to advocate for oneself while engaging in constructive discourse without being aggressive.

Priority PK-16 Investments:

1. **B.2 Communication.** Provides the expressive capacity to advocate clearly and appropriately without aggression.
2. **B.5 Conflict Resolution.** Develops the ability to navigate disagreement constructively and distinguish intent from impact.
3. **B.3 Perspective-Taking.** Recognizing others' concerns while holding one's own position.
4. **A.1 Self-Awareness.** Knowing one's own values and position clearly enough to articulate and defend them.
5. **A.2 Self-Management.** Regulating emotion so assertiveness does not tip into aggression.

## 10.6 Self-Discipline

The ability to regulate one's actions and emotions in order to stay committed to achieving a goal and keep oneself accountable.

Priority PK-16 Investments:

1. **A.2 Self-Management.** Core regulatory capacity for attention, emotion, and effort across contexts.
2. **D.5 Accountability.** Ownership of behavior and follow-through counteracts excuse-making and deflection.
3. **D.2 Time Management.** Develops routine-building and the ability to manage effort against deadlines.
4. **D.1 Planning.** Structuring recurring effort into reliable routines rather than relying on willpower alone.
5. **A.1 Self-Awareness.** Anticipating personal triggers and recognizing early signs of drift is what allows disciplined behavior to scale beyond moment-to-moment willpower.

## 10.7 Calmness Under Pressure

The ability to stay composed and level-headed when faced with challenging or high-pressure situations.

Priority PK-16 Investments:

1. **A.2 Self-Management.** Direct antecedent for temper control, focus maintenance, and regulation under sustained pressure.
2. **A.1 Self-Awareness.** Anticipating personal triggers and managing reactions intentionally.
3. **A.3 Metacognition.** Monitoring one's own thinking under pressure prevents reactive, unconsidered behavior.
4. **D.3 Adaptability.** Maintaining effectiveness during uncertainty and rapid transitions.

## 10.8 Self-Confidence

To trust in one's own abilities and present information with poise.

Priority PK-16 Investments:

1. **A.1 Self-Awareness.** Articulating strengths and understanding how one contributes across settings.
2. **A.6 Learning Orientation.** Believing in one's capacity to grow builds experiential basis for confidence.
3. **A.3 Metacognition.** Understanding how one thinks and learns grounds confidence in self-knowledge rather than external validation.
4. **B.2 Communication.** Presenting information with poise requires the ability to express ideas clearly across audiences.
5. **D.4 Initiative.** Taking independent action and succeeding builds confidence through demonstrated competence.

## Reverse Crosswalk: PK-16 Skill ⇨ Early Career Subskills

This reverse crosswalk organizes the same underlying mapping by PK-16 skill rather than by Early Career subskill. It answers the question: which early career capabilities does investing in a given PK-16 skill feed into?

Each entry lists every Early Career subskill the PK-16 skill supports, grouped by priority tier. Primary investments (priority 1) are direct developmental antecedents or the most significant driver for that subskill. Supporting investments (priorities 2–5) play enabling, regulatory, or infrastructure roles.

**A note on reach.** Some PK-16 skills feed into many more Early Career subskills than others (e.g., A.1 Self-Awareness vs A.4 Persistence). Not every PK-16 skill appears at all five priority levels and the priority levels need not be consecutive. Narrower reach does not mean lesser importance. Reach signals breadth of developmental payoff, not weight or value (i.e., no one questions the value of persistence in the workplace). The connection is often direct and formative even when the footprint is smaller.

To trace the developmental rationale for any specific connection, refer to the forward crosswalk, which explains each subskill’s priority-ranked PK-16 investments.

### Cluster A: Self & Identity

#### A.1 Self-Awareness – Supports 23 Early Career subskills.

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
9.6 Emotional Intelligence	3.7 Goal Setting	2.4 Decision-Making	5.3 Teamwork/Team Orientation	6.5 Reliability
10.8 Self-Confidence	6.1 Accountability	3.8 Constructive Feedback	10.5 Assertiveness	10.6 Self-Discipline
	6.2 Self-Motivation	4.5 Critical Thinking		
	6.6 Personal Integrity	5.1 Interpersonal Relationships		
	9.7 Humility	6.4 Tactfulness		
	9.8 Cultural Sensitivity	9.2 Compassion		
	10.7 Calmness Under Pressure	9.3 Empathy		
		9.4 Patience		
		10.2 Motivational Skills		
		10.3 Optimism		

**A.2 Self-Management – Supports 20 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
9.4 Patience	1.8 Public Speaking	1.1 Communications (hybrid/remote)	1.5 Negotiation	10.5 Assertiveness
10.6 Self-Discipline	3.1 Detail-Oriented	6.5 Reliability	2.4 Decision-Making	
10.7 Calmness Under Pressure	3.6 Adaptability	8.8 Self-Sufficiency	6.4 Tactfulness	
	4.5 Critical Thinking	9.5 Active Listening		
	5.7 Remote/Virtual Teams	9.6 Emotional Intelligence		
	8.1 Self-Starter	10.1 Resilience		
	10.4 Tenacity			

**A.3 Metacognition – Supports 19 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
3.1 Detail-Oriented	8.7 Results-Focused	3.4 Organizational Skills	1.2 Presentation	10.1 Resilience
3.3 Teaching		3.7 Goal Setting	2.3 Mentorship	
		4.2 Research	4.5 Critical Thinking	
		4.7 Analytical Thinking	6.2 Self-Motivation	
		7.5 Experimentation	8.6 Action-Oriented	
		10.4 Tenacity	8.8 Self-Sufficiency	
		10.7 Calmness Under Pressure	9.4 Patience	
		10.8 Self-Confidence		

**A.4 Persistence – Supports 7 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
10.1 Resilience	9.4 Patience	6.2 Self-Motivation	8.7 Results-Focused	8.6 Action-Oriented
10.4 Tenacity	10.3 Optimism			

**A.5 Integrity – Supports 3 Early Career subskills.**

Priority 1	Priority 3
6.3 Trustworthy	6.1 Accountability
6.6 Personal Integrity	

**A.6 Learning Orientation – Supports 11 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
10.3 Optimism	4.6 Intellectual Curiosity	3.6 Adaptability	3.8 Constructive Feedback
	8.3 Curiosity	7.2 Creative Thinking	6.1 Accountability
	10.8 Self-Confidence		7.5 Experimentation
			9.7 Humility
			10.1 Resilience

**Cluster B: Working With Others**

**B.1 Active Listening – Supports 12 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
1.7 Customer Service	1.1 Communications (hybrid/remote)	1.4 Verbal Communication	3.3 Teaching

Priority 1	Priority 2	Priority 3	Priority 4
9.5 Active Listening	9.3 Empathy	2.3 Mentorship	5.1 Interpersonal Relationships
		9.1 Hospitality	7.6 Brainstorming
			9.2 Compassion
			9.8 Cultural Sensitivity

**B.2 Communication – Supports 27 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
1.1 Communications (hybrid/remote)	1.7 Customer Service	1.5 Negotiation	5.2 Coordinating
1.2 Presentation	2.8 Thought Leadership	2.1 Management	5.5 Team-Building
1.3 Written Communication	3.3 Teaching	2.2 Leadership	9.6 Emotional Intelligence
1.4 Verbal Communication	5.1 Interpersonal Relationships	6.3 Trustworthy	10.8 Self-Confidence
1.6 Social Media	5.3 Teamwork/Team Orientation	7.4 Ideation	
1.8 Public Speaking	9.1 Hospitality	7.6 Brainstorming	
2.6 Advocacy			
3.8 Constructive Feedback			
5.7 Remote/Virtual Teams			
6.4 Tactfulness			
10.5 Assertiveness			

**B.3 Perspective-Taking – Supports 28 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
5.1 Interpersonal Relationships	1.3 Written Communication	1.2 Presentation	1.8 Public Speaking
9.1 Hospitality	1.4 Verbal Communication	1.7 Customer Service	2.2 Leadership
9.2 Compassion	1.5 Negotiation	3.3 Teaching	6.3 Trustworthy
9.3 Empathy	1.6 Social Media	5.4 Scheduling	
9.7 Humility	2.3 Mentorship	5.5 Team-Building	
9.8 Cultural Sensitivity	2.6 Advocacy	6.6 Personal Integrity	
	3.8 Constructive Feedback	9.6 Emotional Intelligence	
	5.6 Cooperation	10.5 Assertiveness	
	6.4 Tactfulness		
	9.5 Active Listening		
	10.2 Motivational Skills		

**B.4 Collaboration – Supports 12 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
5.3 Teamwork/Team Orientation	2.2 Leadership	2.5 Project Management	2.1 Management
5.6 Cooperation	5.2 Coordinating	5.7 Remote/Virtual Teams	10.2 Motivational Skills
	5.5 Team-Building	9.7 Humility	
	7.4 Ideation		

Priority 1	Priority 2	Priority 3	Priority 4
	7.6 Brainstorming		

**B.5 Conflict Resolution – Supports 3 Early Career subskills.**

Priority 1	Priority 2	Priority 5
1.5 Negotiation	10.5 Assertiveness	5.1 Interpersonal Relationships

**B.6 Positive Influence – Supports 5 Early Career subskills.**

Priority 1	Priority 2
2.2 Leadership	9.2 Compassion
2.3 Mentorship	
5.5 Team-Building	
10.2 Motivational Skills	

**Cluster C: Thinking & Problem Solving**

**C.1 Critical Thinking – Supports 17 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
2.8 Thought Leadership	2.4 Decision-Making	1.3 Written Communication	3.2 Planning
4.5 Critical Thinking	2.7 Risk Management	1.6 Social Media	8.2 Proactivity
4.7 Analytical Thinking	4.1 Problem Solving	2.6 Advocacy	
	4.2 Research	4.3 Prioritization	

Priority 1	Priority 2	Priority 3	Priority 4
	4.4 Investigation	4.6 Intellectual Curiosity	
		7.1 Innovation	
		8.3 Curiosity	

**C.2 Problem Solving – Supports 7 Early Career subskills.**

Priority 1	Priority 2	Priority 4
4.1 Problem Solving	7.1 Innovation	1.7 Customer Service
7.5 Experimentation	8.8 Self-Sufficiency	4.4 Investigation
8.4 Resourcefulness		

**C.3 Creative Thinking – Supports 8 Early Career subskills.**

Priority 1	Priority 2	Priority 3
7.1 Innovation	8.4 Resourcefulness	2.8 Thought Leadership
7.2 Creative Thinking		
7.3 Visionary		
7.4 Ideation		
7.6 Brainstorming		
8.5 Entrepreneurship		

**C.4 Inquiry – Supports 9 Early Career subskills.**

Priority 1	Priority 2	Priority 4
4.2 Research	7.2 Creative Thinking	2.6 Advocacy
4.4 Investigation	7.5 Experimentation	2.8 Thought Leadership
4.6 Intellectual Curiosity		4.7 Analytical Thinking
8.3 Curiosity		

**C.5 Decision-Making – Supports 10 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
2.4 Decision-Making	4.3 Prioritization	2.7 Risk Management	4.1 Problem Solving	1.5 Negotiation
	8.5 Entrepreneurship	3.2 Planning	4.1 Problem Solving	2.6 Advocacy
	8.6 Action-Oriented	8.7 Results-Focused		

**C.6 Systems Thinking – Supports 9 Early Career subskills.**

Priority 1	Priority 2	Priority 3	Priority 4
2.7 Risk Management	2.1 Management	3.5 Time Management	2.5 Project Management
	3.2 Planning	5.2 Coordinating	
	4.7 Analytical Thinking		
	7.3 Visionary		
	8.2 Proactivity		

## Cluster D: Execution & Adaptation

### D.1 Planning – Supports 23 Early Career subskills.

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
2.1 Management	1.2 Presentation	1.8 Public Speaking	2.7 Risk Management	6.2 Self-Motivation
2.5 Project Management	3.5 Time Management	3.1 Detail-Oriented	6.5 Reliability	
3.2 Planning	5.4 Scheduling	4.4 Investigation	8.5 Entrepreneurship	
3.4 Organizational Skills		7.3 Visionary	10.6 Self-Discipline	
3.7 Goal Setting		8.1 Self-Starter		
4.3 Prioritization		8.2 Proactivity		
5.2 Coordinating		8.6 Action-Oriented		
8.7 Results-Focused				

### D.2 Time Management – Supports 7 Early Career subskills.

Priority 1	Priority 2	Priority 3	Priority 4
3.5 Time Management	2.5 Project Management	10.6 Self-Discipline	4.3 Prioritization
5.4 Scheduling	3.4 Organizational Skills		
	6.5 Reliability		

### D.3 Adaptability – Supports 9 Early Career subskills.

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
3.6 Adaptability	10.1 Resilience	5.3 Teamwork/Team Orientation	7.3 Visionary	8.2 Proactivity

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
		5.6 Cooperation	10.7 Calmness Under Pressure	
		8.4 Resourcefulness		
		9.8 Cultural Sensitivity		

**D.4 Initiative – Supports 11 Early Career subskills.**

Priority 1	Priority 3	Priority 4	Priority 5
6.2 Self-Motivation	4.1 Problem Solving	5.7 Remote/Virtual Teams	10.8 Self-Confidence
8.1 Self-Starter	8.5 Entrepreneurship	8.4 Resourcefulness	
8.2 Proactivity		9.1 Hospitality	
8.6 Action-Oriented			
8.8 Self-Sufficiency			

**D.5 Accountability – Supports 4 Early Career subskills.**

Priority 1	Priority 2
6.1 Accountability	6.3 Trustworthy
6.5 Reliability	10.6 Self-Discipline

**D.6 Learning Transfer – Supports 3 Early Career subskills.**

Priority 1	Priority 2
7.1 Innovation	2.8 Thought Leadership
	8.4 Resourcefulness

## Appendix B

### PK-16 Developmental Progression Literature Review

#### Cluster A: Self & Identity

##### A.1 Self-Awareness

###### References

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Bardack, S. R., & Widen, S. C. (2019). Emotion understanding and regulation: Implications for positive school adjustment. In V. LoBue, K. Pérez-Edgar, & K. A. Buss (Eds.), *Handbook of emotional development* (pp. 479–491). Springer. [https://doi.org/10.1007/978-3-030-17332-6\\_18](https://doi.org/10.1007/978-3-030-17332-6_18)
- Erikson, E. H. (1968). *Identity: Youth and crisis*. Norton.
- Harter, S. (2012). *The construction of the self: Developmental and sociocultural foundations* (2nd ed.). Guilford Press.
- Morin, A. (2011). Self-awareness part 1: Description, measures, effects, functions, and antecedents. *Social and Personality Psychology Compass*, 5(10), 807–823. <https://doi.org/10.1111/j.1751-9004.2011.00387.x>
- Pons, F., Harris, P. L., & de Rosnay, M. (2004). Emotion comprehension between 3 and 11 years: Developmental periods and hierarchical organization. *European Journal of Developmental Psychology*, 1(2), 127–152. <https://doi.org/10.1080/17405620344000022>
- Silvia, P. J., & O'Brien, M. E. (2004). Self-awareness and constructive functioning: Revisiting “the human dilemma.” *Journal of Social and Clinical Psychology*, 23(4), 475–489. <https://doi.org/10.1521/jscp.23.4.475.40307>
- Spitzberg, B. H., & Manusov, V. (2021). Attribution theory: Finding good cause in the search for theory. In D. O. Braithwaite & P. Schrodt (Eds.), *Engaging theories in interpersonal communication* (3rd ed., pp. 37–49). Sage.
- Torre, J. B., & Lieberman, M. D. (2018). Putting feelings into words: Affect labeling as implicit emotion regulation. *Emotion Review*, 10(2), 116–124. <https://doi.org/10.1177/1754073917742706>
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Erlbaum.

##### A.2 Self-Management

###### References

- Blair, C., & Ursache, A. (2011). A bidirectional model of executive functions and self-regulation. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (2nd ed., pp. 300–320). Guilford Press.
- Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, 8(6), 591–612. <https://doi.org/10.1177/1745691613504116>
- Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children’s maladjustment. *Annual Review of Clinical Psychology*, 6, 495–525. <https://doi.org/10.1146/annurev.clinpsy.121208.131208>
- Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students’ everyday academic resilience. *Journal of School Psychology*, 46(1), 53–83. <https://doi.org/10.1016/j.jsp.2007.01.002>
- Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., Houts, R., Poulton, R., Roberts, B. W., Ross, S., Sears, M. R., Thomson, W. M., & Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, 108(7), 2693–2698. <https://doi.org/10.1073/pnas.1010076108>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Zelazo, P. D., & Carlson, S. M. (2012). Hot and cool executive function in childhood and adolescence: Development and plasticity. *Child Development Perspectives*, 6(4), 354–360. <https://doi.org/10.1111/j.1750-8606.2012.00246.x>
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Erlbaum.

##### A.3 Metacognition

###### References

- Dunlosky, J., & Rawson, K. A. (2012). Overconfidence produces underachievement: Inaccurate self-evaluations undermine students’ learning and retention. *Learning and Instruction*, 22(4), 271–280. <https://doi.org/10.1016/j.learninstruc.2011.08.003>
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34(10), 906–911. <https://doi.org/10.1037/0003-066X.34.10.906>
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112. <https://doi.org/10.3102/003465430298487>
- King, A. (2002). Structuring peer interaction to promote high-level cognitive processing. *Theory Into Practice*, 41(1), 33–39. [https://doi.org/10.1207/s15430421tip4101\\_6](https://doi.org/10.1207/s15430421tip4101_6)

- Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, 19(4), 460–475. <https://doi.org/10.1006/ceps.1994.1033>
- Veenman, M. V. J., Van Hout-Wolters, B. H. A. M., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, 1(1), 3–14. <https://doi.org/10.1007/s11409-006-6893-0>
- Winne, P. H., & Hadwin, A. F. (1998). Studying as self-regulated learning. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Metacognition in educational theory and practice* (pp. 277–304). Erlbaum.
- Zimmerman, B. J., & Kitsantas, A. (1997). Developmental phases in self-regulation: Shifting from process to outcome goals. *Journal of Educational Psychology*, 89(1), 29–36. <https://doi.org/10.1037/0022-0663.89.1.29>

#### A.4 Persistence

##### References

- Brandtstädter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment: Explication and age-related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging*, 5(1), 58–67. <https://doi.org/10.1037/0882-7974.5.1.58>
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256–273. <https://doi.org/10.1037/0033-295X.95.2.256>
- Kuhl, J. (1984). Volitional aspects of achievement motivation and learned helplessness: Toward a comprehensive theory of action control. *Progress in Experimental Personality Research*, 13, 99–171.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227–238. <https://doi.org/10.1037/0003-066X.56.3.227>
- Morgan, G. A., Harmon, R. J., & Maslin-Cole, C. A. (1990). Mastery motivation: Description and measurement. *Early Education and Development*, 1(5), 318–339. [https://doi.org/10.1207/s15566935eed0105\\_1](https://doi.org/10.1207/s15566935eed0105_1)
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316–331. <https://doi.org/10.1111/j.1939-0025.1987.tb03541.x>
- Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality and Social Psychology Bulletin*, 29(12), 1494–1508. <https://doi.org/10.1177/0146167203256921>
- Zimmerman, B. J. (2013). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–36). Routledge.

#### A.5 Integrity

##### References

- Aquino, K., & Reed, A., II. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83(6), 1423–1440. <https://doi.org/10.1037/0022-3514.83.6.1423>
- Baumeister, R. F., & Vohs, K. D. (2004). *Handbook of self-regulation: Research, theory, and applications*. Guilford Press.
- Blasi, A. (1980). Bridging moral cognition and moral action: A critical review of the literature. *Psychological Bulletin*, 88(1), 1–45. <https://doi.org/10.1037/0033-2909.88.1.1>
- Cushman, F., Sheketoff, R., Wharton, S., & Carey, S. (2013). The development of intent-based moral judgment. *Cognition*, 127(1), 6–21. <https://doi.org/10.1016/j.cognition.2012.11.008>
- Hamlin, J. K., Wynn, K., & Bloom, P. (2007). Social evaluation by preverbal infants. *Nature*, 450(7169), 557–560. <https://doi.org/10.1038/nature06288>
- Hardy, S. A. (2006). Identity, reasoning, and emotion: An empirical comparison of three sources of moral motivation. *Motivation and Emotion*, 30(3), 205–213. <https://doi.org/10.1007/s11031-006-9034-9>
- Kochanska, G., & Murray, K. T. (2000). Mother-child mutually responsive orientation and conscience development: From toddler to early school age. *Child Development*, 71(2), 417–431. <https://doi.org/10.1111/1467-8624.00154>
- Kohlberg, L. (1984). *Essays on moral development: Vol. 2. The psychology of moral development*. Harper & Row.
- Piaget, J. (1932). *The moral judgment of the child*. Routledge. (Reprinted 1965, Free Press)
- Rest, J., Narvaez, D., Bebeau, M. J., & Thoma, S. J. (1999). Postconventional moral thinking: A neo-Kohlbergian approach. Erlbaum.

#### A.6 Learning Orientation

##### References

- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84(3), 261–271. <https://doi.org/10.1037/0022-0663.84.3.261>
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. McGraw-Hill. <https://doi.org/10.1037/11164-000>
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256–273. <https://doi.org/10.1037/0033-295X.95.2.256>
- Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, 34(3), 169–189. [https://doi.org/10.1207/s15326985ep3403\\_3](https://doi.org/10.1207/s15326985ep3403_3)
- Engel, S. (2011). Children’s need to know: Curiosity in schools. *Harvard Educational Review*, 81(4), 625–645. <https://doi.org/10.17763/haer.81.4.h054131316473115>

- Ericsson, K. A. (2006). The influence of experience and deliberate practice on the development of superior expert performance. In K. A. Ericsson, N. Charness, P. J. Feltovich, & R. R. Hoffman (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 683–703). Cambridge University Press. <https://doi.org/10.1017/CBO9780511816796.038>
- Gunderson, E. A., Gripshover, S. J., Romero, C., Dweck, C. S., Goldin-Meadow, S., & Levine, S. C. (2013). Parent praise to 1- to 3-year-olds predicts children's motivational frameworks 5 years later. *Child Development*, 84(5), 1526–1541. <https://doi.org/10.1111/cdev.12064>
- Haimovitz, K., & Dweck, C. S. (2017). The origins of children's growth and fixed mindsets: New research and a new proposal. *Child Development*, 88(6), 1849–1859. <https://doi.org/10.1111/cdev.12955>
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Erlbaum.

## Cluster B: Working With Others

### B.1 Active Listening

#### References

- Bodie, G. D. (2011). The Active-Empathic Listening Scale (AELS): Conceptualization and evidence of validity within the interpersonal domain. *Communication Quarterly*, 59(3), 277–295. <https://doi.org/10.1080/01463373.2011.583495>
- Brownell, J. (2012). *Listening: Attitudes, principles, and skills* (5th ed.). Pearson.
- Imhof, M. (2010). What did you listen to? Listening comprehension and processes of cognitive and motivational engagement. *International Journal of Listening*, 24(3), 131–143. <https://doi.org/10.1080/10904018.2010.513665>
- Nichols, M. P. (1995). *The lost art of listening*. Guilford Press.
- Weger, H., Bell, G. C., Minei, E. M., & Robinson, M. C. (2014). The relative effectiveness of active listening in initial interactions. *International Journal of Listening*, 28(1), 13–31. <https://doi.org/10.1080/10904018.2013.861256>
- Wolvin, A. D. (2010). Listening engagement: Intersecting theoretical perspectives. In A. D. Wolvin (Ed.), *Listening and human communication in the 21st century* (pp. 1–33). Blackwell. <https://doi.org/10.1002/9781444314908.ch1>
- Worthington, D. L., & Bodie, G. D. (Eds.). (2018). *The sourcebook of listening research: Methodology and measures*. Wiley-Blackwell.

### B.2 Communication

#### References

- Bodie, G. D. (2011). The Active-Empathic Listening Scale (AELS): Conceptualization and evidence of validity within the interpersonal domain. *Communication Quarterly*, 59(3), 277–295. <https://doi.org/10.1080/01463373.2011.583495>
- Hargie, O. (2011). *Skilled interpersonal communication: Research, theory and practice* (5th ed.). Routledge.
- Hoff, E. (2014). *Language development* (5th ed.). Cengage Learning.
- Nilsen, E. S., & Graham, S. A. (2012). The development of preschoolers' appreciation of communicative ambiguity. *Child Development*, 83(4), 1400–1415. <https://doi.org/10.1111/j.1467-8624.2012.01762.x>
- Peterson, C., & McCabe, A. (1983). *Developmental psycholinguistics: Three ways of looking at a child's narrative*. Plenum.
- Rubin, R. B., & Martin, M. M. (1994). Development of a measure of interpersonal communication competence. *Communication Research Reports*, 11(1), 33–44. <https://doi.org/10.1080/08824099409359938>
- Sonnenschein, S. (1988). The development of referential communication: Speaking to different listeners. *Child Development*, 59(3), 694–702. <https://doi.org/10.2307/1130568>
- Spitzberg, B. H. (2000). A model of intercultural communication competence. In L. A. Samovar & R. E. Porter (Eds.), *Intercultural communication: A reader* (9th ed., pp. 375–387). Wadsworth.
- Stadler, M. A., & Ward, G. C. (2005). Supporting the narrative development of young children. *Early Childhood Education Journal*, 32(5), 301–307. <https://doi.org/10.1007/s10643-005-0004-5>

### B.3 Perspective-Taking

#### References

- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113–126. <https://doi.org/10.1037/0022-3514.44.1.113>
- Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral and Cognitive Neuroscience Reviews*, 3(2), 71–100. <https://doi.org/10.1177/1534582304267187>
- Gehlbach, H. (2004). A new perspective on perspective taking: A multidimensional approach to conceptualizing an aptitude. *Educational Psychology Review*, 16(3), 207–234. <https://doi.org/10.1023/B:EDPR.0000034021.12899.1f>
- Hodges, S. D., & Wegner, D. M. (1997). Automatic and controlled empathy. In W. Ickes (Ed.), *Empathic accuracy* (pp. 311–339). Guilford Press.
- Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. Cambridge University Press.
- Ickes, W. (2003). *Everyday mind reading: Understanding what other people think and feel*. Prometheus Books.
- Selman, R. L. (1980). *The growth of interpersonal understanding: Developmental and clinical analyses*. Academic Press.

- Suedfeld, P., Tetlock, P. E., & Streufert, S. (1992). Conceptual/integrative complexity. In C. P. Smith (Ed.), *Motivation and personality: Handbook of thematic content analysis* (pp. 393–400). Cambridge University Press.

#### **B.4 Collaboration**

##### References

- Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350–383. <https://doi.org/10.2307/2666999>
- Hackman, J. R. (2002). *Leading teams: Setting the stage for great performances*. Harvard Business School Press.
- Janssen, J., Kirschner, F., Erkens, G., Kirschner, P. A., & Paas, F. (2010). Making the black box of collaborative learning transparent: Combining process-oriented and cognitive load approaches. *Educational Psychology Review*, 22(2), 139–154. <https://doi.org/10.1007/s10648-010-9131-x>
- Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher*, 38(5), 365–379. <https://doi.org/10.3102/0013189X09339057>
- National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. National Academies Press.
- Parten, M. B. (1932). Social participation among pre-school children. *Journal of Abnormal and Social Psychology*, 27(3), 243–269. <https://doi.org/10.1037/h0074524>
- Ramani, G. B. (2012). Influence of a playful, child-directed context on preschool children's peer cooperation. *Merrill-Palmer Quarterly*, 58(2), 159–190. <https://doi.org/10.1353/mpq.2012.0012>
- Salomon, G., & Globerson, T. (1989). When teams do not function the way they ought to. *International Journal of Educational Research*, 13(1), 89–99. [https://doi.org/10.1016/0883-0355\(89\)90018-9](https://doi.org/10.1016/0883-0355(89)90018-9)

#### **B.5 Conflict Resolution**

##### References

- Braithwaite, J. (2002). *Restorative justice and responsive regulation*. Oxford University Press.
- Deutsch, M. (1973). *The resolution of conflict: Constructive and destructive processes*. Yale University Press.
- Johnson, D. W., & Johnson, R. T. (1995). Teaching students to be peacemakers: Results of five years of research. *Peace and Conflict: Journal of Peace Psychology*, 1(4), 417–438. [https://doi.org/10.1207/s15327949pac0104\\_8](https://doi.org/10.1207/s15327949pac0104_8)
- Rahim, M. A. (2002). Toward a theory of managing organizational conflict. *International Journal of Conflict Management*, 13(3), 206–235. <https://doi.org/10.1108/eb022874>
- Shantz, C. U. (1987). Conflicts between children. *Child Development*, 58(2), 283–305. <https://doi.org/10.2307/1130507>
- Stone, D., Patton, B., & Heen, S. (1999). *Difficult conversations: How to discuss what matters most*. Viking Penguin.

#### **B.6 Positive Influence**

##### References

- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership* (2nd ed.). Erlbaum.
- Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial development. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 646–718). Wiley.
- Greenleaf, R. K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. Paulist Press.
- Komives, S. R., Longerbeam, S. D., Mainella, F., Osteen, L., Owen, J. E., & Wagner, W. (2009). Leadership identity development: Challenges in applying a developmental model. *Journal of Leadership Education*, 8(1), 11–47.
- Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist*, 55(1), 170–183. <https://doi.org/10.1037/0003-066X.55.1.170>
- Paulus, M. (2014). The emergence of prosocial behavior: Why do infants and toddlers help, comfort, and share? *Child Development Perspectives*, 8(2), 77–81. <https://doi.org/10.1111/cdep.12066>
- Spillane, J. P. (2006). *Distributed leadership*. Jossey-Bass.
- Wentzel, K. R. (1999). Social-motivational processes and interpersonal relationships: Implications for understanding students' academic success. *Journal of Educational Psychology*, 91(1), 76–97. <https://doi.org/10.1037/0022-0663.91.1.76>

### **Cluster C: Thinking & Problem Solving**

#### **C.1 Critical Thinking**

##### References

- Abrami, P. C., Bernard, R. M., Borokhovski, E., Waddington, D. I., Wade, C. A., & Persson, T. (2015). Strategies for teaching students to think critically: A meta-analysis. *Review of Educational Research*, 85(2), 275–314. <https://doi.org/10.3102/0034654314551063>
- Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and abilities. In J. B. Baron & R. J. Sternberg (Eds.), *Teaching thinking skills: Theory and practice* (pp. 9–26). W. H. Freeman.
- Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction (The Delphi Report)*. California Academic Press.
- Halpern, D. F. (2014). *Thought and knowledge: An introduction to critical thinking* (5th ed.). Psychology Press.
- King, P. M., & Kitchener, K. S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. Jossey-Bass.

- Kuhn, D. (1999). A developmental model of critical thinking. *Educational Researcher*, 28(2), 16–46. <https://doi.org/10.3102/0013189X028002016>
- Moshman, D. (2015). *Epistemic cognition and development: The psychology of justification and truth*. Psychology Press.
- Paul, R., & Elder, L. (2006). *Critical thinking: Tools for taking charge of your learning and your life* (2nd ed.). Pearson Prentice Hall.
- Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate? *Behavioral and Brain Sciences*, 23(5), 645–665. <https://doi.org/10.1017/S0140525X00003435>

## C.2 Problem Solving

### References

- Chen, Z., & Siegler, R. S. (2000). Across the great divide: Bridging the gap between understanding of toddlers' and older children's thinking. *Monographs of the Society for Research in Child Development*, 65(2), 1–96. <https://doi.org/10.1111/1540-5834.00072>
- Chi, M. T. H., Feltovich, P. J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. *Cognitive Science*, 5(2), 121–152. [https://doi.org/10.1207/s15516709cog0502\\_2](https://doi.org/10.1207/s15516709cog0502_2)
- Gick, M. L., & Holyoak, K. J. (1983). Schema induction and analogical transfer. *Cognitive Psychology*, 15(1), 1–38. [https://doi.org/10.1016/0010-0285\(83\)90002-6](https://doi.org/10.1016/0010-0285(83)90002-6)
- Jonassen, D. H. (1997). Instructional design models for well-structured and ill-structured problem-solving learning outcomes. *Educational Technology Research and Development*, 45(1), 65–94. <https://doi.org/10.1007/BF02299613>
- Jonassen, D. H. (2011). *Learning to solve problems: A handbook for designing problem-solving learning environments*. Routledge.
- Mayer, R. E. (1992). *Thinking, problem solving, cognition* (2nd ed.). Freeman.
- Mayer, R. E., & Wittrock, M. C. (2006). Problem solving. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 287–303). Lawrence Erlbaum Associates.
- Newell, A., & Simon, H. A. (1972). *Human problem solving*. Prentice-Hall.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge University Press.

## C.3 Creative Thinking

### References

- Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Westview Press.
- Amabile, T. M., & Khaire, M. (2008). Creativity and the role of the leader. *Harvard Business Review*, 86(10), 100–109.
- Beghetto, R. A., & Kaufman, J. C. (2007). Toward a broader conception of creativity: A case for “mini-c” creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 1(2), 73–79. <https://doi.org/10.1037/1931-3896.1.2.73>
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. McGraw-Hill. <https://doi.org/10.1037/11164-000>
- Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350–383. <https://doi.org/10.2307/2666999>
- Guilford, J. P. (1967). *The nature of human intelligence*. McGraw-Hill.
- Kaufman, J. C., & Sternberg, R. J. (Eds.). (2010). *The Cambridge handbook of creativity*. Cambridge University Press.
- Runco, M. A., & Acar, S. (2012). Divergent thinking as an indicator of creative potential. *Creativity Research Journal*, 24(1), 66–75. <https://doi.org/10.1080/10400419.2012.652929>
- Scott, G., Leritz, L. E., & Mumford, M. D. (2004). The effectiveness of creativity training: A quantitative review. *Creativity Research Journal*, 16(4), 361–388. <https://doi.org/10.1080/10400410409534549>
- Singer, D. G., & Singer, J. L. (1990). *The house of make-believe: Children's play and the developing imagination*. Harvard University Press.
- Stokes, P. D. (2006). *Creativity from constraints: The psychology of breakthrough*. Springer.
- Torrance, E. P. (1974). *Torrance tests of creative thinking: Norms-technical manual*. Personnel Press.
- Weisberg, R. W. (2006). *Creativity: Understanding innovation in problem solving, science, invention, and the arts*. John Wiley & Sons.

## C.4 Inquiry

### References

- Arifin, Z., Sukarmin, Saputro, S., & Kamari, A. (2025). The effect of inquiry-based learning on students' critical thinking skills in science education: A systematic review and meta-analysis. *Eurasia Journal of Mathematics, Science and Technology Education*, 21(3), em2592. <https://doi.org/10.29333/ejmste/15988>
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. McGraw-Hill. <https://doi.org/10.1037/11164-000>
- Chin, C., & Osborne, J. (2008). Students' questions: A potential resource for teaching and learning science. *Studies in Science Education*, 44(1), 1–39. <https://doi.org/10.1080/03057260701828101>
- Engel, S. (2011). Children's need to know: Curiosity in schools. *Harvard Educational Review*, 81(4), 625–645. <https://doi.org/10.17763/haer.81.4.h054131316473115>

- Hmelo-Silver, C. E., Duncan, R. G., & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006). *Educational Psychologist*, 42(2), 99–107. <https://doi.org/10.1080/00461520701263368>
- Krajcik, J. S., & Shin, N. (2014). Project-based learning. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (2nd ed., pp. 275–297). Cambridge University Press.
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin*, 116(1), 75–98. <https://doi.org/10.1037/0033-2909.116.1.75>
- Shah, P. E., Weeks, H. M., Richards, B., & Kaciroti, N. (2018). Early childhood curiosity and kindergarten reading and math academic achievement. *Pediatric Research*, 84(3), 380–386. <https://doi.org/10.1038/s41390-018-0039-3>

## C.5 Decision-Making

### References

- Blasi, A. (1984). Moral identity: Its role in moral functioning. In W. Kurtines & J. Gewirtz (Eds.), *Morality, moral behavior, and moral development* (pp. 128–139). Wiley.
- Evans, J. S. B. T. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59, 255–278. <https://doi.org/10.1146/annurev.psych.59.103006.093629>
- Hartley, C. A., & Somerville, L. H. (2015). The neuroscience of adolescent decision-making. *Current Opinion in Behavioral Sciences*, 5, 108–115. <https://doi.org/10.1016/j.cobeha.2015.09.004>
- Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
- Mann, L., Harmoni, R., & Power, C. (1989). Adolescent decision-making: The development of competence. *Journal of Adolescence*, 12(3), 265–278. [https://doi.org/10.1016/0140-1971\(89\)90077-8](https://doi.org/10.1016/0140-1971(89)90077-8)
- Moshman, D. (2015). *Epistemic cognition and development: The psychology of justification and truth*. Psychology Press.
- Reyna, V. F., & Farley, F. (2006). Risk and rationality in adolescent decision making: Implications for theory, practice, and public policy. *Psychological Science in the Public Interest*, 7(1), 1–44. <https://doi.org/10.1111/j.1529-1006.2006.00026.x>
- Schlottmann, A., & Tring, J. (2005). How children reason about gains and losses: Framing effects in judgment and choice. *Swiss Journal of Psychology*, 64(3), 153–171. <https://doi.org/10.1024/1421-0185.64.3.153>
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, 28(1), 78–106. <https://doi.org/10.1016/j.dr.2007.08.002>

## C.6 Systems Thinking

### References

- Grotzer, T. A., & Basca, B. B. (2003). How does grasping the underlying causal structures of ecosystems affect students' understanding? *Journal of Biological Education*, 38(1), 16–29. <https://doi.org/10.1080/00219266.2003.9655891>
- Hmelo-Silver, C. E., & Azevedo, R. (2006). Understanding complex systems: Some core challenges. *Journal of the Learning Sciences*, 15(1), 53–61. [https://doi.org/10.1207/s15327809jls1501\\_7](https://doi.org/10.1207/s15327809jls1501_7)
- Meadows, D. H. (2008). *Thinking in systems: A primer*. Earthscan.
- Resnick, M. (1994). *Turtles, termites, and traffic jams: Explorations in massively parallel microworlds*. MIT Press.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. Doubleday.
- Senge, P., Hamilton, H., & Kania, J. (2015). The dawn of system leadership. *Stanford Social Innovation Review*, 13(1), 27–33.
- Spector, J. M., & Ma, S. (2019). Inquiry and critical thinking skills for the next generation: From artificial intelligence back to human intelligence. *Smart Learning Environments*, 6(8), 1–11. <https://doi.org/10.1186/s40561-019-0088-z>
- Serman, J. D. (2000). *Business dynamics: Systems thinking and modeling for a complex world*. McGraw-Hill

## Cluster D: Execution & Adaptation

### D.1 Planning

#### References

- Carlson, S. M. (2005). Developmentally sensitive measures of executive function in preschool children. *Developmental Neuropsychology*, 28(2), 595–616. [https://doi.org/10.1207/s15326942dn2802\\_3](https://doi.org/10.1207/s15326942dn2802_3)
- Friedman, S. L., Scholnick, E. K., & Cocking, R. R. (Eds.). (1987). *Blueprints for thinking: The role of planning in cognitive development*. Cambridge University Press.
- Klein, G. (1998). *Sources of power: How people make decisions*. MIT Press.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717. <https://doi.org/10.1037/0003-066X.57.9.705>
- Locke, E. A., & Latham, G. P. (2019). The development of goal setting theory: A half century retrospective. *Motivation Science*, 5(2), 93–105. <https://doi.org/10.1037/mot0000127>
- Mintzberg, H. (1994). The rise and fall of strategic planning. *Harvard Business Review*.
- Zelazo, P. D., & Carlson, S. M. (2012). Hot and cool executive function in childhood and adolescence: Development and plasticity. *Child Development Perspectives*, 6(4), 354–360. <https://doi.org/10.1111/j.1750-8606.2012.00246.x>
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Lawrence Erlbaum Associates.

## D.2 Time Management

### References

- Aeon, B., Faber, A., & Panaccio, A. (2021). Does time management work? A meta-analysis. *PLoS ONE*, 16(1), e0245066. <https://doi.org/10.1371/journal.pone.0245066>
- Barkley, R. A. (2012). *Executive functions: What they are, how they work, and why they evolved*. Guilford Press.
- Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology*, 83(3), 405–410. <https://doi.org/10.1037/0022-0663.83.3.405>
- Buehler, R., Griffin, D., & Ross, M. (1994). Exploring the “planning fallacy”: Why people underestimate their task completion times. *Journal of Personality and Social Psychology*, 67(3), 366–381. <https://doi.org/10.1037/0022-3514.67.3.366>
- Claessens, B. J. C., van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel Review*, 36(2), 255–276. <https://doi.org/10.1108/00483480710726136>
- Covey, S. R. (1994). *First things first*. Simon & Schuster.
- Friedman, W. J. (2000). The development of children’s knowledge of the times of future events. *Child Development*, 71(4), 913–932. <https://doi.org/10.1111/1467-8624.00199>
- Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students’ time management: Correlations with academic performance and stress. *Journal of Educational Psychology*, 82(4), 760–768. <https://doi.org/10.1037/0022-0663.82.4.760>
- Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review*, 16(4), 385–407. <https://doi.org/10.1007/s10648-004-0006-x>

## D.3 Adaptability

### References

- Aspinwall, L. G., & Taylor, S. E. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin*, 121(3), 417–436. <https://doi.org/10.1037/0033-2909.121.3.417>
- Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, 8(6), 591–612. <https://doi.org/10.1177/1745691613504116>
- Collie, R. J., & Martin, A. J. (2017). Adaptability: An important capacity for effective teachers. *Educational Practice and Theory*, 39(1), 5–14. <https://doi.org/10.7459/ept/39.1.02>
- Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, 64, 135–168. <https://doi.org/10.1146/annurev-psych-113011-143750>
- Edmondson, A. C. (2018). *The fearless organization: Creating psychological safety in the workplace for learning, innovation, and growth*. John Wiley & Sons.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34(10), 906–911. <https://doi.org/10.1037/0003-066X.34.10.906>
- Hatano, G., & Inagaki, K. (1986). Two courses of expertise. In H. W. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan* (pp. 262–272). Freeman.
- Martin, A. J. (2012). Adaptability and learning. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning* (pp. 90–92). Springer. [https://doi.org/10.1007/978-1-4419-1428-6\\_31](https://doi.org/10.1007/978-1-4419-1428-6_31)
- Martin, A. J., Nejad, H., Colmar, S., & Liem, G. A. D. (2013). Adaptability: How students’ responses to uncertainty and novelty predict their academic and non-academic outcomes. *Journal of Educational Psychology*, 105(3), 728–746. <https://doi.org/10.1037/a0032794>
- Ployhart, R. E., & Bliese, P. D. (2006). Individual adaptability (I-ADAPT) theory: Conceptualizing the antecedents, consequences, and measurement of individual differences in adaptability. In S. Burke, L. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (Vol. 6, pp. 3–39). Elsevier. [https://doi.org/10.1016/S1479-3601\(05\)06001-7](https://doi.org/10.1016/S1479-3601(05)06001-7)
- Whitebread, D., Coltman, P., Pasternak, D. P., Sangster, C., Grau, V., Bingham, S., Almeqdad, Q., & Demetriou, D. (2009). The development of two observational tools for assessing metacognition and self-regulated learning in young children. *Metacognition and Learning*, 4(1), 63–85. <https://doi.org/10.1007/s11409-008-9033-1>
- World Economic Forum. (2023). *Future of jobs report 2023*. World Economic Forum. <https://www.weforum.org/reports/the-future-of-jobs-report-2023/>
- Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational Psychologist*, 47(4), 302–314. <https://doi.org/10.1080/00461520.2012.722805>
- Zelazo, P. D., Müller, U., Frye, D., & Marcovitch, S. (2003). The development of executive function in early childhood. *Monographs of the Society for Research in Child Development*, 68(3), 1–137. <https://doi.org/10.1111/j.0037-976X.2003.00261.x>
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Lawrence Erlbaum Associates.

## D.4 Initiative

### References

- Carlton, M. P., & Winsler, A. (1998). Fostering intrinsic motivation in early childhood classrooms. *Early Childhood Education Journal*, 25(3), 159–166. <https://doi.org/10.1023/A:1025601110383>
- Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187. [https://doi.org/10.1016/S0191-3085\(01\)23005-6](https://doi.org/10.1016/S0191-3085(01)23005-6)

- Grant, A. M., & Ashford, S. J. (2008). The dynamics of proactivity at work. *Research in Organizational Behavior*, 28, 3–34. <https://doi.org/10.1016/j.riob.2008.04.002>
- Howard, J. L., Slemp, G. R., & Wang, X. (2024). Need support and need thwarting: A meta-analysis of autonomy, competence, and relatedness supportive and thwarting behaviors in student populations. *Personality and Social Psychology Bulletin*, 51(9), 1552–1573. <https://doi.org/10.1177/01461672231225364>
- Jennings, K. D. (1993). Mastery motivation and the formation of self-concept from infancy through early childhood. In D. J. Messer (Ed.), *Mastery motivation in early childhood: Development, measurement and social processes* (pp. 36–64). Routledge.
- Kuhl, J. (1984). Volitional aspects of achievement motivation and learned helplessness: Toward a comprehensive theory of action control. *Progress in Experimental Personality Research*, 13, 99–171. <https://doi.org/10.1016/b978-0-12-541413-5.50007-3>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Lawrence Erlbaum Associates.

## D.5 Accountability

### References

- Aquino, K., & Reed, A., II. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology*, 83(6), 1423–1440. <https://doi.org/10.1037/0022-3514.83.6.1423>
- Ayish, N., & Deveci, T. (2019). Student perceptions of responsibility for their own learning and for supporting peers' learning in a project-based learning environment. *International Journal of Teaching and Learning in Higher Education*, 31(2), 224–237. <https://www.isetl.org/ijtlhe/>
- Cushman, F., Sheketoff, R., Wharton, S., & Carey, S. (2013). The development of intent-based moral judgment. *Cognition*, 127(1), 6–21. <https://doi.org/10.1016/j.cognition.2012.11.008>
- Damon, W. (1988). *The moral child: Nurturing children's natural moral growth*. Free Press.
- Duckworth, A. L., Gendler, T. S., & Gross, J. J. (2016). Situational strategies for self-control. *Perspectives on Psychological Science*, 11(1), 35–55. <https://doi.org/10.1177/1745691615623247>
- Kochanska, G., & Murray, K. T. (2000). Mother-child mutually responsive orientation and conscience development: From toddler to early school age. *Child Development*, 71(2), 417–431. <https://doi.org/10.1111/1467-8624.00154>
- Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. *Psychological Bulletin*, 125(2), 255–275. <https://doi.org/10.1037/0033-2909.125.2.255>
- Piaget, J. (1932). *The moral judgment of the child*. Routledge. (Reprinted 1965, Free Press)
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Tetlock, P. E. (1999). Accountability theory: Mixing properties of human agents with properties of social systems. In L. L. Thompson, J. M. Levine, & D. M. Messick (Eds.), *Shared cognition in organizations: The management of knowledge* (pp. 117–137). Lawrence Erlbaum Associates. <https://doi.org/10.4324/9781410603227-6>
- Treviño, L. K., Brown, M., & Hartman, L. P. (2003). A qualitative investigation of perceived executive ethical leadership: Perceptions from inside and outside the executive suite. *Human Relations*, 56(1), 5–37. <https://doi.org/10.1177/0018726703056001448>

## D.6 Learning Transfer

### References

- Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin*, 128(4), 612–637. <https://doi.org/10.1037/0033-2909.128.4.612>
- Bransford, J. D., & Schwartz, D. L. (1999). Rethinking transfer: A simple proposal with multiple implications. *Review of Research in Education*, 24(1), 61–100. <https://doi.org/10.3102/0091732X024001061>
- Gentner, D., Loewenstein, J., & Thompson, L. (2003). Learning and transfer: A general role for analogical encoding. *Journal of Educational Psychology*, 95(2), 393–408. <https://doi.org/10.1037/0022-0663.95.2.393>
- Gick, M. L., & Holyoak, K. J. (1983). Schema induction and analogical transfer. *Cognitive Psychology*, 15(1), 1–38. [https://doi.org/10.1016/0010-0285\(83\)90002-6](https://doi.org/10.1016/0010-0285(83)90002-6)
- Hatano, G., & Inagaki, K. (1986). Two courses of expertise. In H. W. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan* (pp. 262–272). Freeman.
- Perkins, D. N., & Salomon, G. (1992). Transfer of learning. In T. Husen & T. N. Postlethwaite (Eds.), *International encyclopedia of education* (2nd ed., Vol. 11, pp. 425–441). Pergamon Press.
- Sala, G., & Gobet, F. (2019). Cognitive training does not enhance general cognition. *Trends in Cognitive Sciences*, 23(1), 9–20. <https://doi.org/10.1016/j.tics.2018.10.004>
- Schwartz, D. L., Bransford, J. D., & Sears, D. (2005). Efficiency and innovation in transfer. In J. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective* (pp. 1–51). Information Age Publishing.
- Veenman, M. V. J., Van Hout-Wolters, B. H. A. M., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, 1(1), 3–14. <https://doi.org/10.1007/s11409-006-6893-0>

- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1-37). Erlbaum.



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