ALCUIN

Project

The Alcuin AI Literacy Standards

Standards and teaching guidance for AI literacy from kindergarten through graduation · Companion to the Alcuin AI Literacy Framework · September 2026

Thinking is the curriculum.

About this volume

This volume provides the full text of the 37 standards for teachers planning AI literacy instruction. It includes the indicators, developmental expectations, and classroom examples for all eight strands, along with guidance on assessment and the limits of each standard.

The companion Alcuin AI Literacy Framework explains the rationale and development process. It also contains the twelve classroom norms, the Student Use Check, the framework's limitations, and the crosswalk to other frameworks. Curriculum leaders can use that volume to review the program as a whole. Teachers should read the guidance below before using the standards in this volume.

Lesson sketches for each standard and grade-stage expectation are in preparation. They will be added by strand.

Contents

How to Read a Standard

Each standard has a code, descriptive title, and designation. Core standards are prerequisites for other learning in the framework or protections against immediate harm. Extension standards complete the graduate profile. The designation guides the sequence of implementation; it does not make Extension standards optional.

The opening statement describes the fully developed competency expected by graduation. Lettered indicators identify its teachable components. Together, they define the standard. They are not a checklist that every student must demonstrate in full on each assignment.

The developmental table describes four stages. Emerging involves recognition in shared, teacher-led examples. Guided involves application with support. Independent means application without instructional scaffolding. Anticipating means bringing the judgment into planning, selection, and supervision before a problem occurs.

The associated grade bands, K-2, 3-5, 6-8, and 9-12, indicate where each stage is generally expected in a K-12 program. They do not determine a learner's starting point. Learners may demonstrate different stages regardless of age or grade, and later stages build on earlier ones. Each table includes a classroom example for the band.

The fields after the table serve different purposes. The student statement expresses the expectation in student language. The clarification gives further examples or explains how to interpret the standard. The boundary identifies what is outside its scope. The reflection question provides a prompt for reviewing the week's work, and curriculum connections suggest places to teach it.

Access to tools follows the bands. K-2 and grades 3-5 are readiness bands: learning is device-free and teacher-mediated, and in the upper elementary grades this includes examining output the teacher has generated and comparing it against a text, an observation, or another source. Grades 6-8 introduce supervised use where product age requirements and school approval allow, with students accounting for what they asked, what the system returned, and what they did with it. Students without eligible access continue from teacher-provided material, developing the same habits. Grades 9-12 include direct use under school policy.

Two assessment and access rules apply throughout. A reflection, plan, or log must be assessed against a declaration, earlier work, or a live demonstration; it cannot stand alone as evidence. Independent-stage expectations requiring direct use apply only when the student has access permitted by the provider's terms and the school's legal requirements. In current U.S. deployments, that is often around age thirteen. The framework assumes access to at least one licensed, teacher-configurable tool governed by a data processing agreement.

The Machine strand teaches students to describe systems without attributing thought, knowledge, or intention to them. Terms such as what a system “sees” or “did” are shorthand for what it can process or produce. Recognizing the limits of that shorthand is part of M.1.

Strand 1: Foundations

Enduring understanding. AI literacy depends on knowledge and skills students can use without assistance.

Foundations establishes the independent knowledge and performance needed to evaluate AI. Students need enough knowledge to recognize errors, the ability to read and write and work with numbers, and practice constructing an argument. They also need to understand a question before answering it and to support a position with reasons. These capacities allow them to judge whether assistance is useful and whether the result is sound.

Why it matters. A student recognizes an invented fact by comparing it with what they know. They evaluate a draft by drawing on their own writing experience. They notice an answer to the wrong question because they first understood the task. Verification and revision depend on these points of comparison.

Scope. Foundations does not restate the full academic program. Reading, mathematics, science, history, and other subjects retain their own content standards. This strand identifies the capacities particularly important to AI use and potentially weakened when students no longer practice them. Decisions about delegating a particular task belong to Working With AI and Thinking With AI.

Grade-band guidance. Foundations supports device-free elementary instruction and the independent skills that supervised use depends on in grades 6-8. In grades 9-12, it establishes the independent performance against which AI-assisted work can be judged. All work in this strand is completed without AI. The stages describe the development of independent skills, not increasing access to tools.

F.1 — Apply prior knowledge. · Core

Core. Students draw on knowledge held in memory to evaluate new claims. They recognize conflicts with established knowledge and explain the conflict.

Indicators

- **a.** Build and retain factual and conceptual knowledge, recognizing that people may not know what to look up if they lack relevant background knowledge.
- **b.** Identify a conflict between a new claim and established knowledge and explain what conflicts.
- **c.** Distinguish knowledge from assumptions and explain the distinction when challenged.
- **d.** Explain how knowing something differs from being able to find it and identify tasks that require knowledge already held in memory.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Identifies a false statement about a topic the class has studied and explains how they knew. *In class: With books closed, students identify the incorrect statement among three the teacher*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
	makes about a recently completed unit.
3-5 Guided	States prior knowledge before reading, then identifies what the reading confirmed, added, or contradicted. *In class: Students begin a know-and-learned chart from memory and mark a statement the reading contradicted.*
6-8 Independent	Evaluates an unfamiliar claim against prior knowledge and explains whether that knowledge is sufficient to settle it. *In class: Students independently identify a planted error in a printed summary and connect it to material studied the previous month.*
9-12 Anticipating	Before beginning a task, distinguishes claims they can judge from their own knowledge from those requiring further support. *In class: Before writing a research brief, students sort claim types by whether they would recognize an error and use the result to plan verification.*

Student statement. What I know helps me recognize when something may be wrong.

Clarification. A student may recognize the wrong century in a historical summary, an implausible sum involving fractions, or an invented scene in a novel they have read.

Boundary. Assess how students use knowledge to make judgments, rather than recall alone. Subject-area standards govern the teaching and assessment of the content itself. No stage uses an AI tool.

Reflection question. Would I recognize an error in this claim?

Curriculum connections. Use retrieval practice and error-identification routines in every content area, drawing on material already taught. Where these routines are absent, this standard provides a reason to introduce them.

F.2 — Demonstrate skills without assistance. · Core

Core. Students independently read, write, calculate, and construct arguments at the level expected by their program, and demonstrate those capacities when asked.

Indicators

- **a.** Produce independent work in core skills on a program-established schedule so teachers and students have current evidence of performance.
- **b.** Complete a multistep sequence on paper, including planning, attempting, and checking, without prompts at every step.
- **c.** Continue working through difficulty rather than seeking assistance immediately when a task becomes demanding.
- **d.** Accurately describe what they can and cannot yet do independently, using recent work as evidence.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Completes a short core-skill task independently and recognizes it as their own work. *In class: Students complete a few sentences or problems each day and retain them in a folder showing growth across the year.*
3-5 Guided	Follows a provided multistep sequence on paper and identifies where progress stopped before requesting help. *In class: Students complete a two-column record of what they tried and where they became stuck before raising a hand.*
6-8 Independent	Produces a complete first draft, solution, or argument independently and identifies its weakest part before receiving feedback. *In class: Students write a draft in class and annotate the paragraph needing the most work.*
9-12 Anticipating	Maintains current evidence of independent performance in each core skill and plans practice accordingly. *In class: Students compare quarterly in-class essays and problem sets with assisted work and write an account of the differences.*

Student statement. I can demonstrate what I can do myself.

Clarification. Evidence may include an in-class essay compared with take-home writing, a mental estimate before calculator use, or an outline prepared before consulting sources.

Boundary. This standard establishes a baseline; it does not prohibit assisted work. Working With AI and Thinking With AI address the use of assistance. Accommodations in a student's plan continue to apply.

Reflection question. When did I last complete this kind of work independently?

Curriculum connections. Timed writing, mental mathematics, close reading without notes, and oral defense can provide the independent work used as a comparison in Thinking With AI.

F.3 — Interpret the task. · Core

Core. Students restate a task or question in their own words, identify what an adequate answer requires, and recognize when an answer addresses a different question.

Indicators

- **a.** Restate the question or prompt before answering.
- **b.** Identify the required response, such as a fact, explanation, argument, or procedure, and what makes it complete.
- **c.** Recognize an answer to a different question and identify the question it actually addresses.
- **d.** Refine a vague question into an answerable one and explain what the revision clarifies.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Explains the teacher's question in their own words before answering. *In class: The class takes a separate turn to discuss what the question asks before offering answers.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Sorts questions by the response required and matches sample answers to the questions they address. *In class: Students match three unpaired questions and answers on paper.*
6-8 Independent	Restates an assignment's requirements, lists what a complete answer needs, and checks the final work against the list. *In class: The planning sheet begins with the restatement; the rubric conference compares it with the teacher's intended task.*
9-12 Anticipating	Examines the assumptions, demands, and answer criteria of a complex or poorly framed question and revises it when needed. *In class: A seminar begins with ten minutes on the question itself. Revising a weak essay prompt is assessed work.*

Student statement. I make sure I understand the question before answering it.

Clarification. Students might notice that a document-based question asks for causes while their essay lists events, that a mathematics problem asks for the difference rather than the total, or that a broad judgment about a war needs to become a question a historian could investigate.

Boundary. This standard addresses independent interpretation of tasks. W.1 builds on it by teaching students to frame requests for AI.

Reflection question. What would a complete answer need to include?

Curriculum connections. Teach through prompt analysis in English language arts and history, problem restatement in mathematics and science, and question refinement in research units. These activities prepare students for later tool use without requiring a tool.

F.4 — Support and reconsider a position. · Core

Core. Students take a position, support it with reasons, and explain why they defend or revise it when challenged.

Indicators

- **a.** State a position as a claim with which someone could disagree.
- **b.** Give a supporting reason and distinguish it from a restatement of the claim.
- **c.** Listen to a challenge and respond to its substance. A reasoned defense and a reasoned revision both demonstrate success.
- **d.** Explain whether and why they changed or retained their position.
- **e.** Distinguish their own position from one expressed by a text, group, or machine.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	States a preference or claim and gives one reason. *In class: Students use "I think ... because ..." during sharing circles.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Responds to one round of disagreement by addressing the other person's reason. *In class: Pairs debate low-stakes questions; assessment focuses on whether each reply addresses the preceding turn.*
6-8 Independent	Responds to a prepared counterargument and revises the position when warranted, explaining what changed. *In class: A position paper includes a mid-draft note identifying the strongest opposing argument and the student's response.*
9-12 Anticipating	Sustains a position through extended challenge, records the reasoning, and finishes with a position they can explain as their own. *In class: Students keep a seminar reasoning log or defend a thesis. A well-explained change of mind receives full credit.*

Student statement. I can explain what I think and why, including why I changed my mind.

Clarification. Students may defend a thesis by identifying a weakness in a challenge, revise it because of new evidence, or recognize that they have adopted a textbook's position without deciding whether they agree.

Boundary. Assess the reasoning, regardless of whether the position changes. Discussion and writing are completed without AI. TW.3 applies this preparation to challenges generated by a system.

Reflection question. Is this my position, and what reasons support it?

Curriculum connections. Socratic seminars, debate, thesis defense, and claim-evidence-reasoning routines in science provide established settings for this work.

Strand 2: Thinking With AI

Enduring understanding. Students develop capacities through cognitive effort and need to judge which work to retain and which to delegate.

Thinking With AI examines the effects of tool use on the learner. People have long used writing, calculators, and maps to reduce demands on memory and reasoning. Such assistance can free attention for more difficult work, but it can also remove practice a student still needs.

Students learn to recognize cognitive offloading, meaning the transfer of remembering, reasoning, or composing to a tool. They consider the benefits and costs of a particular use, identify work whose educational value depends on doing it, and protect that work. They also use AI to challenge their reasoning and consider unfamiliar perspectives. Afterward, they compare what they learned with the plan they made before using the tool.

The strand includes features that encourage continued engagement and simulate relationships, such as overly agreeable responses, prompts to continue chatting, and companion bots that invite personal disclosures. It also addresses authorship in communication. An apology, application, or personal message may have meaning because it expresses the writer's own judgment and voice. Students learn to explain reasons for retaining that authorship, even when automation would be efficient.

Why it matters. Students who routinely delegate work they are still learning may fail to develop the intended capacities. Research on AI offloading and developing minds remains early. Protecting formative effort is therefore a curriculum judgment made while the evidence develops, and the strand will be reviewed as that evidence changes. Independent reasoning supports the rest of the framework.

Scope. Working With AI addresses task suitability and effective use. Truth and Evidence addresses verification. This strand addresses effects on the learner. It teaches recognition of relationship and engagement patterns in tools; it does not diagnose students or replace mental-health support. Every reflection must be assessed against a declared plan, prior work, or a live sample.

TW.1 — Evaluate what is delegated and learned. · Core

Core. Students identify thinking delegated to a tool, weigh the benefits and costs, and use their declared plan to evaluate what they learned.

Indicators

- **a.** Identify the remembering, reasoning, composing, or deciding delegated in a particular piece of work.
- **b.** Distinguish delegation that frees attention for harder work from delegation that removes intended practice.

- **c.** Compare AI with earlier forms of assistance, such as calculators, spell-check, and maps, explaining what each changes for the user.
- **d.** Evaluate a proposed use against the assignment's purpose.
- **e.** After completing the work, explain what they now understand or can do and what the tool did. Assess this account against the prior plan rather than on its own.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	In an unplugged, teacher-led discussion, distinguishes help with a task from having it completed for them and considers what they now know. *In class: Compare a teacher spelling a word with helping a child sound it out, then apply the same question to computer assistance.*
3-5 Guided	After supervised AI-assisted work, identifies the contributions of the student and tool and completes a supported reflection on changed understanding. *In class: Students color-code their thinking and the machine's contribution. Read the reflection against the marked work.*
6-8 Independent	Submits a statement before work begins identifying what will remain their own and why. Completes a two-line closing account assessed against that statement, and demonstrates sampled work with the tool closed. *In class: Keep the opening statement and closing note together; use conferences to sample the declared independent work.*
9-12 Anticipating	Evaluates delegation in unfamiliar work with several parts before establishing the project structure and defends the plan and its results with evidence. *In class: Conferences compare the promised independent analysis with the completed work and what the student learned.*

Student statement. I can explain what I contributed and what I learned from using AI.

Clarification. A student may outline independently before using AI to challenge a draft, learn vocabulary before using a translator, or ask AI to organize quotations while developing the argument themselves. The student should be able to show the distinction in the work.

Boundary. Working With AI assesses benefits to the product. TW.1 evaluates the delegation decision; TW.2 protects needed practice. Evidence includes the declared plan, closing account, and actual work. A rehearsed rationale is insufficient.

Reflection question. What would I give up by delegating this part, and what did I gain?

Curriculum connections. Apply in any subject where AI is permitted. The same planning statement can provide evidence for TW.1 and W.4.

TW.2 — Protect work needed for learning. · Core

Core. Where the choice is theirs, students identify work they need to do to learn, complete it without AI, and explain what that practice develops.

Indicators

- **a.** Distinguish tasks undertaken primarily for their product from tasks undertaken for the learning involved, giving reasons.

- **b.** Choose and complete work without AI when use is genuinely optional.
- **c.** Explain the capacities the practice develops and what would be lost by skipping it, beyond considerations of efficiency.
- **d.** Use AI for preparation or later feedback while preserving the independent work itself. Revise a plan if delegation would take over the intended learning.
- **e.** Distinguish productive difficulty from confusion that calls for help.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands and explains why the class completes some work without a computer. Instruction is unplugged. *In class: Name the learning purpose when students sound out words, count, or make a first attempt themselves.*
3-5 Guided	Identifies, with support, whether doing the work is the task's purpose and proceeds accordingly. *In class: Mark the week's tasks for product or practice. Teach students to distinguish effort needed for new learning from being lost and needing help.*
6-8 Independent	In genuinely open-choice settings, decides what to complete by hand and provides observed and recorded process evidence, supported by the artifact. Describes a difficult moment and whether it required persistence or help. *In class: Students choose to draft by hand during workshop, where the choice can be observed, and use AI for feedback afterward.*
9-12 Anticipating	Identifies the independent work necessary for a major project's learning purpose and completes it as planned. *In class: The capstone proposal explains the protected work; the defense samples it against the completed project.*

Student statement. I choose to do some work myself because of what I will learn from it.

Clarification. Examples include drafting by hand before requesting revision feedback, solving problems before consulting a worked approach, or reading the assigned chapter instead of a summary.

Boundary. A teacher's prohibition on AI is an academic-integrity matter. This standard assesses judgment when students have a real choice. A teacher can unintentionally remove that choice by signaling a preferred answer. Indicators a and c include valuing productive effort as a disposition: teach that value, but assess the observable choices and work.

Reflection question. What is this assignment intended to develop, and does my plan provide that practice?

Curriculum connections. Writer's workshop, independent laboratory work, research, practice, and rehearsal provide opportunities where the choice can remain open.

TW.3 — Test thinking through challenge. · Core

Core. Students use AI to examine and strengthen their reasoning and recognize when agreement has replaced critical examination.

Indicators

- **a.** Present a position and request the strongest opposing case.
- **b.** Distinguish agreement or praise from corroboration.
- **c.** Recognize overly agreeable or flattering responses and adjust their approach.
- **d.** Seek perspectives and ways of framing the question they have not considered.
- **e.** Show a revision in reasoning or explain why the counterargument does not warrant a change. Both receive equal credit when supported by reasons.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Notices in a teacher-led demonstration that the machine changes its answer when the question changes. *In class: Ask the same question with opposing assumptions and read both agreeable answers. Discuss the inconsistency.*
3-5 Guided	With support, asks for a reason someone might disagree and explains whether it changes their view. *In class: During opinion writing, the class examines AI-generated opposing arguments and discusses which are persuasive.*
6-8 Independent	Completes the class's adversarial review routine without help, retaining the original position and the response to the strongest counterargument. *In class: Attach before-and-after records to debate preparation. A short note explains the records but is not assessed alone.*
9-12 Anticipating	Incorporates adversarial review into their working method without prompting and defends the response in live discussion. *In class: The thesis defense includes the strongest opposing case and unrehearsed follow-up questions. Students must understand and defend their response even if AI helped write that section.*

Student statement. I use AI to test my thinking and notice when it simply agrees.

Clarification. Students can ask for the strongest opposing case, compare responses to differently framed versions of the same question, or request a perspective outside their own position.

Boundary. TE.2 assesses factual verification. TW.3 assesses reasoning and identifies agreeableness as a tool behavior. TW.4 covers other engagement features. Neither standard diagnoses the student.

Reflection question. Did the response help me examine my position, or did it merely approve it?

Curriculum connections. Argument writing, debate, scientific reasoning, and seminar preparation all require students to consider serious challenges to a position.

TW.4 — Recognize features that encourage continued use. · Core

Core. Students identify features designed to extend engagement or simulate a relationship and explain what the system simulates without possessing.

Indicators

- **a.** Identify features such as streaks, continuation prompts, ongoing conversation, and rewards for returning.
- **b.** Recognize companion-style chatbots and describe what they simulate.
- **c.** Explain why software cannot personally provide care, confidentiality, or obligation, and why simulated intimacy can encourage disclosures it cannot responsibly hold.
- **d.** Audit a real tool, producing a feature inventory that can be checked against the app.
- **e.** Learn the value of confiding in people. This disposition is taught rather than graded; assess the explanation of the boundary.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Identifies where an app encourages continued play in a teacher-led example. *In class: Examine a familiar game's invitation to play again.*
3-5 Guided	Identifies one continuation feature with support and explains the response it seeks from the user. *In class: Inspect a classroom app together for features that encourage students to remain.*
6-8 Independent	Inventories engagement and companion features in a tool they use and checks each entry against the app. *In class: Prepare a one-page audit verifiable against the running tool.*
9-12 Anticipating	Predicts engagement features before using an unfamiliar tool, checks those predictions, and explains companion-bot design clearly. *In class: Write the audit for a younger reader, such as an eighth-grade advisory group where available.*

Student statement. I can recognize how an app encourages me to keep using it.

Clarification. Examples include a streak counter, a chatbot asking about the user's day, a prompt asking whether the user is still present, or a character that remembers a birthday.

Boundary. TW.3 addresses agreeableness in reasoning. Early instruction here may use familiar non-AI apps to prepare students for similar patterns in conversational systems. Do not investigate students' private disclosures. Assess the audit and explanation; mental-health responses belong to counselors and families.

Reflection question. What does this design encourage me to keep providing?

Curriculum connections. Advisory, homeroom, media units, and district family-education sessions are suitable settings.

TW.5 — Make considered choices about personal authorship. · Extension

Extension. Students recognize that authorship can be part of a message's meaning, decide when to write in their own voice, and respond to others' messages without assuming how the wording was produced.

Indicators

- **a.** Distinguish routine transactional writing that can appropriately be automated from relational writing in which the writer's personal involvement matters.
- **b.** Write personal communications themselves in school contexts, including apologies, thanks, and difficult conversations. Teach the extension of this practice beyond school as a disposition.
- **c.** Use AI to clarify what they intend to say without delegating the expression itself.
- **d.** Recognize that polished wording does not reliably establish how a message was written. Respond to its meaning rather than judging its origin from style.
- **e.** Take responsibility for communications sent under their name, whoever contributed the wording.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Recognizes that a personally made card, including its words, differs from a computer-generated gift. Instruction is unplugged. *In class: Discuss why the class sends home a handmade thank-you card.*
3-5 Guided	Explains, with support, which messages should come from a person and why, including messages received. *In class: Compare a lunch-menu notice and a get-well note, considering both writing and receiving them.*
6-8 Independent	Writes personal messages in school contexts, using AI beforehand if needed to clarify meaning without handing over the wording. *In class: Plan an apology-and-repair conversation with notes and deliver it in person during advisory.*
9-12 Anticipating	Makes and defends authorship decisions in school-observable situations and interprets polished messages from others charitably. *In class: Discuss whose voice an application essay should express; apply the same judgment to team conflict or a consequential letter.*

Student statement. When my voice matters to the message, I write it myself.

Clarification. A scholarship essay, apology, or message to a grieving friend carries personal meaning that a meeting reminder or routine form response may not.

Boundary. Truth and Evidence addresses disclosure; Data and Ethics addresses consent for others' information. Do not collect or investigate private correspondence. Assess school-based examples and teach wider personal conduct as a disposition.

Reflection question. What would be lost if AI wrote this message for me?

Curriculum connections. Advisory, personal writing in English language arts, and college and career preparation provide opportunities to examine communication addressed to another person.

Strand 3: Truth and Evidence

Enduring understanding. People remain responsible for establishing the accuracy of claims, regardless of the tool that produced them.

This strand applies familiar practices of corroboration, sourcing, and attribution to AI-generated material. A system can present an error as confidently as a correct answer. Students therefore learn to treat generated claims as unverified until they have checked them. They anticipate fabrication, consult independent evidence, investigate sources, and examine the provenance of images, audio, and video.

Provenance matters both for claims students encounter and for work they produce. Disclosure belongs in this strand because it gives readers evidence about how a finished piece was made.

Why it matters. AI makes convincing content easy to produce. Students need to evaluate material they encounter and may later rely on it in personal, financial, medical, or civic decisions. Fluent presentation cannot establish its reliability.

Scope. The Machine explains how prediction can produce errors. Data and Ethics addresses unfairness and harm. Working With AI and Thinking With AI address whether AI should be used for the task.

TE.1 — Recognize the risk of confident errors. · Core

Core. Students anticipate plausible but false output, assess a task's fabrication risk before generation, and identify claims needing verification.

Indicators

- **a.** Recognize fabrication as an expected kind of error and describe it without attributing intention. M.1 explains the mechanism.
- **b.** Identify names, dates, numbers, quotations, citations, and recent events as claim types requiring particular attention.
- **c.** Distinguish checkable factual claims from summary, opinion, and instruction within an answer.
- **d.** Assess fabrication risk before generation and adjust the verification plan accordingly.
- **e.** Explain why a confident tone does not establish accuracy.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Identifies a false statement in a teacher-read answer about a familiar topic and explains how they knew. Instruction is unplugged. *In class: Before the lesson, the teacher obtains an AI answer about the school and identifies actual errors. Students hear the answer and identify mistakes about a place they know.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Sorts statements into known correct, known incorrect, and needing verification, recognizing that all were presented confidently. *In class: Students annotate a short, simply worded printed response during a science unit. They check uncertain claims against the textbook; the teacher checks uncovered claims aloud.*
6-8 Independent	Explains how text prediction can produce an invented citation or date and marks checkable claims before using output. *In class: Students examine a historical summary the teacher has already verified, identify a nonexistent citation, and explain its origin in two sentences. Use genuine system errors, not planted ones.*
9-12 Anticipating	Identifies likely fabrication risks in a specific task and plans verification before generating. *In class: Students submit a paragraph naming expected risks before an AI-assisted research brief, then compare the assessment with the errors actually found.*

Student statement. AI can sound certain and still be wrong.

Clarification. Examples include an invented bibliography title, an incorrect date, an unsupported statistic, or a quotation the named person never made.

Boundary. Assess recognition of errors, decisions about what needs checking, and anticipation of risk. The Machine teaches the predictive mechanism; this standard applies that knowledge. K-2 instruction is teacher-mediated and device-free.

Reflection question. Which parts of this answer could contain an error that is easy to miss?

Curriculum connections. Use science claims-and-evidence activities, English language arts research, and history sourcing. Introduce error-analysis routines where they are not already established.

TE.2 — Verify claims before relying on them. · Core

Core. Students check AI-generated claims against independent sources, from a single statement to an extended product, and justify accepting, revising, or rejecting them.

Indicators

- **a.** Select evidence independent of the system being checked and, when stakes are high, sources independent of one another. Another AI system may offer a comparison but does not replace independent evidence.
- **b.** Distinguish repeated claims from corroboration. Multiple chatbots or websites repeating the same underlying material do not establish independent support.
- **c.** Record the claim checked, source used, and finding.
- **d.** Decide whether to accept, revise, or reject the claim and explain why.
- **e.** Match the depth of verification to the consequences of error.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Identifies a claim in a teacher-shared answer and suggests a way to check it. Instruction is unplugged. *In class: The teacher presents an AI answer about animals; the class selects a claim and checks a library book.*
3-5 Guided	Compares an answer with a provided source, identifies agreements and differences, and explains which to trust. *In class: Place an AI answer beside an encyclopedia entry on a worksheet and circle discrepancies.*
6-8 Independent	Checks a claim against two sources, at least one independently located, and records the outcome consistently. *In class: Students verify and log the three claims most important to their research argument. Concentrate on consequential claims rather than logging every statement.*
9-12 Anticipating	Plans verification at the proposal stage, specifying claim types and depth of checking; completes and documents the checks and reconciles them with the plan. *In class: Add the plan to the research proposal and a verification column to the annotated bibliography. Remove unverifiable claims or qualify them explicitly in the paper.*

Student statement. I check AI claims before relying on them.

Clarification. Check a historical claim against a textbook and primary source, trace a statistic to its cited report, or locate a quotation in the original speech.

Boundary. Assess output rather than model internals. Verification should be proportionate: brainstorming and a bibliography require different levels of checking, and students should recognize that difference.

Reflection question. Who will rely on this answer, and what would an error mean for them?

Curriculum connections. Extend existing citation checks in English language arts research, history document work, and science claim-evidence-reasoning tasks.

TE.3 — Investigate sources through lateral reading. · Core

Core. Students evaluate unfamiliar claims and sources by consulting independent information about them instead of relying on their presentation.

Indicators

- **a.** Leave the source and conduct separate searches about the claim and its origin.
- **b.** Identify who produced the source and their possible interest in being believed.
- **c.** Confirm that cited material exists and supports the attributed claim.
- **d.** Compare independent accounts when the claim or consequences warrant it.
- **e.** Document the inquiry so another person can retrace it.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Recognizes that reading material has a creator and asks who produced it in shared practice. Instruction is unplugged. *In class: Regularly ask who made each source and how the class could find out.*
3-5 Guided	Identifies, with support, who is behind a source and reports one fact before using it. *In class: Investigate a book's or website's author and publisher through other sources.*
6-8 Independent	Searches separately for information about the author, publisher, and their other work, and compares two independent accounts of a claim. *In class: Spend five minutes examining a persuasive website and five minutes investigating it elsewhere, then compare what each approach revealed.*
9-12 Anticipating	Identifies sources and claim types needing outside checks in the research plan, then completes and documents the inquiry. *In class: Collect the checkpoint list before drafting. Students also audit a peer's sources and provide written findings.*

Student statement. I find out what independent sources say before trusting an unfamiliar one.

Clarification. Confirm that a study mentioned by a chatbot exists and supports the claim, or investigate an unfamiliar organization through coverage it does not control.

Boundary. Professional fact-checking methods and formal media-bias classifications are outside scope. Assess the process and documentation.

Reflection question. What independent evidence supports this source or claim?

Curriculum connections. English language arts research and history corroboration are suitable settings. The companion professional-development sequence prepares teachers to teach lateral reading.

TE.4 — Assess the origin and authenticity of media. · Core

Core. Students use provenance and context to assess whether media may be synthetic and explain why appearance or a detector result is insufficient on its own.

Indicators

- **a.** Distinguish a realistic appearance from evidence of authenticity.
- **b.** Trace the original poster, earliest appearance, and any available platform labels.
- **c.** Seek independent coverage of the depicted event.
- **d.** Consider the consequences of belief and who may benefit.
- **e.** Explain the limitations of detection tools and their own unaided judgment.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that computers can depict events that never happened and that close looking may not establish authenticity. *In class: Students guess which images are real. Reveal a convincing*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
	generated image many misidentified and explain why its origin must be checked. The teacher leads the activity.
3-5 Guided	Recognizes that visual clues can raise questions but cannot settle them; investigates an image's earliest appearance with support. *In class: The teacher leads tracing of an authentic and a generated image of a news event.*
6-8 Independent	Checks a circulating image or clip for its original poster, earliest appearance, and independent coverage. *In class: Use a clip the teacher has archived and checked for access on the school network. Students record judgments before hearing the teacher's findings.*
9-12 Anticipating	Identifies likely synthetic-media risks, establishes an authentication procedure, and applies it to disputed material, explaining the limits of appearance and detectors. *In class: Write the procedure before seeing the contested clip. Assess the process and reasoning rather than agreement with a predetermined answer.*

Student statement. A realistic picture still needs evidence of where it came from.

Clarification. Use disaster photographs, election-season clips, celebrity audio, and content-provenance labels where available.

Boundary. Creating synthetic media of real people is outside scope at every band. Data and Ethics addresses those harms. Technical forensics is also outside scope.

Reflection question. Where did this first appear, and who benefits if it is believed?

Curriculum connections. Teach within media literacy in English language arts and social studies and through current-events routines.

TE.5 — Document and disclose AI contributions. · Core

Core. Students document AI contributions, distinguish their own work, and disclose use in the format required by the setting.

Indicators

- **a.** Keep a record during substantial work, supported by dated drafts or version history where available and sampled through conferences where not. Routine small uses require a plain disclosure rather than a log.
- **b.** Name the tool and explain whether it generated, revised, suggested, organized, or corrected material.
- **c.** Describe the student's and system's contributions specifically.
- **d.** Use the required citation or documentation format.
- **e.** Check that a reader who learned the complete process would find no undisclosed contribution.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	States when the class used computer assistance to create something. *In class: With teacher guidance, the class decides to add a statement to its book explaining that the pictures were made with computer help.*
3-5 Guided	Adds a plain sentence explaining AI's contribution. *In class: Students complete "I used ___ to help me ___" in a footer or cross it out when it does not apply. Both are acceptable when accurate.*
6-8 Independent	Keeps a project record, writes a disclosure in the class format, and explains what an undisclosed contribution conceals. *In class: Submit process logs with drafts and sample them in citation conferences.*
9-12 Anticipating	Plans recordkeeping and disclosure at the outset, produces a complete account, and defends its adequacy from the reader's perspective. *In class: Include the plan in a senior-paper proposal and submit and defend the final AI-use statement with the paper.*

Student statement. I explain what AI contributed and what I contributed.

Clarification. Disclosure may appear as a citation, footnote, or attached project log. If a system searched, filed, or sent material independently, include those actions as well as generated wording.

Boundary. This standard assesses accurate disclosure. Working With AI and Thinking With AI address whether the use was appropriate. TW.5 governs the prior authorship decision when machine writing would undermine the communication's purpose. Where no format is specified, give enough detail to avoid misleading the reader about the process.

Reflection question. Would a reader who knew the full process discover a contribution I have not disclosed?

Curriculum connections. Integrate disclosure with existing citation instruction wherever students document sources and contributions.

Strand 4: The Machine

Enduring understanding. Students can develop an accurate working understanding of AI by examining its data, computations, and human design choices.

AI includes classifiers, recommendation systems, optimizers, and generative models. This strand introduces the systems students are likely to encounter. For generative AI, it explains how systems learn patterns from large datasets and produce output through statistical computation. Fluent output should not be taken as evidence of human understanding, intention, or desire.

Students investigate the sources of training data and the people whose work and decisions shaped it. They learn why repeated prompts can produce different answers, what information is available within a context window, and what can carry over between sessions. They also recognize AI inside familiar tools, distinguish content generation from systems taking action, and consider the energy, water, minerals, and infrastructure involved.

Why it matters. Understanding how a system works helps students judge its output and appropriate uses. Explaining prediction accurately gives them a basis for questioning errors instead of treating a convincing response as a person's informed judgment.

Scope. Programming and computer science are not prerequisites. Working With AI teaches effective use; Shaping AI evaluates particular systems. Students should also understand the limits of interpretability: even developers cannot always give a complete human-readable explanation of a particular output.

M.1 — Explain generative prediction. · Core

Core. Students explain how generative systems produce output from patterns learned in training and why identical prompts can return different answers, without treating fluency as evidence of understanding or intention.

Indicators

- **a.** Describe text generation as predicting a continuation token by token using probabilities learned from data.
- **b.** Explain why identical prompts can produce different output.
- **c.** Connect prediction to fabrication: a plausible predicted continuation may be false.
- **d.** Describe limitations in terms supported by evidence, without assuming that fluent output establishes understanding, intention, or knowledge of what was produced.
- **e.** Correct language in their own descriptions that attributes human mental states to the system.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that the computer predicts from many examples and does not know things as a person does. Instruction is unplugged. *In class: Play a spoken next-word prediction game and discuss what the class did.*
3-5 Guided	Explains that the system predicts words from learned patterns and observes two different answers to one question. *In class: The teacher projects two runs of a prompt known to vary. Students identify changes and discuss how they can occur.*
6-8 Independent	Explains prediction well enough to account for fabrication, using their own words for a real audience. *In class: Write a three-sentence explanation for a fifth grader, beginning with the mechanism.*
9-12 Anticipating	Uses knowledge of prediction to plan for variable output, fabrication, and prompt sensitivity in a multistep task. *In class: Add two sentences to the submitted plan identifying a mechanism-related risk and the intended response.*

Student statement. A language model predicts an answer; that does not mean it knows the answer is true.

Clarification. Students may explain that citations follow patterns and can therefore be invented, that generation differs from looking up a fixed answer, or why “the AI thinks” is imprecise language.

Boundary. Model mathematics is outside scope at every band. TE.1 and TE.2 assess the response to fabricated output; M.1 explains how it occurs.

Reflection question. Am I describing the system's operation or a human quality it appears to have?

Curriculum connections. Science models and evidence, language study, and the opening lessons of courses permitting AI use are suitable settings.

M.2 — Explain the role of training data. · Core

Core. Students describe the sources of training data, the human work and choices before and after training, and how those origins affect output.

Indicators

- **a.** Identify sources such as scraped text and images, curated datasets, licensed or unlicensed work, and human labeling.
- **b.** Recognize contributions from writers, artists, and labelers, along with later human feedback shaping behavior such as refusals and politeness.
- **c.** Explain how gaps or skew in training material can affect output. D.3 examines the effects on people.
- **d.** Distinguish knowledge represented through training from information supplied by retrieval, including recent material not present during training.

- **e.** Ask legitimate questions about data origins and identify incomplete provider disclosure.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that the computer learned from material people made. Instruction is unplugged. *In class: List books, pictures, songs, and other possible examples and identify the people who created them.*
3-5 Guided	Explains, with support, that answers draw on people's work and names one kind of training material. *In class: After an image-generation demonstration, discuss the drawings and photographs that could have contributed and their possible sources.*
6-8 Independent	Explains how incomplete training data may produce gaps in output and tests a prediction against a teacher-curated case with known facts. *In class: Use a topic the teacher has verified the system handles poorly and compare predictions with the result.*
9-12 Anticipating	Identifies reasons training may be incomplete for specialized, local, recent, or underrepresented knowledge without claiming access to an undisclosed corpus. Plans supplied sources, retrieval, or extra verification. *In class: Add a two-sentence data-uncertainty note to the research plan and compare it with the tool's performance afterward.*

Student statement. AI learned from people's work, and that affects its answers.

Clarification. Examples include an image in a living artist's style, limited knowledge of a small community, a refusal shaped by human choices, or a chatbot using web search to cite yesterday's news.

Boundary. Data and Ethics evaluates bias, unfairness, consent, and credit. This standard supplies the factual understanding those discussions require. Intellectual-property law is outside scope, but students should know that disputes over training material exist.

Reflection question. Whose work and choices contributed to this answer?

Curriculum connections. Apply history sourcing practices to systems themselves; connect with art, music, and civics units on labor and ownership.

M.3 — Identify available context. · Core

Core. Students explain what information a system has available for a task and what it does not have.

Indicators

- **a.** Describe the context window as the limited amount of material the system can consider at one time.
- **b.** Identify the prompts, files, retrieved sources, and standing instructions included, along with information never supplied.
- **c.** Distinguish tools with and without memory features and check what is available across sessions using current settings, since defaults change.

- **d.** Explain missing-context failures without describing the system as forgetting or lying.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that the computer needs the class's story before it can use it. *In class: Ask about a newly written class story, observe the invented response, supply the story, and ask again. The teacher leads; without a device, the teacher can play the tool's role.*
3-5 Guided	Considers, with support, whether a poor answer resulted from missing information. *In class: Review an answer together and check whether the instructions were ever supplied.*
6-8 Independent	Checks what the tool can access rather than assuming it has an attachment, earlier chat, or previous day's work. *In class: Complete a two-column warm-up showing information the tool currently has and lacks.*
9-12 Anticipating	Plans around context limits, including what to supply, what persists, when to start a fresh session, and the effect of memory features. *In class: Before a long project, write two lines specifying what the tool will need and when.*

Student statement. I know what information the tool has for my task.

Clarification. A prior conversation may be unavailable in the present session; attaching the assignment may resolve a poor answer; a memory feature may carry over an earlier topic. Provider retention of logs is a separate matter from what the model can use.

Boundary. Working With AI develops the skill of supplying material. M.3 establishes an understanding of available context. Technical architecture is outside scope.

Reflection question. Does the system actually have the information I am assuming it has?

Curriculum connections. Introduce during the first week of permitted AI use and in research-skills instruction.

M.4 — Recognize AI systems and supervise actions. · Core

Core. Students recognize AI within familiar tools and exercise judgment about systems that take actions as well as produce content.

Indicators

- **a.** Identify AI in feeds, autocomplete, photo apps, navigation, and pricing without relying on the presence of a chat window.
- **b.** Distinguish the functions of classifiers, recommenders, generators, and agents. AW.1 addresses the effects of recommendations on information exposure.
- **c.** Recognize systems that search, click, file, or buy, and explain the difference between suggesting and acting.
- **d.** Infer a system's apparent objective, consider who selected it, and identify ways to investigate further.

- **e.** Explain why action-taking systems require human checkpoints proportionate to their capabilities. W.5 teaches checkpoint design.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Recognizes computer functions that operate without a direct request. *In class: The teacher projects keyboard word prediction and asks the class to identify the assistance.*
3-5 Guided	Identifies AI in classroom tools beyond chatbots, with support. *In class: Conduct an AI search across apps the school already uses.*
6-8 Independent	Classifies systems in a provided daily-use log and infers their apparent objectives. *In class: Annotate a fictional screen-time log by system type and use language that distinguishes inference from fact. Do not use private student habits.*
9-12 Anticipating	Recognizes an agentic system before use and considers actions it can take without approval and where human review is needed. *In class: Read a real product description, mark unsupervised actions, and propose checkpoints, connecting M.4 knowledge with W.5 practice.*

Student statement. I recognize AI beyond chatbots and check when a system can act on its own.

Clarification. Examples include ranked feeds, route changes in maps, suggested email replies, and booking agents that complete purchases.

Boundary. AW.1 examines effects on attention and communities; Shaping AI evaluates design quality. M.4 assesses recognition and the need for oversight. W.5 assesses supervision in practice.

Reflection question. Which systems are making choices, and what can they do without asking?

Curriculum connections. Digital citizenship, advisory, and preparation before introducing any agentic classroom tool.

M.5 — Consider resource use. · Extension

Extension. Students describe the energy, water, minerals, and infrastructure AI requires and consider those costs in decisions about use.

Indicators

- **a.** Identify electricity for training and use, water for cooling, and mined materials for hardware.
- **b.** Distinguish the resources required to train a model from those required to use it.
- **c.** Compare AI's resource use with other familiar technologies without exaggerating or dismissing the costs.
- **d.** Identify the source and date of figures, recognizing that changing estimates require current evidence.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that AI runs in large buildings using electricity and water. Instruction is unplugged. *In class: Examine a data-center picture and discuss where the computation occurs.*
3-5 Guided	Traces a classroom query to a data center and back, with support, and identifies two resources used. *In class: Draw the route together; students label the resources on individual copies.*
6-8 Independent	Uses the framework's dated fact sheet to distinguish training and usage costs. *In class: Compare an alarmist and a dismissive energy-use headline with sourced figures in the fact sheet.*
9-12 Anticipating	Includes sourced, dated resource figures in an actual tool decision. *In class: Cite the figure and date in the cost section of a capstone tool plan, linking the knowledge to W.4.*

Student statement. AI uses physical resources, including power and water.

Clarification. Discuss a data center seeking a water permit, the difference between a query and a training run, or whether a generated image is needed for every worksheet.

Boundary. AI and the World addresses environmental policy; W.4 assesses the tool decision. This standard establishes the physical facts. The maintained fact sheet is a required companion and must be available to teach the standard. Classroom figures must include sources and dates.

Reflection question. Could a tool using fewer resources meet this need?

Curriculum connections. Science units on energy and water and mathematics units on estimation and scale.

Strand 5: Working With AI

Enduring understanding. Effective use requires judgment about what to delegate, what to retain, and how to evaluate the result.

This strand teaches students to frame tasks, supply relevant material, evaluate output, and direct revision. Students choose among models and tools based on their actual capabilities and first consider whether AI is appropriate at all. For substantial work, they allocate tasks deliberately and supervise the system's contribution throughout the project.

Prompting involves specifying what is needed clearly. Capable use also involves sources, files, standing context, and repeated processes that extend beyond a single conversation.

Why it matters. The quality of a request and its supporting material can substantially affect the usefulness of an answer. Students need these skills to use AI for purposeful work. In one large 2024 survey, about two-thirds of business leaders said they would not hire someone without AI skills. This strand is particularly sensitive to changes in tools and interfaces, although the underlying judgments are intended to remain useful.

Scope. The Machine explains internal operation, and Truth and Evidence addresses accuracy. Working With AI asks whether a tool will help complete the task well. Thinking With AI asks what its use will mean for the learner. Both questions apply to every task, and either may be a reason to work without AI.

W.1 — Frame a clear request. · Core

Core. Students state a task's goal, constraints, audience, and expected form clearly enough for a system to assist.

Indicators

- **a.** Specify the task, audience, length, format, and quality criteria.
- **b.** Supply or confirm necessary context, including useful responses to clarifying questions from the system.
- **c.** Anticipate problems caused by vague instructions and revise the request before sending it.
- **d.** Request an appropriate form of help, such as an outline, critique, examples, or steps, rather than automatically asking for a completed product.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Helps the class specify what it wants during teacher-led use. *In class: Revise a broad question about dogs into one about police-dog training and compare the answers.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Includes assignment requirements in a request with support. *In class: Complete a frame for task, audience, length, and required content before the teacher submits it.*
6-8 Independent	Specifies the goal, constraints, and quality criteria and diagnoses missing information in a failed request. *In class: Exchange unsuccessful prompts, diagnose their problems, and revise them. Assess the diagnosis.*
9-12 Anticipating	Frames a complex request with several constraints and plans for likely failure. *In class: Submit a request for an actual task with one sentence predicting a problem, then compare the prediction with the result in writing.*

Student statement. I can explain exactly what I am asking the tool to do.

Clarification. A request might ask for a critique against an attached rubric, beginning with the most serious weakness, or for three counterexamples instead of a rewrite. Both give more direction than a general request to improve the work.

Boundary. Apply after W.4 and Thinking With AI establish that use is appropriate. W.3 assesses the judgment and revision of returned output.

Reflection question. Could someone unfamiliar with the task carry it out from this request?

Curriculum connections. Use in all AI-permitted assignments, building on writing instruction about audience and purpose.

W.2 — Supply relevant material. · Core

Core. Students supply the information a task needs, from individual sources to a maintained project setup.

Indicators

- **a.** Provide the actual draft, rubric, source, data, or notes needed for the work.
- **b.** Identify context the tool carries into the session and decide what standing material the task requires.
- **c.** Ground the work in supplied material and recognize departures from it.
- **d.** Build and maintain small reusable setups for repeated work where school tools permit.
- **e.** Decide what information is needed before starting and what must not be shared under Data and Ethics requirements.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Observes that a tool can answer better about a story when the story is supplied. *In class: The teacher asks before and after providing a story. Students explain the difference and what should be supplied next time.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Includes necessary material in a supported request. *In class: Attach the paragraph to be revised or list to be sorted, and explicitly teach the habit of sending the task with its material.*
6-8 Independent	Supplies appropriate material without prompting, checks output against it, and explains what the class's standing setup already includes. *In class: Begin revision conferences using the licensed tool by asking what the student supplied.*
9-12 Anticipating	Plans and maintains the information needed for sustained work, including standing instructions, files, and connected sources where permitted. *In class: Build a research-project setup and have peers critique it as they would an outline.*

Student statement. I supply the material the tool needs to work from.

Clarification. Examples include attaching actual laboratory data, maintaining a project space with semester sources, and supplying the course citation format through standing instructions.

Boundary. Data and Ethics limits on protected data and other people's information take precedence over efficiency. M.3 explains available context; W.2 teaches how to supply it well.

Reflection question. What information is the tool being asked to guess that I could appropriately supply?

Curriculum connections. Research projects, revision, repeated workflows, and library instruction provide opportunities.

W.3 — Evaluate and revise output. · Core

Core. Students evaluate initial output as a draft, direct necessary revision, and stop when the work meets the task's requirements.

Indicators

- **a.** Evaluate initial output before using it and distinguish problems caused by a weak request, missing material, or a tool limitation.
- **b.** Specify what to keep, remove, or change and the criteria for each decision.
- **c.** Recognize when the first answer is adequate and explain why.
- **d.** Recognize diminishing returns and stop when additional rounds are not improving the work.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Helps decide whether an answer is adequate or needs another attempt in teacher-led use. *In class: Give a class response of accept or try again, with one reason.*
3-5 Guided	Identifies one specific change with support and observes the revision request. *In class: Revise a projected answer twice, each time following a student's specific instruction.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
6-8 Independent	Evaluates output against assignment criteria and either requests specific changes or gives a reason for acceptance. *In class: Attach a note explaining what was retained, removed, or changed, or why the first answer was adequate. Both decisions can meet the standard.*
9-12 Anticipating	Sets revision criteria in advance and defends what was retained and when revision stopped. *In class: Sample both decisions during conferences.*

Student statement. I review the first answer as a draft and decide what it needs.

Clarification. Specific direction might retain a structure, remove a second example, and simplify the tone. A fluent paragraph should not be accepted merely because it appears finished.

Boundary. TE.2 assesses factual accuracy. Ownership of the completed work is assessed in the Student Use Check's student-work dimension rather than scored again here.

Reflection question. What specifically needs to change, and have I explained it?

Curriculum connections. Writing revision and art or design critique provide familiar practices for this standard.

W.4 — Decide whether and where AI is useful. · Core

Core. Students determine whether AI suits a task, select among available tools, and deliberately divide work between themselves and the system.

Indicators

- **a.** Consider task suitability first, alongside the learning question in Thinking With AI.
- **b.** Match the task to actual capabilities, accepted inputs, limitations, and costs in money, data, and resources. Recognize when the only available tool is unsuitable.
- **c.** Divide substantial work into parts AI should and should not assist.
- **d.** Match each part to a suitable tool or choose no tool when none fits.
- **e.** State the plan orally or in writing when the work is substantial enough to need one.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Helps the teacher and class decide whether computer assistance would be useful. *In class: Make the suitability question a routine that sometimes leads to a decision against use.*
3-5 Guided	Explains, with support, whether AI fits a task and which part it could assist. *In class: Sort task cards by suitability and give reasons aloud.*
6-8 Independent	Makes the decision in permitted settings, identifies the delegated part, and describes the available tool's strengths and limitations. *In class: Complete "AI for ___, me for ___, because ___." The statement can also provide evidence for TW.1.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
9-12 Anticipating	Plans the allocation of work with several parts, including work for which the available tool is unsuitable, and defends the plan afterward. *In class: Review a capstone plan listing each part, its tool or no-tool choice, and the reason at the proposal stage.*

Student statement. I choose a tool for the parts it can help with and work without one when that is more suitable.

Clarification. A tool may be selected because it accepts a necessary PDF. A calculator may suit arithmetic better than a chatbot. An interview may require a person's involvement, or a task may need to be completed by hand because the school's tool handles it poorly.

Boundary. Always consider the effect on learning through Thinking With AI; either judgment may rule out use. D.1 provides data-practice information relevant to the decision.

Reflection question. Which parts of this task would benefit from a tool?

Curriculum connections. Introduce both suitability and learning questions when launching projects in any subject.

W.5 — Supervise sustained work. · Extension

Extension. Students plan checkpoints, identify departures from the plan, and remain able to explain and direct the whole project without the tool open.

Indicators

- **a.** Establish checkpoints before starting, specifying where work will pause and what will be inspected.
- **b.** Identify and correct departures from sources, the plan, or the student's position.
- **c.** Explain the project's status, next steps, and recent AI contributions without consulting the tool.
- **d.** Match supervision to system autonomy; greater autonomy generally requires tighter checkpoints.
- **e.** Take responsibility for the completed work, including all AI-assisted parts.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Observes the teacher pause a demonstration to inspect output and explains why. *In class: The teacher explains the need to check what the system did with the class story before continuing.*
3-5 Guided	At a teacher-set checkpoint, checks whether assisted work still matches the plan. *In class: Compare an AI-assisted part of a class project with what the class intended to say.*
6-8 Independent	Sets checkpoints for a multiweek project and answers an unannounced progress question with the tool closed. *In class: Ask students to explain the current stage and the system's most recent contribution on the spot.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
9-12 Anticipating	Designs supervision proportionate to an action-taking system's autonomy and accounts for the whole project. *In class: Conduct a senior-project process interview covering AI's role, independent work, and evidence that the system remained on course.*

Student statement. I remain responsible for directing the project and checking the tool's work.

Clarification. Students may supervise AI gathering sources while retaining verification and drafting, correct a summary that departs from its source, or establish an agent checkpoint before a run begins.

Boundary. Other standards assess the component skills. Assess supervision through both live questioning and checkpoint records; a record produced afterward is insufficient.

Reflection question. Could I still direct this project if the tool were unavailable today?

Curriculum connections. Research papers, capstones, science fairs, yearbook, other multiweek work, and any use of autonomous agents.

Strand 6: Data and Ethics

Enduring understanding. Responsible AI use requires attention to whose data and decisions are involved and who is affected.

Ethical responsibilities run throughout the framework, including independent judgment, disclosure, persuasion, and deployment decisions. This strand focuses on students' responsibilities to others and institutions' responsibilities to students.

Students investigate what tools collect, retain, use for training, and share. They learn to read relevant terms and privacy settings and to seek consent before using another person's photograph, writing, or story. They examine how bias enters systems and how human choices can increase or reduce it. People remain accountable for AI-assisted decisions, and users should be able to ask how those decisions are made.

The strand also addresses systems used to monitor, evaluate, rank, or flag people. Federal inquiries, formal complaints, and civil-society research document concerns about errors and disparities in tools such as detectors and proctoring software. Students learn what they can ask when an automated report affects them.

The framework prohibits impersonation, harassment, sexualized or intimate synthetic imagery of real people, and material deception aimed at real people. For cases not settled by a prohibition, students consider proportionality: whether the purpose justifies the use and its effects on others.

Why it matters. Students use many data-collecting systems while having limited control over institutional choices. Generative tools also make harmful impersonation and manipulated imagery easy to produce. Both responsibilities should be taught early.

Scope. Truth and Evidence evaluates output; AI and the World examines wider effects on institutions, employment, equity, and governance. Here, students study bias as a mechanism and a personal responsibility. Assess conduct-related standards through reasoning about scenarios and teach conduct through classroom culture; teachers cannot observe every upload a student refrains from making. Where examples name advisory, schools may use homeroom, English language arts, or health instead.

D.1 — Examine data practices. · Core

Core. Students find out what a tool collects, stores, uses for training, and shares, then use that information to decide whether to use it and what to supply.

Indicators

- **a.** Identify collected prompts, files, account information, and usage records.

- **b.** Locate relevant answers in terms of service and privacy settings without needing to read every word.
- **c.** Distinguish tools that train on user input from those that do not and locate controls where available.
- **d.** Ask what a free service receives in return, such as data, attention, activity, or future business.
- **e.** Adjust what they share to the tool's data practices.
- **f.** Identify who approved and signed the school tool's data agreement, recognizing that protections may be contractual rather than controlled by a student-facing setting.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that apps may retain shared information and that the class must choose carefully what to provide. *In class: With teacher support, state a class rule about keeping private information out of the tool.*
3-5 Guided	Identifies types of information collected and locates one privacy setting with help. *In class: Inspect a familiar app's settings on the projector.*
6-8 Independent	Uses public documents to answer the four data questions and recognizes that a school agreement may change the answers. *In class: Pairs investigate privacy pages and the district's posted agreements, then share findings. A locked setting becomes an opportunity to ask who controls it.*
9-12 Anticipating	Evaluates unfamiliar data practices before use and explains them to someone who has not read the terms. *In class: Write a plain-language paragraph about an unlicensed tool or one under actual consideration for adoption.*

Student statement. I find out what information a tool collects from me.

Clarification. Distinguish a consumer chatbot's training settings from contractual protections in a school version. Question unnecessary contact-list access. For agents, include searches, clicks, and submissions as well as chat records.

Boundary. Lawful school adoption is a policy responsibility. M.2 explains training data; D.1 examines the data implications of the student's use.

Reflection question. What is the tool receiving, and did I intend to share it?

Curriculum connections. Digital citizenship, initial classroom use of a tool, and family newsletters.

D.2 — Protect other people’s information and work. · Core

Core. Students respect others' control over private information, likeness, and unpublished work and do not share it with a system without their knowledge and consent.

Indicators

- **a.** Recognize others' information in their possession, including photographs, stories, group chats, and classmates' drafts.

- **b.** Ask before supplying another person's material and accept a refusal.
- **c.** Decline invitations to upload identifiable information about others without appropriate consent.
- **d.** Explain why possession of a photograph or document does not establish permission to process it.
- **e.** Speak up when another person's information is about to be shared, applying the intervention taught in D.4 to privacy.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that private information about others also must be protected. *In class: Extend the teacher-led class rule to include both students' own and other people's information.*
3-5 Guided	Asks permission with support before using another person's material. *In class: Rehearse a request to put someone's drawing into the computer.*
6-8 Independent	Applies the consent rule to realistic situations without prompting and explains why possession is insufficient. *In class: Discuss group photographs, shared documents, and screenshots on scenario cards. Assess the reasoning and teach conduct through class expectations.*
9-12 Anticipating	Anticipates consent needs in projects involving interviews, photographs, or family histories and plans for permission. *In class: Assess the consent step in an oral-history proposal.*

Student statement. I need permission before sharing someone else's information or work with AI.

Clarification. Consider a friend's photograph, a shared family story, an essay pasted for comparison, or a recorded conversation. Granting an agent access to an inbox, folder, or group chat is itself a consent decision because others' material is involved.

Boundary. D.4 addresses explicit prohibitions on impersonation and harassment. D.2 addresses ordinary handling that may cause harm even without malicious intent.

Reflection question. Whose material is this, and have they agreed to this use?

Curriculum connections. Advisory, yearbook, and projects involving interviews, photographs, or family material.

D.3 — Examine sources of bias. · Core

Core. Students explain how bias can enter through data, design, and use and how their own choices may increase or reduce it.

Indicators

- **a.** Trace possible sources in training data, design objectives, and the user's request, building on M.2.
- **b.** Identify specific people or groups a pattern may affect.
- **c.** Recognize that people can amplify or reduce bias intentionally or unintentionally at every stage.

- **d.** Adjust framing, follow-up questions, or examples when bias appears.
- **e.** Report biased output in school tools to an adult.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that unfair examples can contribute to unfair results. Instruction is unplugged. *In class: Use a sorting game with a deliberately unrepresentative example set and ask what the system never encountered.*
3-5 Guided	Notices patterns with support and understands that output alone does not reveal their cause. *In class: Generate "a scientist" ten times and count the results. Treat any result, including a balanced set, as evidence. Discuss why the images alone cannot explain the cause.*
6-8 Independent	Identifies plausible causes, tests what is testable, and records uncertainty. *In class: Students design and predict a ten-prompt investigation. Use the licensed tool, with the teacher operating it where accounts require. Report observations, possible explanations, and what cannot be established in separate columns.*
9-12 Anticipating	Identifies bias risks before use, designs checks, and distinguishes observed patterns from causal hypotheses. *In class: Before research about people, write a two-sentence risk note, then report observations and hypotheses separately.*

Student statement. I investigate where bias may enter and what I can establish from the evidence.

Clarification. Examples include narrow representations of nurses, a résumé screener trained on past hiring, a translation that loses a dialect's features, or a prompt that assumes the desired answer.

Boundary. AI and the World addresses effects at institutional scale. Truth and Evidence assesses factual error. D.3 addresses mechanisms and the student's influence on them.

Reflection question. Who may be missing or misrepresented in the examples the system learned from?

Curriculum connections. Sampling in science, surviving records in history, and representation in English language arts.

D.4 — Prevent and respond to harmful use. · Core

Core. Students apply the framework's prohibitions, understand their reasons, and learn how to respond when they or others are targeted. Older students also reason through cases the rules do not fully settle.

Use age-appropriate language. K-2 and grades 3-5 address being hurtful and pretending to be a real person. Introduce the full list in grades 6-8 alongside existing anti-harassment instruction.

Indicators

- **a.** State age-appropriate prohibitions on impersonating real people, harassment, sexualized or intimate synthetic imagery of a real person, and material deception aimed at a real person. Explain

how speed and believability can increase harm.

- **b.** Recognize that an edited photograph presented as a joke can violate these prohibitions.
- **c.** Where no prohibition settles the case, consider whether the aim justifies the tool's use and its effects on the person.
- **d.** Refuse to participate in harm and involve an adult when someone will not stop.
- **e.** Learn protective steps if targeted: save evidence, tell a named adult, and use available removal routes for synthetic images of minors. Responsibility lies with those causing the harm, not the person targeted.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that computers must not be used to hurt others and tells an adult when it happens. *In class: Teach the rule alongside playground expectations in clear, familiar language.*
3-5 Guided	Explains the rules against hurtful use and impersonation and recognizes clear violations. *In class: Discuss scenario cards, including an example described as a joke.*
6-8 Independent	Applies the full prohibitions and proportionality question to realistic and ambiguous cases; knows how to intervene and the protective steps for a targeted student. *In class: Discuss edited-photo and fake-account scenarios in advisory, including whom the targeted student can tell and what happens next.*
9-12 Anticipating	Reasons through unfamiliar tools and ambiguous situations and explains the boundary without waiting for direction. *In class: Prepare a discussion of difficult cases for a younger advisory group. Deliver it where schedules permit; complete the work regardless.*

Student statement. I do not use AI to harm another person.

Clarification. Compare the consequences of a face-swap joke or voice clone directed at one person with wider circulation. Proportionality does not override the prohibitions. Teach targeted students concrete protective steps without implying that the harm is their fault.

Boundary. School discipline policies enforce conduct; this standard teaches it. D.5 concerns institutional judgments, and S.3 addresses proportionality in deployment. Teach the targeted-student steps as protection, never as assessed performance.

Reflection question. Would I do this directly to the person, and do I know how to get help if someone does it to me?

Curriculum connections. Integrate with advisory and existing dignity and anti-harassment instruction.

D.5 — Question automated judgments about people. · Core

Core. Students explain why people remain accountable for AI-assisted decisions and ask specific, informed questions about systems used to evaluate them.

Indicators

- **a.** Explain that a person remains responsible for a decision made with machine assistance.
- **b.** Identify detection, proctoring, ranking, and flagging systems and errors documented in federal inquiries, formal complaints, and civil-society research.
- **c.** Explain which people may be disproportionately affected and why this raises a fairness concern.
- **d.** Ask respectfully which system was used, what it reported, how the report is checked, and who makes the final decision.
- **e.** Apply the same reasoning to employment screening, loans, and risk scores beyond school.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that people remain responsible for decisions about people. *In class: When relevant, the teacher explains that the computer assisted but the teacher made the decision.*
3-5 Guided	Explains, with support, that people must check computer-generated judgments. *In class: Ask who checks a tool's judgment.*
6-8 Independent	Explains how detection or proctoring can be wrong, who may be affected, and what a student can respectfully ask. *In class: Role-play an integrity meeting, rotating student, teacher, and administrator roles to examine a sound process from each perspective.*
9-12 Anticipating	Before an actual automated evaluation, identifies the system, published error profile, questions, and route for raising concerns, with a written explanation of accountability. *In class: Prepare a note concerning a proctoring vendor, college screening disclosure, or hiring platform.*

Student statement. A person remains responsible for decisions a system helps make about me.

Clarification. Consider a detector false positive, proctoring that flags a tic, or an unexplained ranking. A system that automatically files a report or changes a score may leave less time for intervention, but human accountability still applies.

Boundary. Teach specific, respectful questions through actual channels for raising concerns. Shaping AI assesses a particular system's design quality.

Reflection question. If an automated judgment were wrong, would I know what to ask and whom to contact?

Curriculum connections. Civics and government, advisory before high-stakes testing, and discussion of the student handbook.

Strand 7: AI and the World

Enduring understanding. AI shapes the information and institutions students encounter. Informed citizenship includes examining how these systems operate and whom they affect.

This strand extends from individual use to community and societal effects. Students examine how recommendations select what people watch, read, and hear, the objectives behind those choices, and who benefits. They study changes in commercial and political persuasion through generated content and targeting, and investigate how AI affects tasks, occupations, and career planning.

The strand also examines unequal access among students, schools, and countries; the industry's combined environmental demands; and governance from district policy to national and international regulation. Students learn that many rules remain under development and that civic participation can help shape them.

Why it matters. Many encounters with AI appear as feeds, prices, playlists, application rankings, or images attached to rumors. Recognizing the systems behind these experiences helps graduates question them, make informed choices, and participate in public decisions.

Scope. Data and Ethics addresses personal information, individual harms, and how bias enters systems. This strand examines effects on groups and institutions at the scale of communities, economies, and law. Shaping AI evaluates particular systems.

AW.1 — Explain how recommendations shape information. · Core

Core. Students explain how recommendation systems select content, the objectives they serve, and how separately tailored feeds affect a shared school or community.

Indicators

- **a.** Explain that ranking may serve engagement, retention, relevance, or revenue objectives usually selected by someone other than the viewer.
- **b.** Identify signals such as watch time, taps, pauses, and the behavior of similar users.
- **c.** Explain how different personalized feeds can reduce the information community members share.
- **d.** Compare content likely to appear under different objectives, such as attention, accuracy, or calm.
- **e.** Use deliberate search, selected sources, and available settings rather than relying entirely on recommendations.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that the computer selects the next video. *In class: With the teacher, ask who chose a recommendation in a familiar app.*
3-5 Guided	Explains, with support, that an app may select content to keep people watching and that this objective was chosen by people. *In class: Predict the next recommendation, check it, and discuss why the predictions worked.*
6-8 Independent	Explains ranking and its objective and traces how different behavior produces different feeds. *In class: Use two teacher-created profiles, such as a science enthusiast and a gamer, to build a month's likely feeds on paper. Do not display student accounts or private feeds.*
9-12 Anticipating	Evaluates design alternatives and community effects and writes an audit of their own information consumption. *In class: Design a town-news feed and defend its objective. Separately identify personal sources, amounts consumed, and one planned change in a written audit.*

Student statement. I ask whose goals shape the recommendations I see.

Clarification. Examples include next-up videos, personalized feeds, shopping results ordered by factors beyond relevance, and different news accounts that affect neighbors' participation in a town meeting.

Boundary. M.4 identifies recommenders as a system type. AW.1 examines effects on attention, information, and community; Shaping AI evaluates specific designs. Teach personal-device conduct as a disposition. Assess the paper designs and written audit.

Reflection question. What objective shapes this feed, and how does it affect what people in my community know?

Curriculum connections. Media literacy in English language arts and social studies, and health instruction on attention and wellbeing.

AW.2 — Analyze persuasion at scale. · Extension

Extension. Students explain how generated content and precise targeting affect commercial and political persuasion and use that understanding to interpret campaigns.

This progression begins in grades 6-8. Below grade 6, the framework relies on advertising literacy taught elsewhere rather than duplicating it. This is one of the Extension standards introduced after prerequisite learning in other required curricula.

Indicators

- **a.** Explain how persuasive content can now be produced inexpensively, fluently, and in large quantities for targeted audiences.
- **b.** Recognize that messages may be tailored to people with particular characteristics and that neighbors may receive different versions.

- **c.** Connect synthetic media with civic risks, including fabricated election clips and manufactured appearances of consensus.
- **d.** Distinguish manipulation from ordinary advertising that identifies itself, without treating all persuasion as deception.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	No separate expectation in this framework.
3-5 Guided	No separate expectation in this framework.
6-8 Independent	Explains generation and targeting together, identifies likely examples, and recognizes ordinary identifiable advertising. *In class: Infer intended audiences from evidence in messages, including one that clearly presents itself as an advertisement.*
9-12 Anticipating	Predicts what a campaign aimed at someone like them might contain, then examines an actual campaign's message variants, audiences, and purpose. *In class: Analyze the targeting map and multiple messages rather than a single clip. Follow the case-selection rule below.*

Case-selection rule. Select historical elections, foreign elections, teaching simulations, or paired cases from opposing sides so the method can be assessed without requiring partisan agreement.

Student statement. I ask who made a message and whom it was designed to reach.

Clarification. Examples include generated product advertisements, political clips shown only in selected areas, or multiple accounts repeating the same language.

Boundary. TE.4, a Core standard, addresses the authenticity of individual media. AW.2 adds campaign-level analysis. Apply the same method across viewpoints and use the case-selection rule to support impartial assessment.

Reflection question. Who paid for this message to reach me, and what response did they want?

Curriculum connections. Social studies, civics, English language arts argument units, and media literacy.

AW.3 — Examine changes in work and employment. · Extension

Extension. Students investigate which tasks AI performs, how occupations are changing, and who has access to the tools, then apply the evidence to their own plans.

Indicators

- **a.** Distinguish task automation from job replacement using sourced, dated examples.
- **b.** Examine who benefits when a tool automates a task but increases the value of other human work.
- **c.** Identify unequal access among students, schools, and countries and its relationship to existing inequalities.

- **d.** Apply Truth and Evidence practices to employment claims, including checking sources and dates and questioning both optimistic and pessimistic forecasts.
- **e.** Identify what to learn and practice in a field without treating forecasts as inevitable outcomes.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that machines have long assisted work and that people remain responsible for decisions. Instruction is unplugged. *In class: Use picture-book examples of tractors, calculators, and computers alongside the people using them.*
3-5 Guided	Identifies jobs in which computers perform part of the work and explains what people still do, with support. *In class: Interview family members or school staff, such as custodians, librarians, or office staff, about changed tasks.*
6-8 Independent	Distinguishes tasks from jobs and identifies current AI use in a familiar occupation. *In class: Map one occupation as a class and check the map with an invited practitioner.*
9-12 Anticipating	Uses sources to examine a field of personal interest and identifies capacities to develop in response. *In class: Add a section to the career essay explaining what the student will practice because the field still expects people to do it well.*

Student statement. I plan for the work I will need to do, as well as the job I hope to enter.

Clarification. Consider changes to paralegal tasks and the continued need for legal judgment, a welder's changed bidding software alongside unchanged practical work, and differences between schools with and without access to tools.

Boundary. Label forecasts as forecasts and supply dates and sources. The standard teaches students to interpret change, not accept a particular prediction. Thinking With AI addresses the personal learning decisions informed by this evidence.

Reflection question. What will this field expect me to do well, and am I developing that ability?

Curriculum connections. Career education and counseling, economics, and upper-grade advisory.

AW.4 — Participate in decisions about AI governance. · Extension

Extension. Students explain AI governance from district policy to national regulation, including access and resource costs, and practice relevant forms of civic participation.

Indicators

- **a.** Identify classroom rules, district policies, state guidance, and national and international regulation.
- **b.** Explain what current rules address, what remains unresolved, and what a developing rule will need to decide.
- **c.** Consider combined industry resource demands as public questions about siting, water, power, and decision-making, using sourced and dated figures as required by M.5.

- **d.** Examine how policy, funding, infrastructure, and institutional decisions affect access across schools and countries.
- **e.** Prepare a public comment, board question, or student-council proposal to submission standard. Actual submission is the student's and family's choice and is never graded.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that school computer rules are made by people. *In class: Discuss who made the class's AI rules and why, with teacher guidance.*
3-5 Guided	Identifies rule-makers at familiar levels, including classroom, school, and family, with support. *In class: Compare two classrooms' rules and discuss reasons for differences.*
6-8 Independent	Explains the district's actual AI policy and identifies an unresolved question, including resources where the district hosts or contracts computing. *In class: Read the policy and write one question for its authors.*
9-12 Anticipating	Follows a current governance issue through sources, identifies decisions still to be made, and prepares a civic contribution to submission standard. *In class: Use a state bill, data-center siting, or district adoption. Assess sourcing, accuracy about the process, and appropriate language rather than the position taken. Submission is optional; simulation fully meets the standard.*

Student statement. I can understand AI rules and identify decisions that remain open.

Clarification. Examples include district policy, changing state guidance, a data center's water request, or a public-comment period.

Boundary. M.5 addresses individual resource use; its source-and-date requirement also applies here. Instruction must not require agreement on a live political issue. The assessment and submission protections above apply throughout. General participation procedures belong to civics; this standard applies them to AI governance.

Reflection question. Who is making the rules, and where could I participate if I choose?

Curriculum connections. Civics and government, school-board units, and student-council practice.

Strand 8: Shaping AI

Enduring understanding. Students can evaluate a system by understanding its purpose, testing its performance, and specifying improvements.

Shaping AI prepares students to judge systems as designed products. They examine intended purposes, users, and stated limitations, reading documentation and model cards critically. They set evaluation criteria, use test cases, and consider users' experiences. They also define problems before choosing a system, specify changes someone could implement, and identify conditions under which a system should be limited or stopped.

Students do not need to design architectures or train models to do this work. Those activities belong in elective computer science.

Why it matters. Graduates will choose, use, and be affected by systems built by others. A school board member reviewing a vendor, a nurse questioning a triage tool, or a parent considering a household product needs evidence for judgment without necessarily building the technology.

Scope. Working With AI addresses daily use, and AI and the World addresses effects at social scale. Model architecture and training remain outside the framework; the Framework's crosswalk explains that boundary.

Classroom and institutional practice. Student evaluations are instructional work. Schools must establish a designated route for any findings shared outside the classroom and protect individual students from becoming involved in procurement disputes. Existing tools and their renewal or review questions provide the regular basis for assessment. A live adoption can provide an additional opportunity but is not required.

S.1 — Review system documentation. · Core

Core. Students investigate a system's intended purpose, users, and stated or unstated limitations through documentation, terms, policies, and model cards where available.

Indicators

- **a.** Locate the provider's account and examine it as a document produced by an interested party, applying TE.3's lateral-reading practices.
- **b.** Extract the intended purpose, intended users, stated limitations, and known failure modes where provided.
- **c.** Record missing information about limitations or failures without speculating about why it is absent.
- **d.** Compare the stated purpose with the student's or school's proposed use.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Understands that people and organizations make tools for particular reasons. *In class: With the teacher, ask who made an app and why they may have made it.*
3-5 Guided	Finds a stated purpose with support and compares it with classroom use. *In class: Read a child-facing app's description aloud and compare the claims with class experience.*
6-8 Independent	Identifies documented purposes, users, and limitations and records missing information. *In class: Compare two tools' documentation in a chart; assess missing information alongside the other findings.*
9-12 Anticipating	Independently investigates an unfamiliar system's documentation, terms, and claims using lateral checks and compares them with a proposed use. *In class: Examine past or out-of-market vendor pitches, never one currently under consideration, and prepare questions a district should ask.*

Student statement. I read the provider's account and identify what it does not explain.

Clarification. Examine a model card's excluded uses, differences between a tutoring app's marketing and terms, or limitations placed below a demonstration video.

Boundary. TE.3 provides the investigation method; D.1 addresses collection of data. S.1 establishes stated purposes and limitations before evaluation. S.2 tests actual behavior.

Reflection question. Does the proposed use match the purpose the provider describes?

Curriculum connections. Research-skills instruction and examination of classroom tool choices provide opportunities, subject to the institutional protections above.

S.2 — Evaluate performance against criteria. · Core

Core. Students evaluate a system against stated criteria using test cases and actual users' experiences.

Indicators

- **a.** Establish what successful performance would mean before testing.
- **b.** Design tests that include difficult inputs and users not well represented in the system's design.
- **c.** Gather users' experiences and compare them with the provider's claims.
- **d.** Record results so another person can repeat the test.
- **e.** Recommend adoption, adoption with limits, or rejection, supported by evidence.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Helps the class check a tool against its stated promise. *In class: The teacher first states that a robot claims to read the class story aloud. Students judge that claim and give a reason.*
3-5 Guided	Tests a tool against one class-selected question and reports accurately with support. *In class: Try a reading helper on the week's book and give reasons for whether it helped.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
6-8 Independent	Sets criteria, designs and runs a small test, and reports reproducible results. *In class: Teams prepare one page covering criteria, cases, results, and recommendation.*
9-12 Anticipating	Raises evaluation questions without prompting, tests criteria and difficult cases, interviews users, and recommends action with evidence. *In class: Evaluate an existing tool or an available adoption or renewal question, routing findings through the designated staff member.*

Student statement. I test a system's performance before relying on it.

Clarification. Test a mathematics tutor on problems students commonly miss, involve speakers of the language when testing translation, or examine accessibility not covered in vendor documentation.

Boundary. TE.2 verifies individual outputs; S.2 evaluates a system. Advanced statistical methods are outside scope, but testing must be fair, transparent, and reproducible.

Reflection question. What result would show that the system fails to meet the need, and have I tested for it?

Curriculum connections. Science-fair methods, career and technical education, media classes, and student participation in library tool selection.

S.3 — Decide whether a system is appropriate. · Extension

Extension. Students define a problem before applying AI and specify failure conditions and reasons to limit or stop the system before deployment.

Indicators

- **a.** Describe the problem, affected people, and desired improvement before choosing a tool.
- **b.** Compare AI, simpler software, human assistance, and policy change against the actual need.
- **c.** Identify the data, monitoring, and potential errors an AI approach introduces and who would be affected.
- **d.** State in advance when the system would be constrained or stopped, before there is pressure to defend an existing deployment.
- **e.** Write a brief, clear scope describing the purpose, prohibited uses, and evidence that would establish failure.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Recognizes that a class problem may be addressed by a computer, a person, or a rule and helps choose an approach. *In class: The teacher leads comparison of three responses to lost pencils or a noisy line.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Generates three approaches with support and identifies one drawback and one affected person for each. *In class: Groups present computer, person, and rule-based options for a class problem; the class chooses with reasons.*
6-8 Independent	Defines a real school problem, compares approaches, and explains what the AI option would require from people. *In class: Write a scope for tardiness or lunch-line delays without assuming AI is the answer.*
9-12 Anticipating	Produces a full scope for a consequential system, including failure conditions and shutdown triggers. *In class: Write a retrospective scope for an existing school system, including conditions for stopping it. Apply the same method to a live proposal when available.*

Student statement. I establish the problem before deciding whether AI belongs in the solution.

Clarification. An attendance problem may require a schedule change rather than a camera; a tutoring gap may require tutors. A useful system may be retained with clear conditions for stopping it.

Boundary. W.4 addresses personal task suitability. S.3 concerns systems affecting other people and builds ethical requirements into the deployment decision. AW.4 and D.5 address governance and accountability for operating systems; S.3 establishes limits before deployment.

Reflection question. What problem would this solve, and who would bear the consequences of poor performance?

Curriculum connections. Civics, career and technical education, and student government provide access to decisions about actual systems.

S.4 — Specify an improvement. · Extension

Extension. Students translate a complaint or evaluation finding into a specification someone responsible for the tool could act on.

Indicators

- **a.** State current behavior, desired behavior, affected users, and relevant conditions for an audience able to make the change.
- **b.** Support the request with evidence from testing or use rather than preference alone.
- **c.** Identify the most important change and explain its priority.
- **d.** Identify the person or role able to act on the specification.

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
K-2 Emerging	Describes current and desired behavior with teacher help. *In class: The teacher models a two-part statement, the class practices it, and a chart of requests goes to a real recipient.*

STAGE	EXPECTATION AND CLASSROOM EXAMPLE
3-5 Guided	Replaces a general complaint with a supported statement of the situation, current behavior, and desired result. *In class: Practice converting complaints into requests about a classroom tool.*
6-8 Independent	Writes an evidence-based specification for a tool they have tested or used. *In class: Students draft individual requests, compare their strengths, and combine them into one class specification. The teacher submits it through an appropriate channel and reads any reply aloud.*
9-12 Anticipating	Explains tradeoffs, potential effects on other users, and the priority of a change for an actual responsible audience. *In class: Assess the specification and route it through the designated channel where procedures permit. Delivery is not required for proficiency; record vendor silence as an outcome rather than a student failure.*

Student statement. I can explain a needed change clearly to someone who can make it.

Clarification. A useful request identifies that a reading tool marks a dialect as incorrect, supplies five examples, and proposes acceptance or a less definitive flag. It gives the recipient evidence and a proposed change rather than only a general fairness complaint.

Boundary. Students do not implement the fix; that belongs in elective computer science. S.2 produces evaluation findings, and S.4 translates them into an actionable request. Keep delivery manageable: in grades 6-8, the teacher sends one combined class submission.

Reflection question. Does this specification give the responsible person enough information to act?

Curriculum connections. Career and technical education, design, student technology committees, and classroom tool pilots.