



BANYAN GLOBAL LEARNING

Cognitive Integrity Rubric

Evaluating Human-Essential vs. AI-Appropriate Tasks

Grade 8

Aligned to Common Core (ELA / Math), NGSS (Science), and the C3 Framework (Social Studies)

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Part of the 5-Layer AI Governance Framework

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How to Use This Rubric

This rubric helps educators classify instructional tasks into three categories. Each classification is grounded in a single question:

What cognitive work must remain human-performed for learning to occur? **What work** may be AI-amplified without undermining learning? And **what new AI literacies** must be explicitly taught?

The three classifications

HUMAN-ESSENTIAL

This task IS the learning. AI must not perform it, because the cognitive work is inseparable from the skill development. Examples include argumentative essay drafting, hypothesis formation, and historical source analysis.

AI-AMPLIFIED

Human work comes first — the student does the thinking — then AI enhances after. The human output is the anchor; AI adds efficiency or perspective. Examples include drafting first then using AI to edit, solving a math problem then using AI to check the work, and locating sources after the student has framed the research question.

AI-LITERACY

A new skill students must explicitly learn about AI itself: its capabilities, limitations, biases, and role in their discipline. Examples include evaluating AI-generated text for bias, understanding AI in scientific research, and assessing AI-generated historical narratives.

How to use

Review each task type in your subject area. Use the classification to guide assignment design, assessment policies, and AI governance decisions. Consult the Rationale and Implementation Note columns to adapt each classification to your specific context.

Important. These classifications represent professional guidance, not absolute rules. Context, student readiness, instructional goals, and your assessment philosophy should inform your final decisions. This rubric is a starting point for professional dialogue.

English Language Arts

Grade 8 · Common Core

Task Type	Standard	Classification	Rationale	Implementation Note
Argumentative Essay Drafting	W.8.1	HUMAN-ESSENTIAL	Formulating claims and marshaling evidence IS the thinking. The struggle to construct and defend a position builds critical reasoning.	Students should draft without AI assistance. AI can review final drafts for feedback, but argument construction must remain human-driven.
Reading Comprehension & Textual Evidence	RL.8.1, RI.8.1	HUMAN-ESSENTIAL	Close reading and analytical inference develop reading comprehension. Students must do the cognitive work of finding and interpreting evidence.	Require students to cite evidence independently. AI can verify citations after human analysis, but initial evidence selection must be student work.
Grammar & Mechanics Editing	L.8.2	AI-AMPLIFIED	Mechanical editing is not the learning target. After students produce their own draft, AI can assist with grammar, punctuation, and mechanics checking.	Students write and self-edit first. Then use AI tools to catch missed errors and polish conventions.
Research Source Gathering	W.8.7	AI-AMPLIFIED	Student defines research questions and evaluation criteria; AI helps locate sources. Student must evaluate relevance, credibility, and bias of sources.	Students should frame research questions first, then use AI to search. Students evaluate and select final sources independently.
Peer Feedback & Collaborative Discussion	SL.8.1, SL.8.6	HUMAN-ESSENTIAL	Interpersonal reasoning, perspective-taking, and negotiation of ideas cannot be delegated. This is core to speaking and listening standards.	Facilitate live discussion and peer review sessions. AI cannot replace the human-to-human feedback process.
Narrative Writing & Creative Expression	W.8.3	HUMAN-ESSENTIAL	Voice, imagination, and authentic storytelling are inherently human intellectual work. The cognitive act of creating narrative IS the standard.	Students should generate original narrative ideas and write independently. AI should not generate story ideas or plot for them.
Vocabulary Acquisition in Context	L.8.4, L.8.6	HUMAN-ESSENTIAL	Contextual inference of word meanings builds vocabulary retention and language facility. Students learn words by encountering and reasoning through them.	Have students infer word meanings from context during reading. AI can provide definitions after, but contextual learning must be human-led.
Summarization of Complex Texts	RI.8.2, RI.8.3	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Initial summary drafting builds comprehension	Require student-generated

Task Type	Standard	Classification	Rationale	Implementation Note
			and synthesis. After students write their own summary, AI can generate alternative summaries for comparison and learning.	summaries first. Then use AI-generated summaries as a comparison tool to identify what the student emphasized vs. what AI found significant.
AI Output Evaluation & Bias Detection	RL.8.1, RI.8.1, L.8.3	AI-LITERACY	Students must learn to evaluate AI-generated text for accuracy, bias, omission of perspectives, and voice misalignment with purpose. This is essential 21st-century literacy.	Introduce AI outputs (news summaries, story paragraphs) and have students identify errors, biases, missing context, and tone issues.
Prompt Engineering for Research	W.8.7, L.8.3	AI-LITERACY	Students should learn to craft effective queries and prompts to get useful AI assistance. This develops metacognitive awareness of how to work with AI tools.	Teach students to refine search terms and prompts iteratively. Show how specificity, context, and clarity improve AI output.
Citation Formatting (MLA/APA)	W.8.7, W.8.9	AI-AMPLIFIED	Citation format is mechanical once sources are identified. AI can ensure correct formatting after students compile their source list.	Students identify and locate sources independently. Use AI tools (or citation generators) to format citations correctly.
Revision & Self-Editing	W.8.5, W.8.6	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Initial self-revision builds metacognitive awareness of writing quality. After student revision, AI can provide additional perspective and suggestions.	Have students revise their own work first, identifying what works and what needs improvement. Then use AI feedback as a second-round refinement tool.

Mathematics

Grade 8 · Common Core

Task Type	Standard	Classification	Rationale	Implementation Note
Novel Problem-Solving with Expressions/Equations	8.EE.1-8	HUMAN-ESSENTIAL	Mathematical reasoning through productive struggle. Students must grapple with unfamiliar problem structures to build conceptual understanding.	Students should attempt novel problems independently first. Do not use AI to generate solutions. Struggle is the learning.
Defining & Evaluating Functions	8.F.1, 8.F.2	HUMAN-ESSENTIAL	Conceptual understanding of input-output relationships is foundational. This cognitive work cannot be outsourced to AI.	Have students explore functions through tables, graphs, and contexts. They must build understanding before using any computational tools.
Geometric Proof & Spatial Reasoning	8.G.1-5	HUMAN-ESSENTIAL	Logical reasoning and justification build mathematical thinking. Constructing proofs develops the ability to reason abstractly.	Students should work through proofs with minimal scaffolding. AI should not generate proof steps; students must construct the logical chain.
Computational Practice (Basic Operations)	8.NS, 8.EE	AI-AMPLIFIED	After conceptual mastery is achieved, repetitive computation is not the learning. AI can check work and provide unlimited practice.	Once students understand the concept, use AI tools for drill-and-practice and instant feedback on computation.
Data Analysis & Scatter Plot Interpretation	8.SP.1-4	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Students must interpret scatter plots, identify trends, and draw conclusions. Interpretation is the learning. AI can generate plots from data.	Students interpret existing scatter plots independently. Then use AI to generate additional plots from data to explore different variables.
Real-World Modeling/Application Problems	8.EE.7, 8.EE.8	HUMAN-ESSENTIAL	Translating real-world context into mathematical models IS the skill. This requires reasoning about what matters and how to represent it.	Students should define variables, set up equations, and solve independently. AI should not set up the model; that's the thinking work.
Error Analysis (Find the Mistake)	8.NS, 8.EE	HUMAN-ESSENTIAL	Debugging mathematical thinking develops precision and metacognition. Students must explain why an approach is incorrect.	Present flawed solutions and have students identify the error and explain why. This builds critical thinking more than solving alone.
Statistical Reasoning About Data Sets	8.SP.4	HUMAN-ESSENTIAL	Drawing informal inferences from data	Students should analyze real data sets and form

Task Type	Standard	Classification	Rationale	Implementation Note
			requires judgment about causation, correlation, and context. This is inherently human reasoning.	conclusions independently, considering limitations and bias in data.
Exploring Multiple Solution Strategies	8.EE.3, 8.EE.4	AI-AMPLIFIED	After students solve a problem, AI can show alternative strategies. This builds flexibility and deepens understanding.	Students solve first using their own method. Then use AI to explore how the same problem can be solved different ways.
Evaluating AI-Generated Mathematical Solutions	8.EE, 8.SP	AI-LITERACY	Students must learn to check AI work for accuracy, reasoning clarity, and whether the strategy makes sense. This prevents blind reliance.	Provide AI-generated solutions and have students verify the math, assess the strategy's efficiency, and explain if it's correct.
Graph Generation from Equations	8.F.3, 8.G.1	AI-AMPLIFIED	Once students understand equations and what graphs represent, AI can generate accurate visual representations. The interpretation is what matters.	Students should sketch and understand what graphs represent. Use AI tools to generate precise, scaled graphs for analysis and comparison.
Formula Memorization & Recall Drills	8.G.9, 8.A	AI-AMPLIFIED	After initial learning, memorization practice is not high-value. AI can provide unlimited drilling, feedback, and spacing for retention.	Introduce formulas through derivation. Then use AI flashcard systems for spaced repetition and confidence building.

Science

Grade 8 · Next Generation Science Standards

Task Type	Standard	Classification	Rationale	Implementation Note
Hypothesis Formation	MS-PS1, MS-LS1, MS-ESS1	HUMAN-ESSENTIAL	Scientific thinking requires generating testable questions based on observation. Formulating a hypothesis is the cognitive foundation of science.	Students should pose testable questions independently. Do not use AI to generate hypotheses; the thinking IS the learning.
Experimental Design	MS-PS1, MS-LS1, MS-ESS2	HUMAN-ESSENTIAL	Designing controls, identifying variables, and planning procedures builds scientific reasoning. This design work IS the skill.	Students should plan experiments independently, deciding what to measure, control, and change. AI should not design the experiment.
Data Collection During Labs	MS-PS1-4, MS-LS1-2, MS-ESS2-1	HUMAN-ESSENTIAL	Observation, measurement, and careful recording build scientific precision and attention to detail. Direct engagement with phenomena is irreplaceable.	Students should collect all lab data themselves. Direct observation and measurement cannot be delegated.
Data Analysis & Pattern Recognition	MS-PS1, MS-LS1, MS-ESS2	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Students must identify patterns and trends in their own data. Interpretation is the learning. AI can create visualizations to support analysis.	Students analyze their data first, creating charts and identifying patterns. Then use AI to generate alternative visualizations.
Scientific Argumentation from Evidence	MS-ESS2.D, MS-PS1.B	HUMAN-ESSENTIAL	Constructing evidence-based explanations and defending claims is core to science. Students must marshal evidence to support conclusions.	Students should write explanations using their evidence independently. AI can review for logic clarity, but argument construction is student work.
Lab Report Writing	MS-PS1-5, MS-LS1-4, MS-ESS2-3	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Analysis sections develop scientific reasoning. After students draft their analysis, AI can help format, check citations, and improve readability.	Students write analysis and conclusions independently. Use AI to assist with formatting, grammar, and structure, but not for re-writing analysis.
Research on Current Scientific Topics	MS-LS1.B, MS-ESS2.C	AI-AMPLIFIED	Student frames the research question and evaluation criteria. AI helps locate sources. Student assesses credibility and relevance of sources.	Students define what they need to know, then use AI to search for current research. Students evaluate and synthesize findings.

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Modeling Natural Phenomena	MS-LS1.A, MS-ESS1.B, MS-ESS2.A	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Students should develop conceptual models through reasoning. After developing a model, AI can create digital simulations to test predictions.	Students build conceptual understanding first through observation and reasoning. Then use AI tools to create and test models.
Evaluating AI-Generated Scientific Claims	MS-LS1, MS-ESS2	AI-LITERACY	Students must assess AI-generated explanations for scientific accuracy, logical consistency, and alignment with evidence. Critical evaluation is essential.	Share AI-generated scientific explanations and have students fact-check against evidence, identify gaps, and assess reasoning quality.
Understanding AI in Scientific Research	MS-PS1, MS-LS1, MS-ESS	AI-LITERACY	Students should learn how AI is actually used in scientific discovery — analyzing large data sets, identifying patterns, and generating hypotheses for testing.	Discuss real examples of AI applications in science (genomics, climate modeling, particle physics). Explain AI's role vs. the human scientist's role.
Vocabulary & Terminology Acquisition	MS-LS1, MS-PS1, MS-ESS2	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Learning scientific vocabulary in context builds understanding. After contextual learning, AI can provide review, definitions, and practice.	Introduce vocabulary through observation and exploration. Then use AI flashcard tools for review and retention.
Cross-Cutting Concept Application	MS-LS1.B, MS-ESS2.A, MS-PS1.A	HUMAN-ESSENTIAL	Connecting patterns, cause-effect, and systems thinking across disciplines builds scientific understanding. Students must make these connections themselves.	Have students identify patterns and connections across different science phenomena independently, articulating their reasoning.

Social Studies

Grade 8 · C3 Framework

Task Type	Standard	Classification	Rationale	Implementation Note
Historical Source Analysis & Interpretation	D2.His.1-3, D2.His.7	HUMAN-ESSENTIAL	Evaluating primary sources develops critical thinking about perspective, bias, and historical context. Source analysis IS the historical thinking skill.	Students should analyze primary sources independently, identifying author perspective, purpose, and bias before any secondary sources.
Constructing Historical Arguments	D2.His.3-5	HUMAN-ESSENTIAL	Weighing evidence and synthesizing sources into a position is core historical reasoning. The argument construction IS the learning.	Students should develop theses and marshal evidence independently. AI can review argumentation structure, but students build the argument.
Geographic Reasoning & Map Analysis	D2.Geo.1-3	HUMAN-ESSENTIAL	Spatial thinking about human-environment interaction requires student reasoning. Analyzing how geography shapes society IS the skill.	Students should interpret maps and reason about geographic influence independently. Do not use AI to explain geographic relationships.
Civic Reasoning & Democratic Participation	D2.Civ.1-3, D2.Civ.6	HUMAN-ESSENTIAL	Forming civic identity and reasoned positions on public issues requires personal engagement. Students must develop their own informed perspectives.	Students should participate in discussions, form positions on civic issues, and deliberate independently. Dialogue is irreplaceable.
Economic Decision-Making Analysis	D2.Eco.1-3	HUMAN-ESSENTIAL	Cost-benefit reasoning and economic thinking require student judgment about trade-offs. This analytical work is the learning target.	Students should analyze economic decisions independently, weighing costs and benefits before consulting any analytical tools.
Research & Evidence Gathering	D2.His.7, D2.Civ.4	AI-AMPLIFIED	Student frames the research question and defines what counts as evidence. AI helps locate sources. Student assesses credibility and relevance.	Students define their research question, then use AI to search archives and sources. Students evaluate and select sources independently.
Timeline & Chronology Construction	D2.His.2	AI-AMPLIFIED	Student sequences events and identifies cause-effect relationships. AI can help create visual timelines from student-identified events.	Students sequence events and explain connections first. Use AI tools to visualize timelines professionally.

Task Type	Standard	Classification	Rationale	Implementation Note
Perspective-Taking & Empathy Exercises	D2.His.1, D2.Civ.2	HUMAN-ESSENTIAL	Understanding diverse viewpoints and reasoning from different perspectives is irreplaceable. This intellectual work cannot be delegated.	Facilitate perspective-taking discussions and writing exercises with humans. Role-plays and simulations should involve real participants.
Current Events Analysis & Historical Connection	D2.His.4, D2.Civ.5	HUMAN-ESSENTIAL (→ AI-AMPLIFIED)	Students must analyze current events and identify historical patterns independently. Analysis is the learning. AI can gather event information.	Students identify current issues and form initial analysis. Then use AI to research historical context and parallels.
Evaluating AI-Generated Historical Narratives	D2.His.1-5	AI-LITERACY	Students must assess AI-generated history for accuracy, bias, omitted perspectives, and simplification. Critical evaluation of AI output is essential.	Share AI-generated historical summaries and have students identify errors, bias, missing voices, and oversimplifications.
Understanding AI's Role in Modern Governance	D2.Civ.4	AI-LITERACY	Students should learn how AI affects civic life — from algorithms shaping what news they see to AI in criminal justice. Understanding this shapes informed citizenship.	Discuss real examples: social media algorithms, predictive policing, data privacy. Explore AI's impact on democracy and civic participation.
Document-Based Question (DBQ) Essays	D2.His.3-4	HUMAN-ESSENTIAL	Synthesis of multiple sources into a coherent argument is core historical thinking. Analyzing and connecting documents IS the skill.	Students should analyze each source independently and construct their own thesis synthesizing multiple documents. AI should not synthesize for them.

Implementation Guide

Using this rubric at the district level

An AI governance committee can use these task classifications to build consistent district policy on AI use in assignments. For each subject area, review which tasks are classified HUMAN-ESSENTIAL and establish that teachers should not require students to use AI for those tasks. For AI-AMPLIFIED tasks, set guidelines for when AI is introduced — after the student work is complete. For AI-LITERACY tasks, build professional development that helps teachers integrate explicit instruction about AI capabilities and evaluation. The rubric provides the foundation for coherent, standards-aligned AI integration policy.

Adapting for your context

Classifications are starting points, not mandates. District context — student population, resources, instructional philosophy, assessment priorities — should inform application. A task marked HUMAN-ESSENTIAL here may need different implementation based on your students' needs.

Use the classifications to prompt professional dialogue. Why is this task HUMAN-ESSENTIAL? What would happen if we used AI here? How would our students be different if they experienced this struggle? The conversation produces nuanced, context-specific policy.

Connection to the 5-Layer Framework

The Cognitive Integrity Rubric operationalizes the Cognitive Core layer of the Banyan 5-Layer AI Governance Framework. The Cognitive Core is the structural anchor — the layer that asks which cognitive work must remain human-performed. The other framework layers address district values and principles, assessment and accountability, professional development and capacity, and ethical review and continuous improvement. Use this rubric in conjunction with those layers; assignment-level decisions are most defensible when nested inside a clear policy and PD context.

Professional development suggestion

Run department-level professional development by auditing current assignments. Select 5–8 common assignments. Classify each task using this rubric. Discuss: are our current assignments aligned with these classifications? Which tasks are we accidentally delegating to AI that should remain human-essential? Where are we missing opportunities to build AI literacy? Use the answers to design more intentional, standards-aligned assignment sequences.

About this rubric. Part of the Banyan AI Governance service line. The Cognitive Integrity Rubric is one of several productized digital tools that operationalize the 5-Layer Framework. Companion artifacts include the Vendor Evaluation Matrix, Board-Ready AI Status Report Template, and AI Task Redesign Templates.

Questions, feedback, or licensing inquiries: travis@banyangloballearning.com