



AI & Us: A Critical Exploration

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Target Grade: 9th–10th Grade, Interdisciplinary (ELA/Technology)

Time Required: 90 minutes

Standards

CCSS.ELA-LITERACY.W.9-10.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

CCSS.ELA-LITERACY.RI.9-10.8: Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

ISTE 1.3.d: Students build knowledge by exploring real-world issues and gain experience in applying their learning in authentic settings.

ISTE 1.5.b: Students collect data or identify relevant data sets, use digital tools to analyze them and represent data in various ways to facilitate problem-solving and decision-making.

Lesson Objectives

Students will:

- Compare and contrast how different AI tools handle various tasks such as creative writing, coding and image generation.
- Craft effective prompts for AI and understand how your words shape the AI's response.
- Spot biases or inaccuracies in AI-generated content and explain why it's so important to double-check AI's work.
- Discuss and analyze the bigger picture: how AI impacts society, ethically and socially, and what it means for our future.

Central Focus

In this lesson, students will critically explore the capabilities and limitations of artificial intelligence tools. Through hands-on activities, they will compare generalist and specialist AIs, evaluate their outputs, and engage in discussions about ethics, misinformation, and the future of AI. The lesson emphasizes digital literacy, critical thinking, and responsible technology use.

Key terms: AI literacy, prompt engineering, misinformation, digital ethics, hallucination, bias in AI, LLMs



Background Information

Background Information for Teachers

Scientific Concepts

Artificial Intelligence (AI) refers to computer systems designed to perform tasks that typically require human intelligence, such as writing, analyzing data, solving problems, or recognizing images.

This lesson focuses on Large Language Models (LLMs) like ChatGPT, Gemini, Claude, and Microsoft Copilot. These tools work by predicting the next word in a sentence based on patterns in massive datasets of text. They generate responses based on what they've learned from their training data.

Limitations of AI Tools

- **Hallucinations:** AI can produce confident but incorrect answers. These are called hallucinations. For example, it might invent facts, misstate historical events, or cite non-existent sources.
- **Bias:** AI can reflect biases present in its training data, including stereotypes or unbalanced perspectives.
- **Outdated Information:** Unless connected to live web search, most AI tools are limited to data available up to a certain point in time and may not know about recent events or research.
- **No Source Verification:** Unlike a search engine, LLMs do not cite real-time sources unless prompted to do so. Their answers may sound accurate even if they are entirely made up.

Ethical Questions to Explore with Students

This lesson includes an ethics roundtable to help students think critically about AI's role in society. Key questions include:

- **Accuracy & Truth:** How should we verify information from AI?
- **Bias & Fairness:** Could AI reinforce stereotypes or unfair patterns?
- **Academic Integrity:** When is using AI helpful vs. dishonest?

School AI Policy Considerations

Before teaching this lesson, check your school or district's AI policy:

- Are students allowed to access AI tools on school devices?
- Are there restrictions on creating accounts or using tools that require logins?
- If access is limited, consider using pre-generated AI outputs or teacher-led demos.



Common Student Misconceptions & How to Address Them

Potential Confusion	How to Address It
"AI is always right."	Use the Hallucination Test to show how AI can be confidently wrong. Emphasize the need for fact-checking.
"AI is just like Google."	Explain that AI generates responses based on patterns, not real-time search results.
"I don't know how to write a good prompt."	Model a few examples and encourage experimentation. Remind students that clear, specific prompts usually get better results.
"All AI tools are the same."	Help students compare general-purpose vs. specialized tools and reflect on their strengths and weaknesses.
"I can't access the tools."	See below for alternatives.

What to Do If AI Tools Are Blocked or Inaccessible

- Use pre-generated AI responses: Run the prompts ahead of time and print or display the outputs for students to analyze.
- Pair students: If only a few devices have access, have students work in pairs or small groups.
- Teacher-led demos: Project your screen and walk through the tasks as a class.
- Offline alternatives: Have students write their own responses and compare them to AI-generated ones you provide.

Preparation Checklist (Before the Lesson)

- ☐ Review your school's AI policy and test access to tools on student devices.
- ☐ Choose and test at least two general-purpose AI tools (e.g., ChatGPT, Gemini, Copilot).
- ☐ Choose and test at least one specialized AI tool for each task (e.g., Grammarly, QuillBot, Photomath).
- ☐ Print or distribute the "AI & Us: Exploration Guide" handout.
- ☐ Prepare the two sample paragraphs (AI vs. human) for the opening hook.
- ☐ Prepare and test a few "hallucination test" questions for the ethics discussion.
- ☐ Optional: Print discussion questions and homework prompt for student reference.

Student background information:

- Basic Understanding of Technology Use
 - Familiarity with using digital devices (laptops, tablets, or desktops)
 - Basic internet navigation skills (opening websites, typing into search bars or text boxes)
- What Students Should Know About AI (at a minimum)
 - AI stands for Artificial Intelligence. Technology that can do tasks that usually require human thinking, like writing, solving problems, or recognizing images.
 - AI is not magic. It works by learning from patterns in data.



- AI tools like ChatGPT or Gemini are not search engines. They don't look up answers online but generate responses based on what they've learned.
- Digital Citizenship & Responsibility
 - Understanding that not everything online is true, including AI-generated content.
 - Awareness of academic honesty, knowing when using AI is helpful and when it might cross into plagiarism or dishonesty.
- Basic Reflection & Comparison Skills
 - Ability to compare two pieces of writing or responses and describe differences in tone, clarity, creativity, or accuracy.
 - Willingness to think critically and share opinions respectfully during class discussions.

Materials

- ["AI & Us: Exploration Guide"](#) handout (1 per student)
- Two sample paragraphs (1 AI-generated, 1 human-written) for the opening hook
- Devices with internet access (laptops, tablets, or desktops)
- Access to AI tools (e.g., ChatGPT, Gemini, Microsoft Copilot, Claude, Photomath, Grammarly)
- Projector or shared screen

Instruction

Opening – Hook (10 minutes)

- Display two short paragraphs (one AI-generated, one human-written) on the board and ask students to guess which paragraph was written by AI.
 - Example AI prompt: "Write a short, descriptive paragraph about a person walking through a forest in autumn."
 - Use a human-written paragraph with a similar theme and tone for comparison.
 - AI Example: "Golden leaves crunched beneath Alie's boots as she wandered through the quiet forest, the crisp autumn air brushing her cheeks. Sunlight filtered through the thinning canopy, casting dappled shadows that danced across the mossy path. The scent of damp earth and woodsmoke lingered in the breeze, mingling with the faint rustle of squirrels darting through fallen foliage. Each step stirred a swirl of amber and crimson, as if the forest itself were exhaling the last breath of summer. Wrapped in a woolen scarf, she paused to watch a single leaf spiral gently to the ground. Nature's slow, graceful farewell."
 - Human Example: "For the girl, the mountains held the magic of the world, and now the magic was coming alive. Alive in the form of bright yellow, gold, and crimson. The wind carried the breeze of freedom and smoke, and the crunch of the ground released the smell of earth and home. The light danced between the now-formed holes in the canopy above, releasing pockets of warmth, as she wandered through the trail, smiling as the dog herded herself and the falling leaves. She pulled her coat a little tighter as the mountain wind rushed against her. The mountain. The mountain in the fall was her favorite place to be."



- Use the guiding questions to facilitate a brief discussion on their reasoning.
 - What clues led them to their decision?
 - Did one paragraph feel more emotional, creative, or natural?
 - Did one seem too polished, vague, or overly formal?
 - Were there any patterns in word choice, sentence structure, or tone that stood out?
- After students share their reasoning, guide them to reflect on what AI is and how it works. Use this moment to introduce the concept of AI.
 - AI, in simple terms, refers to computer systems designed to do tasks that usually require human intelligence like writing, solving problems, or even creating art. These systems learn by analyzing large amounts of data, identifying patterns, and using those patterns to generate responses or predictions.
- Next, introduce the day's mission: "You're becoming AI Detectives. You'll explore different AI tools, test their strengths and weaknesses, and reflect on their real-world impact."

Activity – AI Detective Challenge (60 minutes)

Part 1: The Generalist Challenge (30 minutes)

- Distribute the "AI & Us: Exploration Guide" handout to each student.
- Explain that students will be working with two different general-purpose AI tools (such as ChatGPT, Gemini, Claude, or Microsoft Copilot).
- Clarify the task for students:
 - They will complete three specific tasks using two different general-purpose AI tools:
 - A creative writing prompt: "Write a short, dramatic story about a pair of mismatched mittens."
 - An explanatory science prompt: "Explain the concept of fusion to a 6th grader."
 - A basic coding prompt: "Write a simple, annotated JavaScript function that changes the text color of a webpage when a button is clicked."
 - Then they will compare the responses and record their observations about which AI performed better and why.
 - Instruct students to enter the same prompt into both AI tools for each task and document their findings in the handout.
- Circulate the room to assist with prompt phrasing, encourage experimentation, and prompt deeper thinking about the differences in AI responses.

Part 2: The Specialist Challenge (20 minutes)

- Direct students to Part 2 of the "AI & Us: Exploration Guide" handout.
- Explain that they will now explore AI tools designed for specific tasks, such as image creation, text refinement, or solving math problems.
- Instruct students to complete the three specialized tasks listed on the handout.
- For each task they complete, students should:
 - Use the suggested AI tool (e.g., Copilot Designer, QuillBot, Photomath).



- Record which tool they used and write down their observations: What did the tool do well? Was it easy to use? Were there any limitations or unexpected results?
- Circulate the room to support students with accessing tools, clarify instructions, and encourage thoughtful reflection on how these tools differ from the general-purpose AIs used earlier.

Part 3: Fact Checkers & Ethics Roundtable (10 minutes)

- Instruct students to complete Part 3 of the "AI & Us: Exploration Guide" handout by answering the three reflection questions.
- Facilitate a whole-class discussion to help students think critically about the implications of AI.
 - Begin by inviting students to share their responses, especially any surprising discoveries they made during the activity.
- Next, conduct the "Hallucination Test" by entering a tricky factual question into an AI tool (e.g., "Who won the World Series in 1888?").
 - Highlight how AI can generate confident but incorrect answers and emphasize the importance of verifying AI-generated information with reliable sources.
- Use the "Hallucination Test" as a launching point for an ethical discussion using the following guiding questions:
 - What are the dangers of AI generating convincing but false information?
 - Can AI be biased if it's trained on outdated or unbalanced data?
 - If an AI gives you a wrong answer on homework, who is responsible: you or the AI?
- Encourage students to consider both the benefits and risks of using AI in everyday life, education, and society.

Closure (10 minutes)

- Revisit the learning objectives and ask students to reflect on how their understanding of AI has changed.
- Invite a few students to share final takeaways or lingering questions from the discussion.
- Optional Homework: "Imagine you're an AI designer. What new AI tool would you create to solve a problem in your school or community? What would it do, and how would it help?"

Differentiation

For Extra Support:

- Pair students who need help with a peer who is confident using technology.
- Use the pre-written prompts to help students who may struggle to get started.

For English Language Learners (ELLs):

- Encourage students to use translation tools, or even the AI itself, to help interpret prompts and responses.
- Consider pairing students with a peer who has stronger English skills for added support.

For Early Finishers:



- Ask students to take an AI-generated response that isn't quite right and refine the prompt step-by-step to improve the output. Have them document each version and explain how their changes made a difference.
- Invite students to research a specific ethical issue related to AI (e.g., deepfakes, algorithmic bias in hiring) and prepare a short, informal presentation to share with the class.
- Ask students to design a misleading prompt that makes AI give a wrong answer and then explain why it failed.

Assessment

Formative Assessments

- **AI vs. Human Warm-Up:** Students analyze two paragraphs and explain their reasoning. This reveals how well they can spot patterns in writing and introduces key ideas about how AI works.
- **Exploration Guide – Generalist Tools:** As students test and compare two general-purpose AI tools, their written observations show how well they understand AI capabilities and limitations.
- **Exploration Guide – Specialist Tools:** Students explore task-specific AI tools and reflect on their usefulness. This helps assess their ability to evaluate tools for different purposes.
- **Teacher Walk-Arounds:** Informal check-ins during activities give you a chance to spot confusion, offer support, and push deeper thinking as needed.

Summative Assessments

- **Reflection Questions & Ethics Discussion:** Students complete the final section of the handout and join a class discussion. This shows how well they can think critically about AI's impact and ethical concerns.
- **Final Takeaways & Optional Homework:** Students reflect on what they've learned and, if assigned, design their own AI tool to solve a real-world problem. This assesses their ability to apply learning creatively and thoughtfully.

AI & Us: Exploration Guide Handout

Student Name: _____ Date: _____

Part 1: Generalist AI Explorers

Instructions: For each task below, use **two different general-purpose AI tools** (like Google Gemini, ChatGPT, Microsoft Copilot, or Claude). Enter the **same prompt** into both tools. Then, compare the responses and record your observations.

Task Prompt	AI Tool 1 Used	AI Tool 2 Used	Observations (Which was better? Any surprises?)
1. Creative Prompt: "Write a short, dramatic story about a pair of mismatched mittens."			
2. Explanatory Prompt: "Explain the concept of fusion to a 6 th grader."			
3. Code Prompt: "Write a simple, annotated JavaScript function that changes the text color of a webpage when a button is clicked."			

Part 2: Specialized AI Deep Dive

Instructions: For each task below, try using the suggested specialized AI tool (if available). After completing the task, reflect on your experience. What did the tool do well? Was it easy to use? Were there any limitations or surprises?

Specialized Task	AI Tool Used	Observations (What did it do well? Any limitations? Was it easy to use?)
1. AI Image Creation: "A gopher in shorts eating a donut on Saturn." Suggested tools: Adobe firefly, CoPilot, ChatGPT		
2. Text Refinement: Take a paragraph from one of your earlier AI responses and improve it using a tool like QuillBot or Grammarly.		
3. Math Solver: Find a complex algebra word problem (from a textbook or online) and solve it using a math-focused AI tool. Suggested tools: Photomath, CoPilot, Claude		

Part 3: Reflection

Instructions: Take a few minutes to reflect on your experience using AI tools today.

Reflection Questions	Your Response
1. What was the most surprising or unexpected thing you learned AI could do today?	
2. Which AI tool did you prefer for each type of task (creative, explanatory, coding, image, etc.)? Why?	
3. Think critically: What is one real-world problem AI could help solve? What is one new problem AI might create?	