



Lesson | Innovations in Artificial Intelligence

Help students investigate the benefits and potential pitfalls of AI—and consider how to create safe, inclusive solutions.

Objective

Students will discuss and research ethical applications of artificial intelligence, then brainstorm and design a tech solution to a community problem.

Standards

- ISTE 3d. Explore real-world issues
- ISTE 4. Use a design process to solve problems

Time

60 minutes

Materials

- Internet access for students OR pre-selected articles for student research

1 Hook students by asking if they've used a voice-activated digital assistant. How does this technology help people? Does it ever mess up or get things wrong?

2 Explain that digital assistants rely on artificial intelligence (AI). Ask students to predict what the following terms mean. Then, share the definitions.

- artificial intelligence (*computers that perform tasks that humans do, like processing language and making decisions*)
- machine learning (*computer programs that automatically improve as they process more data*)
- algorithm (*a set of steps that can be followed to complete a task*)

3 Ask: Has a digital assistant ever misunderstood what you said? Are digital assistants more accurate for some people than others (e.g., based on accents)?

Level It Up: Point out that AI code is not “neutral.” It reflects the biases and priorities of the people creating it (based on what data they choose to include and which groups they use to test the technology). For example, research has found that facial recognition programs developed in the US are far more likely to produce incorrect matches for African American, Native American, and Asian faces than Caucasian ones. Discuss: give students space to process how this

makes them feel, as well as how they would like to see programmers and policymakers respond to this information.

4 Explain that a machine is only as “smart” as the data it has, so AI requires large data sets. Developers must ensure that this data is safe and secure to protect people’s privacy.

5 Have students work in groups to research an example of how AI is being used for social good (e.g., helping doctors detect cancer, conducting dangerous search and rescue missions, and acting as a personal assistant for seniors). Students can conduct a safe internet search or use articles you have pre-selected. Ask them to consider:

- How does the technology help solve a problem?
- What are the potential risks?
- How are the creators making sure the technology will work for everyone (across race, gender, ability)? If they aren’t, how could they?
- How are the creators making sure that the data is safe and secure?

6 Have students work independently or in pairs to create their own technological solution to a problem in society. Point out that the tech solution doesn’t have to include AI, but it can.

Name _____

Innovations in AI

AI is all around us! Complete this chart to organize your ideas.

	AI Term	Example	Another Example	Ways It Can Solve Problems and Help People
1	autonomous: something built to work on its own (without a human operating it)	robot vacuum		
2	chatbot: a program that has been set up with automated responses so it can have a "conversation" with a human	confirming a doctor's appointment through automatic text messages		
3	facial recognition: a program that can identify faces	using your face to unlock a smartphone		
4	machine learning: a program that processes large amounts of data in order to find patterns and get better (over time) at making choices	over time, a map app gets better at predicting traffic		
5	predictive algorithm: the steps a computer follows to make predictions	a search engine predicts what you want to search for before you finish typing		
6	speech recognition: computers that match sounds to words	voice typing		