

muse®

Artificial Intelligence

Can computers really think? How is artificial intelligence compared to human intelligence? How far will computer intelligence go? Should we be worried? Explore these questions in this issue!

CONVERSATION QUESTION

Will artificial intelligence surpass human intelligence?

TEACHING OBJECTIVES

- Students will learn about the advancements of computers and artificial intelligence.
- Students will compare AI with human intelligence.
- Students will construct explanations.
- Students will engage in arguments from evidence.
- Students will obtain and evaluate information.
- Students will write narratives to develop real or imagined experiences or events.
- Students will write arguments to support claims, using valid reasoning and relevant and sufficient evidence.
- Students will draw evidence from informational texts to support reflection.



In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

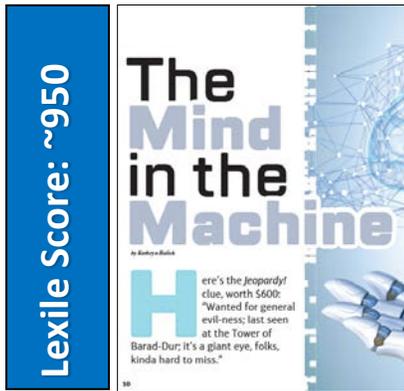
SELECTIONS

- **Artificial Intelligence**
Expository Nonfiction, ~950L
- **Testing Thinking**
Expository Nonfiction, ~850L
- **Doctor Robot-O**
Expository Nonfiction, ~850L

The Mind in the Machine

pp. 10–17, Expository Nonfiction

Students explore why artificial intelligence is a hot topic. Use this article to give students strategies for learning about complex science concepts.



RESOURCES

- Supporting Details

OBJECTIVES

- Students will read and analyze a nonfiction article
- Students will construct explanations
- Students will write narratives to develop real or imagined experiences or events

KEY VOCABULARY

- **supercomputer (p. 12)** a computer that performs at or near the currently highest operational rate for computers
- **processor (p. 12)** a part of a computer that performs calculations or other manipulations of data
- **neurons (p. 13)** cells that carry messages between the brain and other parts of the body
- **super intelligence (p. 17)** an intellect that is much smarter than the best human brain

ENGAGE

Conversation Question: Will artificial intelligence surpass human intelligence?

Create a KWL chart about artificial intelligence where students contribute ideas about what they already know about the topic, what they want to find out, and a place to record new information as they read the article. Review the article before reading to point out the different text features, diagrams, and sidebars used to guide readers and increase understanding.

INTRODUCE VOCABULARY

Read the vocabulary words aloud. Have students skim to find the sentences where these words first appear. With a partner, students read for context clues and share how these words relate to the topic of artificial intelligence.

READ & DISCUSS

Students use the *Supporting Details* graphic organizer to choose important supporting information for the subheadings in the article. Lead a discussion about how this information relates to artificial intelligence.

Lead a class discussion based on the following prompts.

- Why is artificial intelligence beneficial?
- What are the challenges in designing and using it?
- What are the projections about future uses and development?

CONCEPT/SKILL FOCUS: Constructing Explanations

INSTRUCT: Have students choose to be an “expert” in one of the subheading topics in the article. In small groups, students will explain their topic so others understand. Encourage them to create visuals to enhance their explanation.

ASSESS: Use a simple checklist assessment when the students give their explanations. Did they understand the material? Were they able to articulate the main idea and supporting details? Were they able to engage their audience? Were they able to answer questions?

EXTEND

Language Arts/Writing Have students write a science fiction story about a computer with super intelligence. Have them refer to the article to determine the problem and solution as they construct their story.

Supporting Details: Write three important supporting details for each of these main ideas in the article.

The Making of Artificial Intelligence

- _____
- _____
- _____

Mimicking the Brain

- _____
- _____
- _____

Seeing, Hearing, Speaking

- _____
- _____
- _____

The Leap to Understanding

- _____
- _____
- _____

Computer Overlords

- _____
- _____
- _____

Testing Thinking

pp. 18–19, Expository Nonfiction

Students explore how computer intelligence is tested. Use this article to help students support their ideas with evidence.



RESOURCES

- Collecting Evidence

OBJECTIVES

- Students will read and analyze a nonfiction article
- Students will engage in arguments from evidence
- Students will write arguments to support claims, using valid reasoning and relevant and sufficient evidence

KEY VOCABULARY

- **data** (p. 18) information that is produced or stored by a computer
- **tactic** (p. 18) an action or method that is planned and used to achieve a particular goal
- **elimination** (p. 18) the act or process of removing something or someone
- **exuberance** (p. 19) filled with energy and enthusiasm

ENGAGE

Conversation Question: Will artificial intelligence surpass human intelligence?

Have students discuss the conversation question in small groups. After expressing and discussing their ideas, have students make a list of questions that would provide information to help them be better equipped to support their opinions.

INTRODUCE VOCABULARY

Read the vocabulary words aloud. Have students write the words and take their best guess at the definitions. Next, have students look up the words and write the correct definition. Have students look for these words when reading the article.

READ & DISCUSS

After students have read the article, lead a class discussion based on the following prompts.

- How does the Turing test help determine the intelligence of computers?
- What kinds of questions do computers have trouble answering?
- What is the meaning of intelligence?

CONCEPT/SKILL FOCUS: Write Arguments

INSTRUCT: Explain that good discussion and argument requires participants to support their opinions with examples and reasons. Evidence can come from many sources, and opinions can change based on the reliability of the source and research. Have students use the *Collecting Evidence* graphic organizer to record information found in the article.

ASSESS: Review the graphic organizers to ensure the students are finding evidence from the article and correctly recording it on the chart.

EXTEND

Language Arts/Writing Students write a paragraph about whether they think AI will surpass human intelligence. Remind them to support their opinions using arguments from evidence and their notes from *Collecting Evidence*.

Collecting Evidence

Will artificial intelligence surpass human intelligence?

Page	Artificial Intelligence	Page	Human Intelligence
18	A computer can calculate a math problem quicker than humans.	18	Humans have imagination and common sense.

Write a paragraph that states your opinion and uses information from the chart to support your point of view.

Doctor Robot-O

pp. 32–34, Expository Nonfiction

Students learn about the development of artificial intelligence in medical care. Use this article to help students obtain and evaluate information.



RESOURCES

- Compare and Contrast

OBJECTIVES

- Students will read and analyze a nonfiction article
- Students will obtain and evaluate information
- Students will draw evidence from informational texts to support reflection

KEY VOCABULARY

- **glaucoma (p. 34)** a disease in which high pressure inside the eye can cause gradual loss of vision
- **diagnose (p. 34)** to recognize a disease or illness in someone
- **diabetes (p. 34)** a disease in which the body cannot properly control the amount of sugar in the blood
- **nanobots (p. 34)** microscopic robots

ENGAGE

Conversation Question: Will artificial intelligence surpass human intelligence?

Read aloud the first two paragraphs of the article, and have students imagine themselves in a similar scenario where they are being treated by a computer with sensors and artificial intelligence. Ask students to talk with a partner about the possible advantages and disadvantages before reading the article.

INTRODUCE VOCABULARY

Explain that the vocabulary words are terms associated with medical conditions and care. Have students write the definitions with a partner and discuss how artificial intelligence might relate to each word. Ask students to look for these words as they read the article.

READ & DISCUSS

Lead a class discussion based on the following prompts.

- Why are scientists excited about the possibilities of AI?
- In what ways might AI be used to keep people healthier?
- Why is AI limited in its abilities in medical applications?

CONCEPT/SKILL FOCUS: Evaluate Information

INSTRUCT: Look for evidence that examines the benefits/disadvantages of using AI versus humans in nursing. Guide students to obtain and record information from the article using the *Compare and Contrast* graphic organizer. The chart can be used to evaluate the collected evidence to help students reflect on their views about AI in medical care.

ASSESS: Determine student understanding by their ability to obtain and record information in the graphic organizer.

EXTEND

Language Arts/Writing Students write a paragraph about whether they would rather be treated by an AI nurse or a human nurse. Guide them to use information from the *Compare and Contrast* chart in their reflections.

Compare and Contrast

Nursing: Artificial Intelligence or Human Intelligence?

Look for evidence that examines the benefits of using AI versus humans in nursing.

AI Nurse		Human Nurse	
Page 33	AI nurse does not get distracted.	Page 33	Human nurse can comfort a patient.

Conclusion: Write a paragraph about whether you would rather be treated by an AI nurse or a human nurse, using support from the chart in your reflection.