Julie likes tennis, hiking, Phil Collins, and Lois & Clark. A normal 14-year-old girl, right? Sure. Except that she’s a computer program. Julie is part of an educational game based on Phoenix Quest, a novel by children’s author Julie Lawson. The creation of software developer Richard Gibbons, Julie came in third in the 1997 Loebner Prize Competition in Artificial Intelligence. To recognize the most human-like program, this competition uses a variant—or slightly different form—of a test for artificial intelligence called the Turing test.

This test was developed in 1950 by Alan Turing, one of the pioneers of artificial intelligence research, to determine whether computers can think. In the Turing test, a judge is connected to one person and one machine via a computer terminal. The judge asks questions of each and uses the answers to decide which of the two candidates is the machine and which is the person. If she cannot decide within a certain time, the machine is considered intelligent.

At the 1997 contest in New York City, Technical Director George Lowe set up five PCs with the contestants’ programs—of the five contestants, only first-prize winner David Levy was actually present—and connected a sixth to a person at another computer. Each of the five judges spent ten minutes conversing with each of the six computers. They tried to see, for example, if competitors could handle slang and sudden topic changes. All five judges correctly identified the human, and then ranked the programs from one to five based on how well they imitated human reasoning and conversation.

There’s a reason so few programmers entered the competition. Imagine how hard it must be to develop a program that acts human: The program must be able to field any question that you can ask it. It has to recognize the many ways people have of saying the same thing. For instance, it must understand not
only “How are you?”, but also “How’s it going?” “What’s up?” and “What’s new?” And it has to handle strange questions and slang, too: No choking when a judge asks, “What’s your sign?”

To develop Julie’s character, Gibbons pored through Phoenix Quest and drew up a profile of Julie, from the things she likes to the common expressions she uses. Then, to develop her conversational ability, Gibbons took Julie into schools to see what kids would ask her. Then, he had to develop suitable responses. Making things even more difficult, here was a 24-year-old male trying to create the personality of a 14-year-old female.

“However, these issues were not as significant as they might initially appear, because simply creating something ‘human sounding’ is very difficult,” says Gibbons. “Spending time worrying about age and gender differences was like worrying about getting a sunburn when you’re in the middle of a nuclear war.”

If a computer can fool a person into thinking it’s human, does this mean the computer really thinks like a human? “Right now, I think most of the successful artificial intelligence programs do not actually think,” says Gibbons. “Instead, many of the AI programs like Julie simply look up information based on important phrases in statements people make. Julie sometimes seems human, but what she’s actually doing is looking up information very quickly. So calling Julie ‘intelligent’ is like calling a person ‘knowledgeable’ when all he does is look up facts in an encyclopedia.”

George Lowe agrees: “It’s not knowledge, but experience that makes us intelligent.”

Experience isn’t the only quality that makes us what we are, though. There are robots wired to react as a human would—for example, to pull back after touching something painful. What separates us from these robots? What other qualities must computers have before they can be considered more like humans? Emotion? Common sense? Artistic ability? Artificial intelligence programmers are still debating whether a computer can be like a person—but that hasn’t stopped them from trying to create one with human intelligence.

Interested in trying to fool the judges? “Build a program and send it in,” says George Lowe. “Anyone can enter. It doesn’t cost anything, and you don’t have to be at the competition.”

Maybe you can pass Turing’s test!
**READ**

**Comprehension**
Reread all or part of the text to help you answer the following questions.
1. What is unusual about Julie?
2. What is the Turing test?
3. Name two challenges that make it difficult to create a program that can pass the test.

**Research: Clarify Details**
Choose at least one unfamiliar detail in the selection and briefly conduct research on it. Explain how your research clarifies the text.

**Summarize**
Write an objective summary of the article. Remember not to include your own opinions.

**Language Study**

**Selection Vocabulary: Computer Science**
Define each boldface word from the text, and use it in a sentence of your own.
- The creation of software developer Richard Gibbons, Julie came in third.
- . . . this competition uses a variant . . . of a test for artificial intelligence.
- There are robots wired to react as a human would.

**Literary Analysis**
Reread the passage identified. Then, respond to the questions that follow:

**Focus Passage (p. 161)**
If a computer . . . human intelligence.

**Key Ideas and Details**
1. Interpret: What point does Gibbons make in comparing Julie with a person?

**Craft and Structure**
2. The author asks several questions in the second paragraph of this passage, but she does not answer them. (a) Interpret: For what reason does she use this technique? (b) Analyze: How does she connect these questions to her topic in the final sentence of the paragraph?

**Integration of Knowledge and Ideas**
3. Gibbons says that artificial intelligence programs “do not actually think.”
   (a) Analyze: Drawing on his statements, explain how he might define “thinking.” (b) Make a Judgment: Explain whether you would agree with this definition.

**Style**
**Style** is the “sound” of someone’s writing—it refers to the distinctive ways a writer uses words, including the types of words he or she chooses. Reread the article, and take notes on the author’s style.

1. (a) Describe the author’s style. For example, is it conversational or scholarly? (b) Identify two examples that support your evaluation.
2. **Human vs. Machine:** How might the style influence readers’ views of the relationship between humans and machines?
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