

Why We Shouldn't Go to Mars

Magazine Article by Gregg Easterbrook

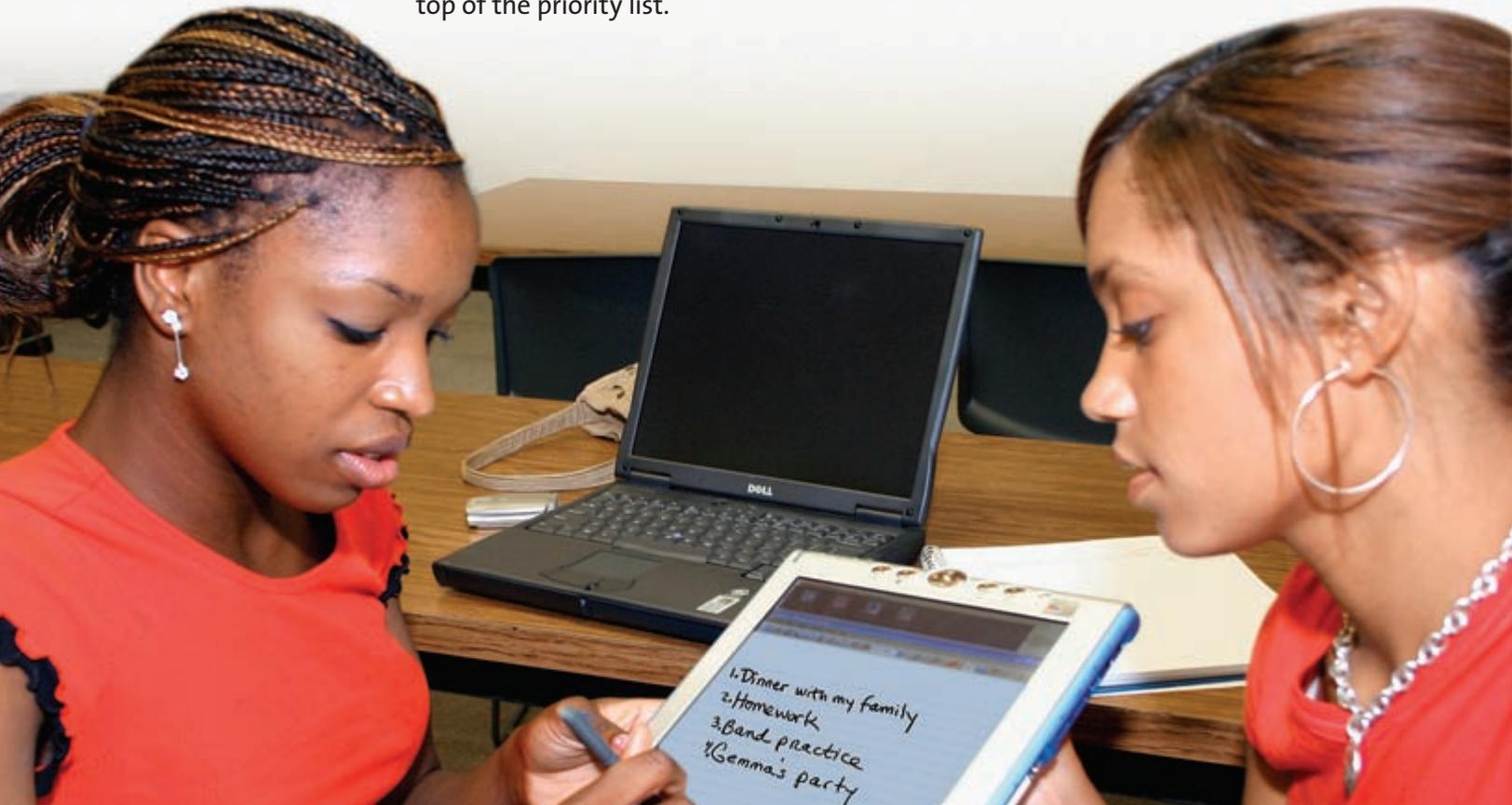
Do we have our PRIORITIES straight?

COMMON CORE

RI 6 Analyze how the author distinguishes his position from that of others. **RI 8** Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound. **RI 10** Read and comprehend literary nonfiction.

As a seventh grader, you may have many obligations to juggle—homework, sports or hobbies, time with friends and family, and maybe even an after-school job. Deciding on priorities, or what is most important, can be a difficult task. Setting priorities can be tough for nations and societies too. You're about to read one writer's ideas of what our national priorities should and should not be.

ROLE-PLAY With a group, create a panel discussion in which each student represents a different demand on one seventh grader's time. (The list of obligations in the paragraph above can give you ideas.) Each person should argue why his or her demand deserves to be a priority. Then decide as a group which two demands should be at the top of the priority list.



Meet the Author

Gregg Easterbrook

born 1953

A Wide World of Writing

Before he became a full-time writer and editor, Gregg Easterbrook worked as a bus driver and a used-car salesman. Now a senior editor of *The New Republic*, Easterbrook has contributed to *Time*, *Newsweek*, and ESPN.

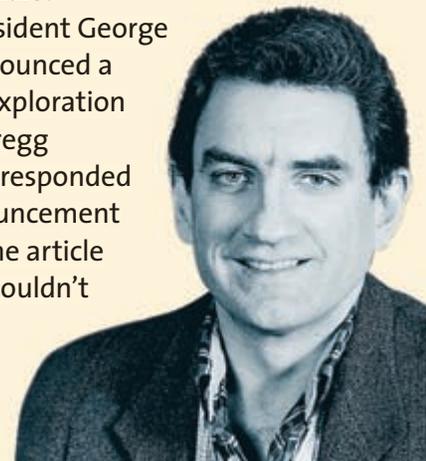
BACKGROUND TO THE ARTICLE

The Red Planet

The United States and the former Soviet Union began attempting flights to Mars in the early 1960s. In 1965, the first successful mission was completed when a U.S. spacecraft flew by Mars and sent 22 photos back to Earth. Since then, extensive space missions have revealed that Mars is rocky, cold, and sterile. Humans have never gone to Mars, and scientists still aren't sure if there has ever been life there.

Mission to Mars?

In 2004, President George W. Bush announced a new space exploration program. Gregg Easterbrook responded to this announcement by writing the article "Why We Shouldn't Go to Mars" for *Time* magazine.



TEXT ANALYSIS: COUNTERARGUMENT

A strong counterargument is an important part of any argument. A **counterargument** anticipates what "the other side" might say and answers possible objections with reasons and evidence.

As this article's title suggests, author Gregg Easterbrook believes that sending astronauts to Mars is a mistake. Rather than ignoring those who disagree with him, Easterbrook states his opponents' views and then tells why he disagrees. As you read, search for examples of this technique.

READING SKILL: PARAPHRASE

Easterbrook supports his opinion with many scientific facts and figures that may not be easy to understand. A good way to make sure you understand Easterbrook's ideas is to **paraphrase** them, or restate them in your own words. A good paraphrase includes all of the main ideas and supporting details of the original source and is usually just as long, or longer. As you read, use a chart like the one shown to paraphrase parts of the article.

Passage from Article	Paraphrase
<i>Space-exploration proponents deride as lack of vision the mention of technical barriers or the insistence that needs on Earth come first.</i>	<i>People in favor of exploring space criticize as backwards those who point out mechanical problems or who demand that problems on Earth be solved first.</i>

VOCABULARY IN CONTEXT

The boldfaced words help Easterbrook make his argument. See if you can match each vocabulary word in Column A to the word or phrase in Column B that is closest in meaning.

Column A

1. amenable
2. exhilarating
3. tantalizing
4. automated
5. proponent
6. rationality

Column B

- a. tempting
- b. agreeable
- c. self-running
- d. reasonableness
- e. supporter
- f. thrilling



Complete the activities in your **Reader/Writer Notebook**.

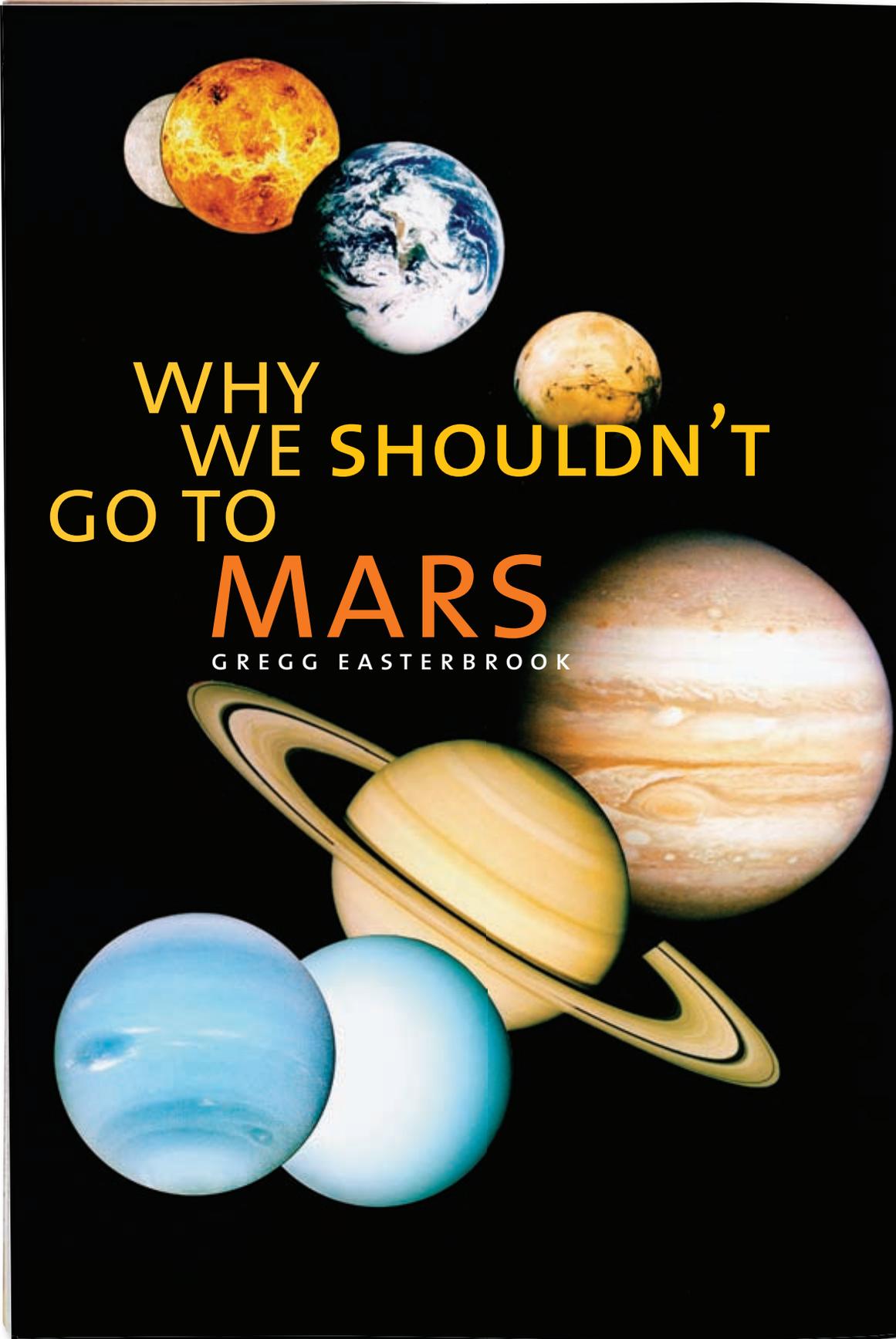
Author Online

Go to thinkcentral.com. KEYWORD: HML7-969



Analyze
Visuals ▶

This picture of the planets combines photographs taken by different spacecraft. Pluto is not shown because no spacecraft has yet visited it. As a whole, what **mood** does this image convey?



WHY WE SHOULDN'T GO TO MARS

GREGG EASTERBROOK

“Two centuries ago, Meriwether Lewis and William Clark left St. Louis to explore the new lands acquired in the Louisiana Purchase,”¹ George W. Bush said, announcing his desire for a program to send men and women to Mars. “They made that journey in the spirit of discovery. . . . America has ventured forth into space for the same reasons.”

Yet there are vital differences between Lewis and Clark’s expedition and a Mars mission. First, Lewis and Clark were headed to a place **amenable** to life; hundreds of thousands of people were already living there. Second, Lewis and Clark were *certain* to discover places and things of immediate value to the new nation. Third, the Lewis and Clark venture cost next to nothing by today’s standards. In 1989 NASA estimated that a people-to-Mars program would cost \$400 billion, which inflates to \$600 billion today. The Hoover Dam cost \$700 million in today’s money, meaning that sending people to Mars might cost as much as building about 800 new Hoover Dams. A Mars mission may be the single most expensive nonwartime undertaking in U.S. history. **A**

The thought of travel to Mars is **exhilarating**. Surely men and women will someday walk upon that planet, and surely they will make wondrous discoveries about geology² and the history of the solar system, perhaps even about the very origin of life. Many times I have stared up at Mars in the evening sky—in the mountains, away from cities, you can almost see the red tint—and wondered what is there, or was there.

But the fact that a destination is **tantalizing** does not mean the journey makes sense, even considering the human calling to explore. And Mars as a destination for people makes absolutely no sense with current technology.

1. **Louisiana Purchase:** an area extending from the Mississippi River to the Rocky Mountains, purchased from France in 1803.
2. **geology:** the scientific study of the history and structure of the earth.

amenable (ə-mē'nə-bəl)
adj. open; agreeable

COMMON CORE RI 8

A COUNTERARGUMENT

In persuasive texts, writers may use **rhetorical fallacies**, or false or misleading statements. One type of rhetorical fallacy is a false analogy.

A false analogy is a comparison that doesn’t hold up because of an important difference between the two subjects. How does Easterbrook prove that likening a Mars mission to Lewis and Clark’s expedition is a false analogy?

exhilarating
(ɪg-zɪl'ə-rā'tɪŋ) *adj.*
stimulating; making one feel thrilled or inspired
exhilarate *v.*

tantalizing
(tæn'tə-lī'zɪŋ) *adj.*
tempting but out of reach
tantalize *v.*



Left, NASA artist's concept of the Mars Exploration Rover, which landed on Mars in 2004; right, computer-generated image of the surface of Mars.

automated (ô'tə-mā'tīd)
adj. able to function with little or no assistance from people **automate** *v.*

B PARAPHRASE

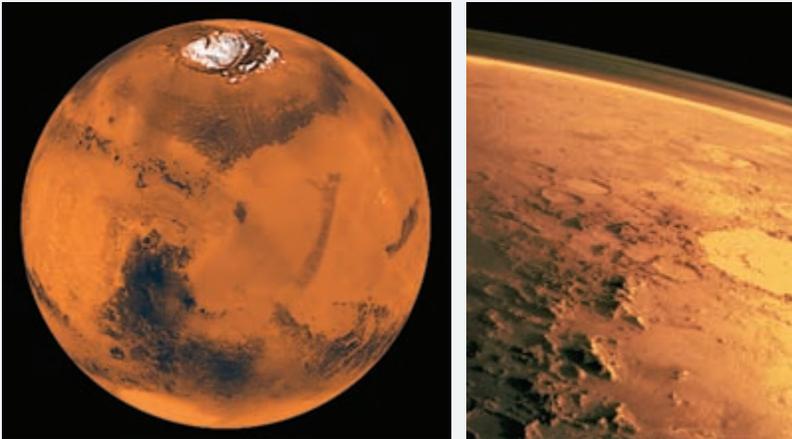
Paraphrase the main reasons that Easterbrook gives in lines 32–42 for not sending a person to Mars. Add it to your chart.

Present systems for getting from Earth's surface to low-Earth orbit³ are so fantastically expensive that merely launching the 1,000 tons or so of spacecraft and equipment a Mars mission would require could be accomplished only by cutting health-care benefits, education spending or other important programs—or by raising taxes. Absent some remarkable discovery, astronauts, geologists and biologists once on Mars could do little more than analyze rocks and feel awestruck
40 beholding the sky of another world. Yet rocks can be analyzed by **automated** probes without risk to human life, and at a tiny fraction of the cost of sending people. **B**

It is interesting to note that when President Bush unveiled his proposal, he listed these recent major achievements of space exploration: pictures of the rings of Saturn and the outer planets, evidence of water on Mars and the moons of Jupiter, discovery of more than 100 planets outside our solar system and study of the soil of Mars. All these accomplishments came from automated probes or automated space telescopes. Bush's
50 proposal, which calls for “reprogramming” some of NASA's present budget into the Mars effort, might actually lead to a reduction in such unmanned science—the one aspect of space exploration that's working really well.

Rather than spend hundreds of billions of dollars to hurl tons toward Mars using current technology, why not take

3. **low-Earth orbit:** a region roughly 200 to 500 miles above Earth, the easiest area to reach in space and the area from which scientists hope to launch future space missions.



Mars, the Red Planet

a decade—or two decades, or however much time is required—researching new launch systems and advanced propulsion? If new launch systems could put weight into orbit affordably, and if advanced propulsion could speed
60 up that long, slow transit to Mars, then the dream of stepping onto the Red Planet might become reality. Mars will still be there when the technology is ready.

Space-exploration **proponents** deride as lack of vision the mention of technical barriers or the insistence that needs on Earth come first. Not so. The former is **rationality**, the latter the setting of priorities. If Mars proponents want to raise \$600 billion privately and stage their own expedition, more power to them; many of the great expeditions of the past were privately mounted. If Mars proponents expect
70 taxpayers to foot their bill, then they must make their case against the many other competing needs for money. And against the needs for health care, education, poverty reduction, reinforcement of the military and reduction of the federal deficit,⁴ the case for vast expenditures to go to Mars using current technology is very weak. **C**

The drive to explore is part of what makes us human, and exploration of the past has led to unexpected glories. Dreams must be tempered by realism, however. For the moment, going to Mars is hopelessly unrealistic.

4. **federal deficit**: a shortage of funds caused by the government's spending more than it collects in taxes.

Language Coach

Suffixes Sometimes adding a suffix to a word may change its part of speech. *Reduce* is a verb meaning “to make less.” In line 73, the suffix *-tion*, which means “the state of,” has been added to *reduce* to form *reduction*. What part of speech is *reduction*? What does it mean?

proponent (prə-pō'nənt)
n. a person who supports something

rationality
(rāsh'ə-nāl'ī-tē) *n.*
reasonableness

- C COUNTERARGUMENT**
Easterbrook's opponents could claim that he has a “lack of vision” because he is against a Mars mission. Reread lines 63–75. What is his counterargument to this possible criticism?

Comprehension

- Recall** How does the cost of a Mars mission compare to the cost of the Hoover Dam?
- Clarify** What national issues does Easterbrook suggest are more important than sending U.S. astronauts to Mars?

Text Analysis

- Understand Paraphrasing** Review the paraphrases you wrote in your chart as you read. Did you capture the main reasons Easterbrook gives for believing that the government should not send people to Mars? If not, revise your paraphrases.
- Identify a Counterargument** Reread lines 43–53. Easterbrook’s opponents argue that sending astronauts on missions is necessary in order to make achievements in space exploration. What counterargument does Easterbrook offer in response?
- Evaluate Support** Easterbrook supports his argument with evidence. Which pieces of evidence did you find most, or least, convincing? Pick at least two and list them in a chart. Then describe your reaction to the evidence.

<i>Evidence</i>	<i>My Reaction</i>
<i>Lewis and Clark’s expedition cost very little, while a Mars mission will cost \$600 billion.</i>	<i>I think \$600 billion seems like way too much money! We could put that money to better use.</i>



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Extension and Challenge

- Reader’s Circle** When deciding how to spend taxpayers’ money, Easterbrook says, “needs on Earth come first.” Discuss whether you agree with Easterbrook’s opinion about what our national priorities should be.
-  **SCIENCE CONNECTION** Do some research on past automated Mars missions. Consider the following questions:
 - What was the name of the spacecraft that first orbited Mars?
 - What year did a U.S. craft first land on the planet?
 - What do you think is the best thing that Mars probes have discovered?

Do we have our **PRIORITIES** straight?

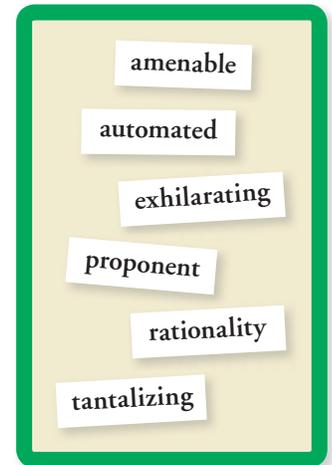
Think about the things you need to accomplish next week. Write your goals in a numbered list. How do your priorities change as the week progresses?

Vocabulary in Context

▲ VOCABULARY PRACTICE

Choose the letter of the item most closely associated with each vocabulary word.

1. **tantalizing:** (a) an old pair of tennis shoes, (b) the smell of chocolate-chip cookies baking, (c) a statement about an overdue bill
2. **amenable:** (a) an easygoing person, (b) a dilapidated car, (c) a protest march
3. **automated:** (a) a soccer ball, (b) a robot, (c) a birthday party
4. **exhilarating:** (a) a brisk walk on a beach, (b) a large herd of cattle, (c) a low hedge
5. **proponent:** (a) part of an airplane, (b) leader of a voting drive, (c) carton of unworn gloves
6. **rationality:** (a) a new shopping center, (b) a letter from an old friend, (c) a well thought-out plan



ACADEMIC VOCABULARY IN SPEAKING

• area • domain • hypothesis • objective • resolve

One **objective** of space exploration is to find out whether other planets will support human life. With a small group, discuss whether or not you think this is a worthwhile investment of time and money. Use the Academic Vocabulary words in your discussion.



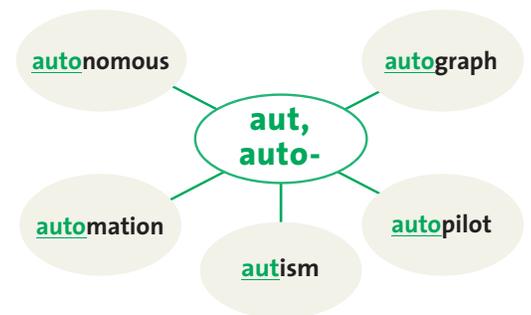
L 4b Use Greek roots as clues to the meaning of a word.

VOCABULARY STRATEGY: THE GREEK ROOT *aut*

The vocabulary word *automated* contains the Greek root *aut*, which means “self.” This root, and the related prefix *auto-*, is found in a number of English words. Use your understanding of the root’s meaning, as well as context clues, to figure out the meanings of words formed from *aut*.

PRACTICE Choose a word from the web that best completes each sentence. If you need help, check a dictionary.

1. A genuine _____ by Abraham Lincoln is worth a lot of money.
2. How often are planes flown on _____?
3. Because of _____, many jobs can be done more quickly and with less effort.
4. Countries that are _____ are governed by their own people.
5. _____ limits its sufferers’ ability to communicate with others.



Interactive Vocabulary **THINK** central
Go to thinkcentral.com.
KEYWORD: HML7-975