Directions

Read this article. Then answer questions 8 through 14.

This excerpt is based on a true story about a boy named William Kamkwamba who lives in Malawi, Africa. This region had suffered a long, terrible drought that caused crop failure and famine.

Excerpt from *Winds of Hope*

by Katy Duffield

1 William hoped that life could now return to normal. He'd worked hard to pass the exams to enter high school. When the term began, however, William's father explained that, because of the drought, there was no money to pay his school fees. It appeared that William's education would end at eighth grade.

2 Though he could not attend school, William still wanted to learn. He was curious about many things. He took apart radios, trying to discover how they made music. One day, turning a bicycle upside down and cranking the pedals by hand, he figured out that the dynamo that generated electricity for the headlight could be wired to power a radio instead. He asked how gasoline made cars run and how CDs stored songs. No one knew, or even cared much about his questions.

3 Some days, William visited the village library. It had only three shelves, but William found books that interested him—science books about how things worked. William would check out *Explaining Physics* or *Integrated Science*, plop under a mango tree, and pore over the drawings and diagrams inside. Since his English was not very good, he often looked up words in the dictionary or asked the librarian. He wondered if something in these books might be useful to his family.

4 One day, while looking for a dictionary on the bottom shelf, he found a book he hadn't seen before pushed behind the others. It was an American school textbook called *Using Energy*. On the book's cover was a picture of a row of windmills, tall steel towers with blades spinning like giant fans. They reminded William of the toy pinwheels he'd made with his friends.

5 From this book William learned that wind—something of which Malawi had plenty—could produce electricity. William was delighted! Only two percent of the houses in Malawi have electricity. After the sun sets, everyone stops what they're doing, brushes their teeth, and goes to sleep—at seven in the evening! If William could build a

windmill, his family could have lights in their home. And a windmill could be used to pump water to irrigate the family's maize fields. If another drought came, the windmill could provide the water for life.

6 William could picture in his mind the windmill he wanted to build, but collecting the parts and tools he needed would take months. In a junkyard across from the high school, William dug through piles of twisted metal, rusted cars, and worn-out tractors, searching for anything that might help him construct his machine. He took a ring of ball bearings from an old peanut grinder and the cooling fan from a tractor engine. Cracking open a shock absorber, he removed the steel piston inside. He made four-foot-long blades from plastic pipe, which he melted over a fire, flattened out, and stiffened with bamboo poles.

7 Earning some money loading logs into a truck, he paid a welder to attach the piston to the pedal sprocket of an old bicycle frame. This would be the axle of the windmill. When the wind blew, the rotating blades would turn the bicycle wheel, like someone pedaling, and spin a small dynamo. Although he had no money for a dynamo, a friend came to the rescue and bought one from a man in the road, right off his bike.

8 Village kids laughed at William when they saw him scrounging in the scrap yard. They called him *misala*, which means crazy. But William was too focused on his idea to care.

9 When he had collected all the parts, William took them out of the corner of his bedroom, laid them outside in the shade of an acacia tree, and began putting them together. Since he did not have a drill to make bolt holes, he shoved a nail through a maize cob, heated it in the fire, then pushed its point through the plastic blades. He bolted the blades to the tractor fan, using washers he'd made from bottle caps. Next he pushed the fan onto the piston welded to the bicycle frame. With the help of his two best friends, William built a 16-foot-tall tower from trunks of blue gum trees and hoisted the ninety-pound windmill to the top.

10 Shoppers, farmers, and traders could see William's tower from the local market. They came in a long line to find out what the "crazy" boy was up to. "What is it?" they all asked.

11 Since there is no word for "windmill" in Chichewa, the language of Malawi, William answered with the phrase *magetsi a mphepo*—"electric wind." From the top of the tower he explained that, by using the power of wind, his machine could create electricity. No one believed him.

12 William knew this was his moment—his moment to show everyone he wasn't crazy, to find out if his experiment would work. He connected two wires from the dynamo to a light socket he'd made from a reed and that held a small bulb. As the wind whipped around him, he removed the bent spoke he'd jammed into the wheel to lock it. Then he held his breath. . . .

13 The blades began to turn, slowly at first, then faster and faster. The light bulb flickered, then flashed to life. The crowd cheered from below. "*Wachitabwina!* Well done!"

14 A month later William found enough wire to reach from the windmill into his house. His family crowded around to marvel as the small bulb lit up in William's room. Reading *Explaining Physics* by its light, he stayed up long after others had gone to bed.

15 In 2006, a school inspector saw the windmill and informed his head office. William's machine now powered four lights and two radios in his house. He'd added a storage battery with homemade switches and a circuit breaker. He also recharged village cell phones.

16 Soon William was being interviewed on the radio and photographed for the newspapers. The story of the boy with only an eighth-grade education who'd built "electric wind" spread across the Internet.

8 How do paragraphs 2 and 3 develop a central idea in the article?

A They state that William was not able to attend school.

B They show how William learned things on his own.

C They explain that others did not care about William's questions.

D They give examples of the types of books William read.

9 What does the phrase "pore over" mean as it is used in paragraph 3?

A write about

B glance at

C examine

D copy

10 Paragraph 6 develops the author's central claim by showing that William

A was distracted by so many objects in the junkyard

B was resourceful in finding what he needed

C was able to make use of his limited time in school

D was excited to look for new projects

11 Which sentence **best** describes the relationship between William and the people who doubted him?

A William was inspired and delighted by them.

B William ignored and then convinced them.

C William was concerned and worried about them.

D William listened to and then got help from them.

12 In paragraph 14, what does the word "marvel" suggest?

A They are amazed by what William has done.

B They are curious to see what will happen to the bulb.

C They are worried that William's experiment may be dangerous.

D They are ready to have more lights in the house.

13 Which quotation shows an effect of success on William's life?

A "Shoppers, farmers, and traders could see William's tower from the local market." (paragraph 10)

B "From the top of the tower he explained that, by using the power of wind, his machine could create electricity." (paragraph 11)

C "William knew this was his moment—his moment to show everyone he wasn't crazy . . ." (paragraph 12)

D "The story of the boy with only an eighth-grade education who'd built 'electric wind' spread across the Internet." (paragraph 16)

14 Based on the information in the article, which of the following is **most likely** the author's point of view?

A Access to formal schooling is important for success.

B Science education is needed to help people flourish.

C Curiosity and persistence can lead to change.

D Families are the best support system.