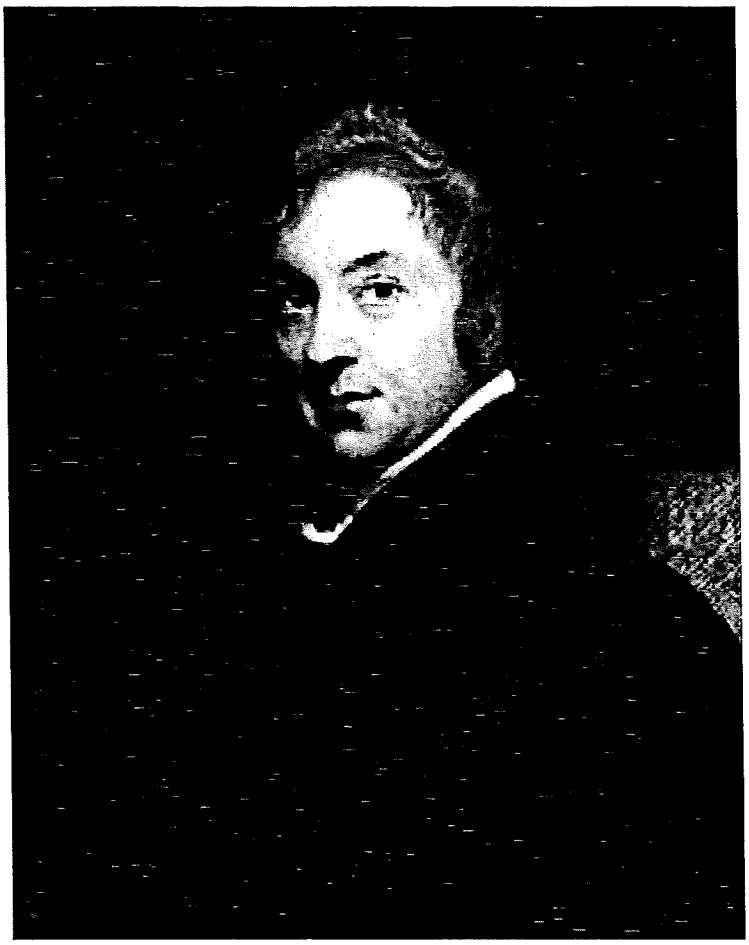
Saving the World from Smallpox

by ReadWorks



Sometimes to solve a tough problem, you have to ask the right questions. If you look carefully, you can find the right questions to ask. Edward Jenner was a doctor who lived hundreds of years ago. He solved one of the toughest problems around and saved thousands of lives by preventing a disease called smallpox.

For hundreds of years, smallpox was one of the worst diseases you could catch. "Pox" are bumps filled with pus, and they showed up on sick people's skin. Thousands of people died from smallpox every year. Smallpox was around for a long time - even Egyptian pharaohs caught it. A lot of the people who caught smallpox died, but most of the people killed by smallpox were children. People who didn't die had ugly scars afterwards.

No one knew how to prevent people from catching smallpox. Doctors knew that if you had smallpox and didn't die, you couldn't catch it again. Some doctors thought you could inoculate against smallpox. That meant that if you gave people a mild version of the disease, they would be protected from getting the bad version. But it was very dangerous to inoculate people with smallpox. Sometimes it worked, but other times people who were given the mild version still got very sick with smallpox. Sometimes they died.

Edward Jenner was interested in stopping people from catching smallpox, but he didn't know how such a bad disease could be prevented. He wondered if there could be a way to inoculate people safely. One day, Dr. Jenner was talking with a dairymaid, a girl who milked cows. She told him that she never worried about catching smallpox. Why? Because she had already caught cowpox. Cowpox was a similar disease that people could catch from cows. But cowpox was much less dangerous and never killed anyone.

Dr. Jenner heard many more stories about how people believed dairymaids were immune to smallpox because they had already caught cowpox, so he decided to do an experiment with cowpox. This experiment was done at a time when people had not yet figured out how to safely do experiments with diseases to find treatments. While Dr. Jenner's experiment wasn't very safe, he was able to learn some very important information about smallpox.

For his experiment, Dr. Jenner found a dairymaid with cowpox and took pus from one of the pox on her arm. Then he made a cut on the arm of a boy named James Phipps and put some of the pus into the cut. Soon James Phipps caught cowpox. A few weeks later Dr. Jenner gave James a mild dose of smallpox. If James got sick, they would know that the inoculation didn't work. But James didn't catch smallpox! Dr. Jenner had solved the smallpox problem.

At first other people didn't believe Dr. Jenner. Lots of people made fun of him and laughed at him. People didn't know much about germs yet and thought he might be crazy. But Dr. Jenner continued to try his experiment with other children and to observe what happened. Over and over again, giving children cowpox helped keep them safe from smallpox. Dr. Jenner became a world hero. Fewer and fewer people got smallpox, and now no one gets it.

Name: _____ Date: _____

1. What is smallpox?

A. the act of giving people a mild version of a disease to prevent them from catching a bad version

B. a disease that gave people bumps on their skin and sometimes killed them

C. a disease some people used to catch from cows but never died from

D. a name that people called Dr. Jenner after he began experimenting on children

2. Smallpox used to be a problem. How did Dr. Jenner solve this problem?

A. Dr. Jenner gave children mild versions of smallpox to prevent them from getting the bad version.

B. Dr. Jenner talked to doctors that inoculated people against smallpox by giving them mild versions of the disease.

C. Dr. Jenner studied the writings of Egyptian pharaohs who had caught smallpox.

D. Dr. Jenner came up with the idea of giving people cowpox to protect them from smallpox.

3. People who had caught cowpox could not catch smallpox.

What evidence from the passage supports this statement?

A. After James Phipps caught cowpox, he was given a dose of smallpox but did not get sick.

B. Some people who were inoculated against smallpox got very sick and died from the inoculation.

C. People who caught smallpox developed bumps filled with pus on their skin.

D. Many people thought Dr. Jenner was crazy because they did not know much about germs.

4. What caused James Phipps to catch cowpox?

A. spending much of his childhood milking cows

B. spending time playing with other children who had smallpox

C. drinking the milk of a cow that had cowpox

D. the pus from a dairymaid with cowpox

5. What is this passage mainly about?

A. why many people did not believe in Dr. Jenner's smallpox cure at first

B. what Dr. Jenner was like as a child and teenager

C. the problem of smallpox and how it was solved

D. the pharaohs and doctors of ancient Egypt

6. Read the following sentences: "Edward Jenner was a doctor who lived hundreds of years ago. He solved one of the toughest problems around and saved thousands of lives by preventing a **disease** called smallpox."

What does the word "**disease**" mean?

A. sickness
B. cure
C. doctor
D. dairymaid

7. Choose the answer that best completes the sentence below.

Some people did not catch smallpox, _____ dairymaids.

A. yet
B. particularly
C. in summary
D. before

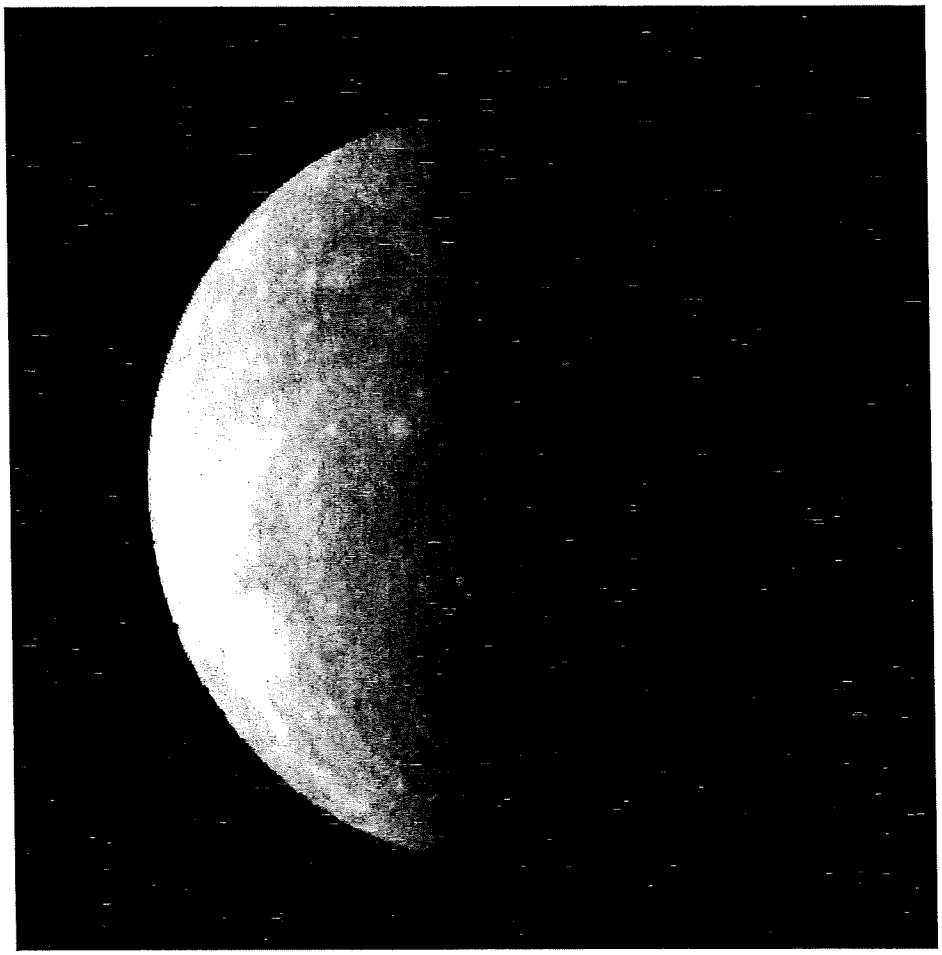
8. Why was the dairymaid Dr. Jenner talked to not worried about catching smallpox?

9. What is cowpox?

10. The passage states, "Sometimes to solve a tough problem, you have to ask the right questions. If you look carefully, you can find the right questions to ask."What is a question Dr. Jenner might have asked as he worked on solving the problem of smallpox? Support your answer with evidence from the passage.

Mercury

by Justin Moy



NASA

Mercury

Before the 1970s, people didn't know much about the planet Mercury. They knew that Mercury was the smallest planet in our solar system and the closest to the sun. They also knew that the planet orbited the sun in only 88 Earth days, faster than any other planet in our solar system.

In the 1970s, scientists sent a space probe to fly by Mercury and take photographs of the planet. The probe wasn't able to take photos of the entire planet, but scientists were able to learn more than they ever had.

A second probe, called MESSENGER, was launched in 2004. For a few years it collected a lot of data on Mercury. Now, scientists know much more about Mercury.

Mercury is only a little bigger than Earth's moon. In fact, Mercury's surface even has craters like Earth's moon. Comets and meteoroids have hit the planet, leaving dents or pits on its surface. These are called impact craters.

There are also some differences between Mercury and Earth's moon. One major difference is that Mercury's surface has curved cliffs. Earth's moon doesn't have them. Astronomers think these cliffs are a sign that the planet has actually shrunk over time.

A lot of the facts scientists know about Mercury are from the space probes sent there. However, no one has ever been sent to the planet. It is so close to the sun that it would be dangerous for anyone to go there. Maybe one-day astronauts would be able to travel to the planet and study it.

Name: _____ Date: _____

1. Which is the smallest planet in our solar system?

A. Earth

B. Mercury

C. Venus

D. Mars

2. What two things does the author compare in this text?

A. the planet Mercury and Earth's moon

B. the first and second probes sent to Mercury

C. how Mercury and Earth formed

D. the sizes of Earth and Earth's moon

3. Read these sentences from the text.

In the 1970s, scientists sent a space probe to fly by Mercury and take photographs of the planet. The probe wasn't able to take photos of the entire planet, but scientists were able to learn more than they ever had.

A second probe, called MESSENGER, was launched in 2004. For a few years it collected a lot of data on Mercury. Now, scientists know much more about Mercury.

What conclusion can be drawn about space probes and Mercury based on this evidence?

A. Scientists do not need to send any more space probes to Mercury.

B. Scientists did not know anything about Mercury before sending space probes there.

C. The first space probe scientists sent to Mercury was better than the second space probe.

D. Space probes have been very helpful in helping scientists learn more about Mercury.

4. Based on the text, why have no humans been sent to Mercury?

A. because humans do not want to learn about Mercury

B. because scientists know enough about Mercury that they do not need to send humans there

C. because it is so far away that it would be difficult to send anyone there

D. because it is so close to the sun that it would be dangerous for anyone to go there

5. What is the main idea of this text?

A. Scientists have learned a lot about the planet Mercury because of the space probes sent there.

B. The planet Mercury and Earth's moon are alike and different in many ways.

C. Mercury is the closest planet to the sun, and it orbits the sun faster than any other planet.

D. In 2004, scientists sent a space probe called MESSENGER to Mercury to collect data on the planet.

6. Read these sentences from the text:

"For a few years [the space probe] collected a lot of data on Mercury. Now, scientists know much more about Mercury."

Based on the text, what does the word "data" mean?

A. teaching

B. speed

C. information

D. planet

7. Choose the answer that best completes the sentence.

No one has ever been sent to Mercury _____ it is so close to the sun that it would be dangerous for anyone to go there.

A. because
B. although
C. therefore
D. while

8. In the 1970s, what did scientists send to fly by Mercury and take photographs?

_____

_____

_____

9. Give one example of something scientists have learned about Mercury since sending space probes there.

Support your answer with evidence from the text.

_____

_____

_____

10. In general, why might scientists need to use space probes?

Support your answer with evidence from the text.