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Nothing Can Move That Fast

In many stories on TV and in science-fiction books, humans travel to faraway stars. They have quick, easy journeys. But so far, people have been able to reach only the earth's own moon.

Suppose a person wanted to reach a faraway star. It would take a lifetime of travel for someone to move faster than the speed of light. Nothing can move that fast except light itself.

Strange things happen to an object when it moves rapidly. The object weighs more. An object moving at 86 percent of the speed of light is twice as heavy as it is at rest. A stick appears shorter. A clock runs more slowly. A person would not age so fast in space as on the earth.

Light travels more than 186,000 miles a second, or about 11 million miles a minute. In one year, light travels 6 trillion (6,000,000,000,000) miles. That great distance is called a light-year. It is used to measure distances in space.

The star closest to our sun is Alpha Centauri (al′fə sen tôr′ē). It is more than four light-years away. A human traveling at the speed of light could make a round trip to Alpha Centauri in nine years. But even at that speed, this person could not reach Alcaid (al kād′) in the handle of the Big Dipper. A one-way journey to Alcaid would take almost 200 years!

FIND THE ANSWERS

1. The star closest to our sun is
   a. Alcaid.
   b. the Big Dipper.
   c. Alpha Centauri.
   d. Rigel.

2. The word in paragraph 3 that means *a thing* or *something* is _____.

3. The words "closest to our sun" in the last paragraph describe the star _____ _____.

4. The story does not say so, but it makes you think that
   a. humans will soon make a one-way trip to Alcaid.
   b. it would take over four years to go to Alpha Centauri.
   c. the handle of the Big Dipper is not many light-years away.

5. A one-way journey to Alcaid would take
   a. about nine years.
   b. less than four years.
   c. almost 200 years.

6. When things move rapidly, they stay the same as they are when motionless.
   Yes No Does not say

7. On the whole, this story is about
   a. the problems of traveling to faraway stars.
   b. the distance between our sun and the other stars.
   c. what happens when we travel faster than the speed of light.

8. Why do we measure great distances in light-years instead of miles?
   a. Units of light-years sound better.
   b. Using light-years reduces the number of figures used.
   c. We used to measure distances in light-years long ago.

9. Which statement does the story lead you to believe?
   a. Light travels several hundred miles in a year.
   b. It is not possible for humans to get to the nearest star.
   c. Going to the moon is easier than reaching Alcaid.

New Tools for an Old Science

Astronomy is the oldest science known to humans. Thousands of years ago people looked at the stars in wonder. But they were limited by what they could see with their eyes alone.

The Greeks studied astronomy over 2,000 years ago. They saw the size, color, and brightness of stars. They watched the stars move as the seasons changed. But the Greeks had no tools to help them study the heavens.

Until telescopes were invented, people knew little about the moon. They did not know that the planet called Saturn had rings around it. They could not see all the planets.

Each new tool helped people to study the heavens. In the 1700s a German named William Herschel improved telescopes in England. He was helped greatly by his sister Caroline who gave up a promising life in music to study astronomy with him. In 1786 she made important findings herself. Caroline Herschel discovered eight comets in eleven years.

Pluto was first seen in 1930. It was the last of nine planets to be discovered. More recently scientists used the spectroscope to learn what gases made up our sun. Radio telescopes now confirm waves reaching us from far out in space.

Today, astronomy is a fast growing science. We have learned more in the last fifty years than in the whole history of astronomy.

FIND THE ANSWERS

1. Caroline Herschel discovered
   a. noises in space.
   b. eight comets.
   c. about fifty planets.
   d. no planets.

2. The word in the first paragraph that means *not able to go beyond* is _____.

3. The words "the oldest science known to humans" in the first paragraph describe _____.

4. The story does not say so, but it makes you think that
   a. people's eyes have grown weaker in the last fifty years.
   b. Caroline Herschel devoted her life to astronomy.
   c. stars far out in space do not have color.

5. The last planet to be discovered was
   a. Saturn.
   b. Mars.
   c. Pluto.

6. Saturn has rings around it.
   Yes No Does not say

7. On the whole, this story is about
   a. the way Caroline Herschel played the piano.
   b. discoveries in astronomy.
   c. the six planets as we now know them.

8. Why didn't people know about Pluto until 1930?
   a. Their telescopes weren't strong enough to see it.
   b. Pluto didn't come into being until 1930.
   c. Space was too dark to see any of the planets.

9. Which statement does the story lead you to believe?
   a. Telescopes were discovered by the Greeks 2,000 years ago.
   b. More discoveries in astronomy may be made.
   c. All the stars can be seen with the eyes alone.