Name: Date: Score: / 6

The James Webb Space Telescope: Comprehension

Nonfiction: Science · about 280 words

Read the passage. Then answer each question. Circle the best answer or write your answer on the lines.

🔭 The James Webb Space Telescope

On December 25, 2021, a rocket launched from French Guiana in South America carrying one of the most powerful telescopes ever built: the James Webb Space Telescope. Built by NASA with the European and Canadian space agencies, Webb was designed to look farther into space, and farther back in time, than any telescope before it.

How can a telescope look back in time? Light takes time to travel. Light from the sun takes about eight minutes to reach Earth, so we see the sun as it was eight minutes ago. Light from very distant galaxies has traveled for billions of years. When Webb captures that light, it shows us what those galaxies looked like long ago, when the universe was young.

Webb's main mirror is about 21 feet across, made of 18 six-sided segments coated with a thin layer of gold. Gold reflects infrared light very well. Infrared light is a kind of light that our eyes cannot see, but we feel it as heat. Webb studies infrared light because it can pass through clouds of space dust that block visible light, revealing stars being born inside.

Because Webb detects heat, it must stay extremely cold. A sunshield about the size of a tennis court blocks heat from the sun, Earth, and moon. Webb orbits the sun about one million miles from Earth, much farther than the Hubble Space Telescope.

The mirror and sunshield were too big to fit in a rocket, so engineers folded them like origami. After launch, they unfolded in space in a complex process with hundreds of steps. In July 2022, NASA released Webb's first images, showing glittering galaxies and colorful nebulas in astonishing detail.

1. **Main idea:** What is this passage mostly about?

   A. how the James Webb Space Telescope works and what it shows us B. how gold is mined C. the history of NASA D. how rockets are launched

2. **Inference:** How can Webb look back in time?

   A. Light from distant galaxies takes billions of years to reach us, so we see them as they were long ago.

   B. It travels faster than light. C. It has a time machine. D. It looks at old photos.

3. **Detail:** Why is Webb's mirror coated with gold?

   A. Gold reflects infrared light very well. B. Gold keeps it warm. C. Gold is cheap. D. Gold is pretty.

4. **Vocabulary:** Infrared light is...

   A. light from the moon B. light our eyes cannot see that we feel as heat C. very bright visible light D. colored light from a rainbow

5. **Detail:** What blocks heat from the sun, Earth, and moon?

   A. a gold mirror B. the rocket C. thick clouds D. a sunshield about the size of a tennis court

6. **Inference:** Why did engineers fold the mirror and sunshield like origami?

ANSWER KEY

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