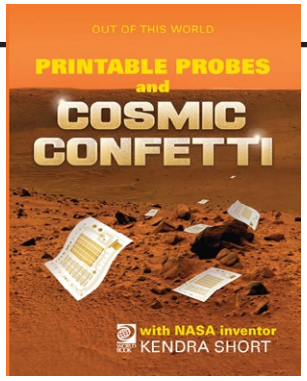


OUT OF THIS WORLD

Printable Probes and Cosmic Confetti

What does it take to land a space probe safely on another planet? Would you need expensive parachutes or complicated rockets to keep the probe from simply crashing to the ground? Read *Printable Probes and Cosmic Confetti* to learn more!

What did you learn?

QUESTIONS

1. Kendra Short is a ...
   a. Mechanical engineer
   b. Astronaut
   c. Computer programmer
   d. Rocket designer

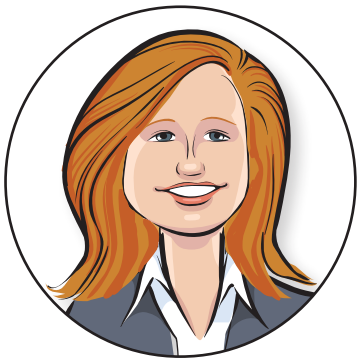
2. Temperatures on Mars average ...
   a. 32 °F (0 °C)
   b. 150 °F (66 °C)
   c. -175 °F (-115 °C)
   d. -80 °F (-60 °C)

3. The design to deliver landers more safely to the surface includes ...
   a. Seatbelts
   b. Magnetic forcefields
   c. Aeroshells
   d. Soft tyres

4. The Opportunity rover traveled ...
   a. Less than 1 mile
   b. Over 26 miles
   c. Over 76 miles
   d. Over 106 miles

5. What does NIAC stand for?

6. Who is this?



TRUE OR FALSE?

_____ 1. Mars is named after the Roman god of war.

_____ 2. The first spacecraft to complete a successful flyby of Mars was the Venus 7.

_____ 3. Landing on Mars is easy because of the atmosphere.

_____ 4. Conventional circuits can be stiff or rigid.

_____ 5. Flexible printed electronics don't perform as well as other circuits at certain tasks.

_____ 6. Women have always been encouraged to join the STEM field.

WORLD BOOK

ANSWERS

1. **a. Mechanical engineer.** According to section "Introduction" on page 6, we know that "I'm a mechanical engineer at NASA's Jet Propulsion Laboratory in Pasadena, California." So, the correct answer is A.

2. **d. Sunlight.** According to section "Destination: Mars" on page 10, we know that "Temperatures on the Martian surface average a frosty -80 °F (-60 °C)" So, the correct answer is D.

3. **c. Aeroshells.** According to section "A more flexible approach" on page 22, we know that "It was our job to design all the aeroshells [coverings that protect craft as they enter the atmosphere] and the parachutes and the airbags." So, the correct answer is C.

4. **b. 26 miles.** According to section "Exploring the Red Planet" on page 14, we know that "By 2016, Opportunity had traveled over 26 miles (43 kilometers) on its Martian marathon." So, the correct answer is B.

5. According to page 7, NIAC stands for NASA Innovative Advanced Concepts.

6. As can be seen on page 6, the illustration shows Kendra Short.

TRUE OR FALSE? ANSWERS

1. **True.** According to section "Destination: Mars" on page 8, we know that "Ancient people named Mars after the Roman god of war because of the planet's reddish color." So, the correct answer is True.

2. **False.** According to section "Exploring the Red Planet" on page 12, we know that "In 1964, the United States probe Mariner 4 became the first spacecraft to complete a successful flyby of the planet." So, the correct answer is False.

3. **False.** According to section "Failing (and succeeding) on Mars" on page 18, we know that "Landing on Mars is particularly difficult. The Martian atmosphere is too thin to land a craft using parachutes alone." So, the correct answer is False.

4. **True.** According to section "Big idea: Flexible electronics" on page 26, we know that "Both conventional circuits and integrated circuits tend to be rigid, or stiff." So, the correct answer is True.

5. **True.** According to section "Big idea: Flexible electronics" on page 28, we know that "Flexible printed electronics do not perform as well as integrated circuits at certain tasks." So, the correct answer is True.

6. **False.** According to section "Inventor feature: Women in engineering" on page 30, we know that "Women were once excluded or discouraged from entering many fields of study, including science, technology, engineering, and mathematics (together called STEM)." So, the correct answer is False.