



## COOL TECH

# 3D Printing and Other Industrial Tech

The desire to make things more cheaply, quickly, and efficiently has long been a driving factor in technological progress. New technology can also enable us to make totally new products. Find out how the stuff of the future will be made in *3D Printing and Other Industrial Tech!*

### What did you learn?

#### QUESTIONS

1. NASA is investigating 3D printing technology for making ...
  - a. People in space
  - b. Food in space
  - c. Cars in space
  - d. Pets in space
2. Global climate change is caused by the widespread of ...
  - a. Fossil fuels
  - b. Solar power
  - c. Wind energy
  - d. Wave energy
3. The types of robots that are typically used on factory assembly lines are the ...
  - a. Articulated robots
  - b. Cartesian robots
  - c. SCARAs
  - d. Deltas
4. A reactor is ...
  - a. A device for producing atomic energy without causing an explosion
  - b. A soft, black form of carbon with a metallic luster
  - c. A engine or motor in which a wheel with vanes is made to revolve by the force of water, steam, or air
  - d. The instructions and routines required for the operation of a computer or other automatic machine
5. What does *hybrid* mean?
6. Who wrote the classic science fiction novel *I, Robot*?

#### TRUE OR FALSE?

- |  |   |
|--|---|
| _____ 1. Hideo Kodama failed to acquire patents for his two methods for producing 3D plastic models. | _____ 4. In 2011, FANUC released its first collaborative robot.           |
| _____ 2. A collaborative robot is also called "cobot."   | _____ 5. ITER is the largest nuclear fusion tokamak in the world.         |
| _____ 3. Isaac Asimov is the author of the science fiction novel <i>Us, Robots</i> .                 | _____ 6. The first industrial robot appeared on "The Today Show" in 1966. |



## ANSWERS

- 1. b. Food in space.** According to the section "3D Printing" on page 10, we know that "The National Aeronautics and Space Administration (NASA) is investigating 3D printing technology for making food in space." So, the correct answer is B.
- 2. a. Fossil Fuels.** According to the section "Solar Power" on page 16, we know that "By the end of the 1990's, the solar industry grew as many turned to solar power as a response to global climate change caused by the widespread use of fossil fuels." So, the correct answer is A.
- 3. c. SCARAs.** According to the section "Industrial Robots" on page 30, we know that "The Selective Compliance Articulated Robot Arm (SCARA) is a type of robot that is typically used on factory assembly lines." So, the correct answer is C.
- 4. a. A device producing atomic energy without causing an explosion.** According to the section "Glossary" on page 46, we know that a "reactor is a device for producing atomic energy without causing an explosion." So, the correct answer is A.
5. According to page 46, *hybrid* is "combining two or more functions or modes of operation."
6. According to page 33, *I, Robot* was written by Isaac Asimov.

## TRUE OR FALSE? ANSWERS

- 1. True.** According to the section "3D Printing" on page 8, we know that "Hideo Kodama, at the Nagoya Municipal Industrial Research Institute in Japan, invented two methods for producing 3D plastic models in 1981. Unfortunately, he failed to acquire a patent for his work." So, the correct answer is True.
- 2. True.** According to the section "Industrial Robots" on page 32, we know that "A collaborative robot, also known as a 'cobot,' is one that is designed to interact with human beings in the same workspace." So, the correct answer is True.
- 3. False.** According to the section "Industrial Robots" on page 33, we know that "In his classic science fiction novel *I, Robot*, author Isaac Asimov outlined three laws that he saw as necessary in order for advanced robots to assist humans." So, the correct answer is False.
- 4. False.** According to the section "Industrial Robots" on page 33, we know that "The Fuji Automatic Numerical Control Corporation, also known as FANUC, is the world largest producer of industrial robots. In 2015, it released its first collaborative robot." So, the correct answer is False.
- 5. True.** According to the section "Fusion Power" on page 25, we know that "The International Thermonuclear Experimental Reactor (ITER) is the largest nuclear fusion tokamak." So, the correct answer is True.
- 6. False.** According to the section "Industrial Robots" on page 31, we know that "Unimate, the first industrial robot, proved it could perform a wide variety of tasks. Appearing on 'The Tonight Show' in 1966..." So, the correct answer is False.