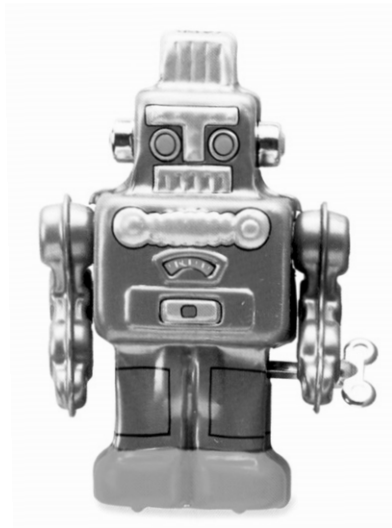


WORKBOOK

Robots





Answer the questions in your own words.

ROBOTS

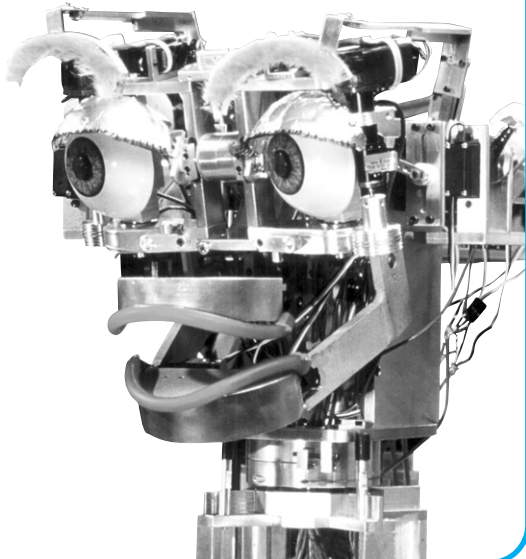
What is a robot?

What do the robots do?

When and where are robots needed?

What makes a robot move?

What robots do you want inventors to invent?



Read the definitions and write the matching words from the Word Bank.

[Word Bank]

automatically
controller

portable
motors

battery
cockroach

- 1. without direction, on its own
- 2. the computer in a robot that is programmed to control its action
- 3. devices that use energy to make things move
- 4. a large black or brown insect that lives in dirty houses
- 5. a device that converts chemical energy into electrical energy in the form of direct current
- 6. able to be carried or moved easily

automatically
controller
motors
cockroach
battery
portable



Circle the synonyms of the underlined words.

- 1. They help us by doing tasks that are tiring or dangerous.
① safe ② risky ③ lucky ④ marvelous
- 2. Then they decide which kind of power to use.
① make ② solve ③ divide ④ determine



Read the passage and answer the questions.

You have probably played with robot toys and have seen robots on television or in films. These robots probably looked like people. Most real robots, however, do not look like _____ at all. You may have seen one and did not even know it. Robots are found in many places.

1. What is the best title for the passage?

- ☒ ① Robots around Us
- ☐ ② How Robots Help Us
- ☐ ③ Why We Need a Robot
- ☐ ④ What Robots Do We Need

2. What word goes in the blank?

- ☐ ① animals
- ☒ ③ humans
- ☐ ② transportation
- ☐ ④ buildings

3. What is the correct example of the underlined words?

- ☐ ① churches
- ☒ ④ factories
- ☐ ② playgrounds
- ☐ ③ schools



Reread page 4 of the student book and write about how robots are different from other machines.

Most machines need a person to operate them. But a robot can perform a task automatically. A person programs a robot to do a task by itself.



Answer the following questions.

1. What makes robots move?

- ☐ ① fuel
- ☒ ④ energy
- ☐ ② petrol
- ☐ ③ pedals

2. What are the energy sources that can be renewed by plugging them in to an electrical outlet?

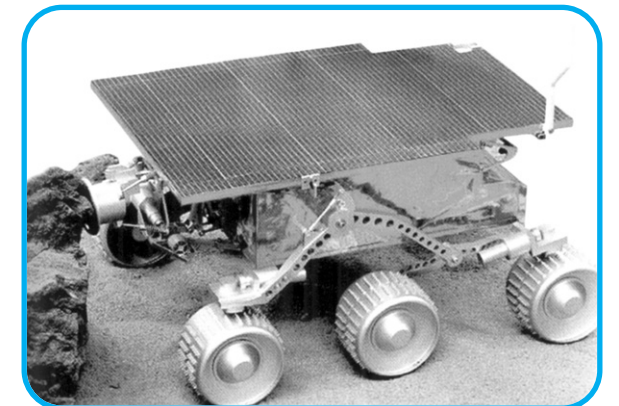
- ☒ ① rechargeable batteries
- ☐ ② solar energy
- ☐ ③ power company
- ☐ ④ electrical cord

3. Which is true about solar energy?

- ☐ ① It is the only power source for robots.
- ☒ ③ Solar energy is unlimited.
- ☐ ② It is not good for robots.
- ☐ ④ It comes from the Moon.

4. Which is not true about the picture?

- ☐ ① This robot is called Sojourner.
- ☒ ④ It was built to explore the Sun.
- ☐ ② It was built to explore Mars.
- ☐ ③ It runs on solar energy.

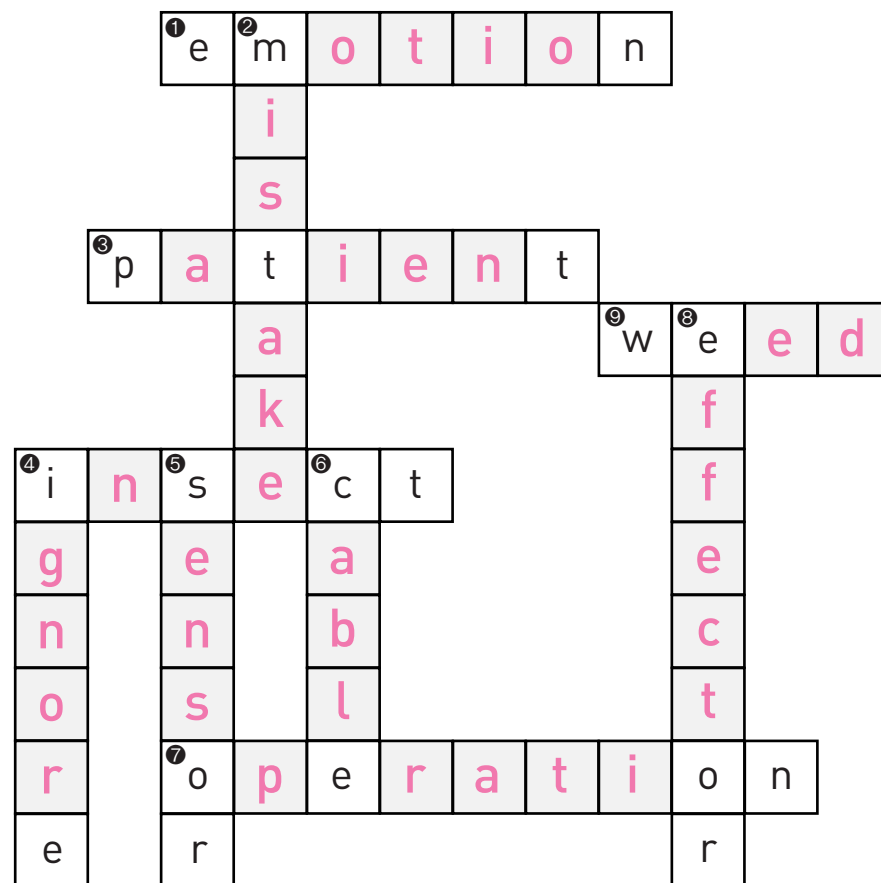


5. Reread pages 6 to 7 of the student book and name three power sources.

batteries, solar energy, electricity



Complete the word puzzle using the words from the Word Bank.



[Word Bank]

insect
sensor
mistake
ignore
weed
patient
effector
cable
operation
emotion

Across

1. a strong human feeling such as love, hate, or anger
3. someone who is receiving medical treatment from a doctor
4. a small creature such as a fly or ant, that has six legs, and sometimes wings
7. the process of cutting into someone's body to repair a part that is damaged
9. a wild plant growing where it is not wanted

Down

2. something that has been done in the wrong way
4. to behave as if you had not heard or seen someone or something
5. a part that obtains information from the outside world, as our eyes and ears do
6. a thick strong metal rope used on ships
8. the tool on the end of a robotic arm



Read the passage and answer the questions.

Walking on two legs is difficult for robots because it requires balance. Scientists have found that designing a robot that can balance itself is very hard so they have found other ways to make robots move.

Australian-born scientist Rodney Brooks observed how insects and spiders moved quickly and easily. Brooks and his team created Genghis, the first robot to move like an _____.

1. What is the main idea of the first paragraph?

- ① Walking on two legs is very easy for robots.
- ② Scientists have found other ways to make robots move.
- ③ Walking on two legs needs solar energy.
- ④ Scientists couldn't find different ways to make robots move.

2. Why is it difficult for robots to walk on two legs?

- ① because it requires strong legs
- ② because it requires solar energy
- ③ because robots do not have legs
- ④ because it requires balance

3. What is the synonym of the underlined word?

- ① dreaming
- ② planning
- ③ hoping
- ④ helping

4. What word goes in the blank?

- ① insect
- ② human
- ③ amphibian
- ④ reptile



Answer the following questions.

1. Which is true about thinking robots?

- ① They don't learn anything from their mistakes.
- ② These robots cannot solve problems by themselves.
- ③ They can interact with the world around them.
- ④ They cannot adapt to their surroundings.

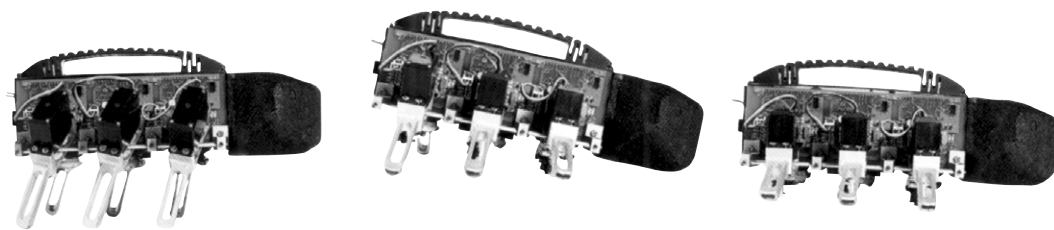
2. What do the sentences in the box describe?

They are like a person's five senses.
They gather information about the robot's environment.
They help robots see light and hear sound.

- ① sensors
- ② electricity
- ③ robotic arms
- ④ Kismet

3. Look at the picture and fill in the blanks with the correct words from the box.

Elma is a six-legged robot that can decide where to walk. Sensors in the robot's legs and head help it walk without running into things. Its controller allows it to learn from its mistakes. However, Elma forgets everything when it is turned off.



six-legged

sensors

controller



Read the passage and answer the questions.

Robots have been used in factories for many years. They help make all kinds of things, from cars to chocolates. Robots are very _____. They can do the same thing over and over and do it the same way every time.

1. Which is the best title for the passage?

- ① Why Robots Have To Work
- ② Working Robots
- ③ Robots and Factories
- ④ Robots in Hospital

2. What word goes in the blank?

- ① different
- ② exact
- ③ similar
- ④ heavy



Answer the following questions.

1. What is the tool on the end of a robotic arm called?

- ① a factory
- ② a sensor
- ③ an effector
- ④ a controller

2. Which is true about robots in hospitals?

- ① They help patients play the piano.
- ② They work with bomb squads to disconnect explosives safely.
- ③ They wipe and mop the floor in hospitals.
- ④ Students can practice performing robot-assisted surgery.



Fill in the blanks using the words from the Word Bank.

[Word Bank]

life	helpers	comet	explorers
explore	cables	pressure	collect

1. Robots make excellent space explorers because they do not need oxygen, food or water.
2. In 1999, scientists sent a robot called Stardust to explore a comet.
3. Stardust will try to collect dust from the comet.
4. The water pressure in deep oceans is too great for people.
5. Some underwater robots are connected by cables to ships or underwater vessels.
6. Scientists want to learn more about Earth, but some places are almost impossible for people to explore.
7. Maybe one day we will all have robot helpers.
8. Robots make life easier for many people.



Read the passage and answer the questions.

Robots are useful under water. The water pressure in deep oceans is too great for people. Robots can explore these underwater places much more safely. Some underwater robots, like Jason Jr., are connected by cables to ships or underwater vessels. The crew of the *Alvin* used Jason Jr. to find and explore the _____ of the *Titanic*.

1. Why are robots useful under water?
 - ① They have robotic arms.
 - ② They can explore underwater places more safely than people.
 - ③ They are very exact.
 - ④ They are easy to produce.
2. What are the people who work on a ship or plane called?

① the crew	② robots
③ vessels	④ cables
3. What word goes in the blank?

① ship	② robot
③ wreck	④ track



Reread pages 19 to 20 of the student book and write about why robots make excellent space explorers.

They do not use oxygen, food or water. They can
travel to planets and locations that are either too far
away or too harsh for humans.



Answer the following questions.

1. Which is true about Dante II?

- ① It explored underwater places much more safely.
- ② It was connected by cables to ships.
- ③ The crew of Dante II found the wreck of the *Titanic*.
- ④ It investigated an Alaskan volcano.

2. What phrase goes in the blank?

Scientists who were kilometers away used _____ devices to give it instructions.

- ① robotic arm
- ② remote control
- ③ rechargeable batteries
- ④ solar energy

2. What is the synonym of the underlined word?

They are working on the development of tiny robots that could perform surgery inside a person.

- ① patient
- ② operation
- ③ idea
- ④ explore

4. Which is true about future robots?

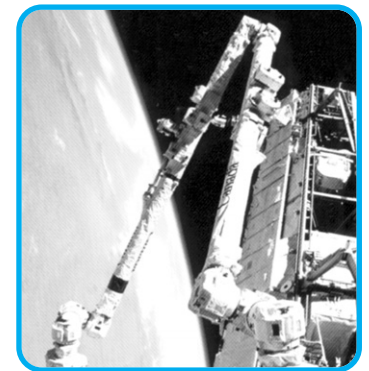
- ① Someday we will stop using robots anymore.
- ② We might have robots that help us with our homework.
- ③ Robots will make life harder for many scientists.
- ④ Scientists will give up developing new robots.

1. What is a computer that a robot uses for a brain called?

- ① a petrol
- ② a motor
- ③ a controller
- ④ a task

2. Which is true about the picture?

- ① It is called Sojourner.
- ② It receives instructions from scientists to release and repair satellites.
- ③ It has been used in factories for many years.
- ④ It is the first robot to move like an insect.



3. Why is solar energy better for robots that are used in outer space?

- ① because it is very powerful
- ② because it does not need oxygen, food or water
- ③ because it is unlimited
- ④ because it is supplied by power companies

4. Reread page 6 of the student book and write about the advantages and disadvantages of rechargeable batteries.

They are portable and do not need power cords to
work. And they allow robots to move freely. However,
rechargeable batteries run out of power more
quickly than most other power sources.

1. Which is true about Genghis?

- ① It is the first robot to move like an insect.
- ② It is a robot that uses tracks and wheels to move.
- ③ It can move only over smooth ground.
- ④ It has two legs like a human.

2. What word goes in the blank?

When we think of robots, we often think of _____, which are machines that look like people.

- ① robotic arms
- ② cockroaches
- ③ humanoids
- ④ Asimo

3. Reread page 12 of the student book and write about how sensors work to move robots.

Sensors in a robot are like a person's five senses. They gather information about the robot's environment. The sensors let robots make maps of the space around them. Then the robots can decide whether they can follow someone's command.

4. Reread page 16 of the student book and write about two robots that help farmers.

The milking robot was introduced in the 1990s. It can milk about sixty cows in a day. And the intelligent hoe removes weeds growing between rows of crops.



Fill in the blanks using the words from the Word Bank.

[Word Bank]

and or but as so

1. Rechargeable batteries are portable and do not need power cords to work.

2. Solar energy, or energy from the Sun, is another power source.

3. This can happen when another object, such as a planet or large boulder, blocks the sun's light.

4. Robots such as these have a steady supply of energy, but they cannot move very far.

5. Scientists have found that designing a robot that can balance itself is very hard so they have found other ways to make robots move.



Combine two sentences into one by using the relative pronoun *that*.

Example

Robots are machines. They make life easier.

→ Robots are machines that make life easier.

1. Today, there are robots.
The robots can walk, shuffle or gallop.

→ Today, there are robots that can walk, shuffle or gallop.

2. Scientists are beginning to make robots.
The robots can think like people.

→ Scientists are beginning to make robots that can think like people.

3. They can perform jobs.
The jobs are not safe for people to do.

→ They can perform jobs that are not safe for people to do.

4. Robots can do work.
The work is too dangerous for humans.

→ Robots can do work that is too dangerous for humans.

5. They are working on the development of tiny robots.
The tiny robots could perform surgery inside a person.

→ They are working on the development of tiny robots that could perform surgery inside a person.



What did you learn about robots? Answer the questions below.

Why do you think robots are unique?

How have scientists made robots move?

What can robots do for humans?

What robots do you want to design?



Write paragraphs about robots using the information from the chart you completed above.

Listening Practice



Track
#12

- # MEMO



Track
#12

Four Corners
WORKBOOK
Robots

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