



ROBOT MOVES

1 A robot is a machine. It has a computer for a 'brain'. The computer must be programmed to make the robot move. Robots will walk and run and wriggle and crawl once the computer is programmed.

People who design robots are called

engineers. The engineers study the way animals and insects move. They copy these moves when making robots. A robot that moves like a snake can wriggle down a long pipe and unblock it. A robot that scuttles like a crab can find explosives at the bottom of the sea.

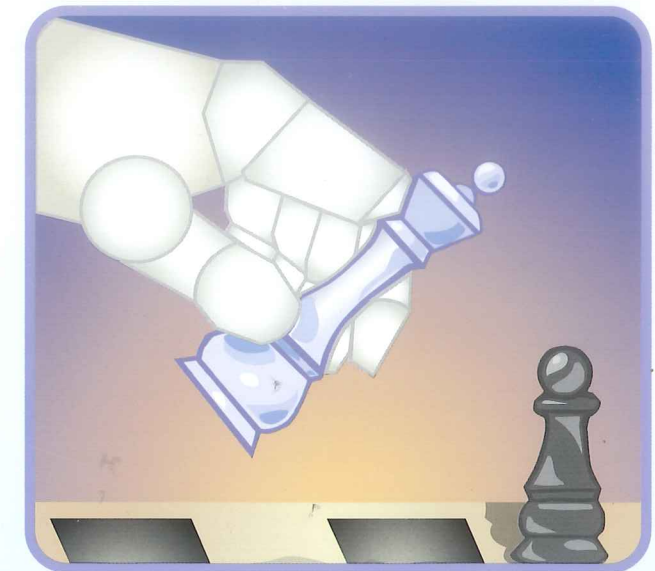
2 Some robots have arms and legs. Some have wheels that roll along. Some flex their tails and move like a fish.

Very small robots are built for search and rescue work. The tiny robots can go into dangerous places instead of humans. They can search for people in train wrecks and burning buildings. A team of robots can swarm over a snowfield after an avalanche and search for lost skiers. They work together like ants. If they find someone, they signal the other robots to come and help.

3 Miniature robots, small enough to fit on a coin, can be fitted with tiny cameras and sensors. They can move through narrow pipes, like tiny tanks, searching for dangerous gases. Others can hover or fly quickly in all directions, like dragonflies.

Robots can do their job over and over, the same way and at the same speed. A robot will not get bored with its job. It is a machine, so it cannot think.

4 Most robots are made of plastic and metal. The moving parts are called actuators. Robots with wheels roll along easily. Some walk like cockroaches on jointed legs. Robots that are built to look like humans are called humanoids. Their legs are tricky to control because the hips, knees and ankles must work together.



5 A 'smart' humanoid robot has been built in Japan. It has taken more than 18 years to get it to this stage. ASIMO (Advanced Step in Innovative Mobility) can go up and down stairs, walk backwards and run. It can switch lights on and off and open and close doors. It can kick a soccer ball. If ASIMO falls down it cannot get back up — more work is needed to perfect its moves.

Robots have sensors to guide them so they don't crash into walls or fall down stairs. These are similar to the radar used by bats when they fly. Some robots have video cameras for 'eyes' and microphones for 'ears'.

6 Robots are used in many work places. In factories they paint and weld and assemble machines. In hospitals they assist with operations. They cut and stitch

patients. The robot arm is steady; it does not shake. Doctors program the steps and the robot does the work, neat and exact.

- 7 Robots can play chess, vacuum floors and mow lawns. They can carry hot metal and sniff out poisonous gas with their 'smell' sensors, but they are only machines.

People are still needed to build the robots and program the steps into the memory.

Some people believe that robots in the future will be able to think and act for themselves, the way people do. Do you think this is possible?

Questions

- | | |
|---|--|
| 1 Robot moves are programmed in their
a legs.
b wheels.
c computer. | 4 Robots built to look like people are called
a engineers.
b humanoid.
c guides. |
| 2 Robots will do their programmed job
a once.
b over and over again.
c until they get bored. | 5 What are the moving parts in robots called?
a actuators
b programs
c computers |
| 3 What stops robots from crashing into walls?
a sensors
b radar
c eyes | 6 Why do we need robots?
a It is exciting to build new machines.
b Robots can do many things that humans find difficult.
c Humans are lazy and robots make our life easier. |

Vocabulary

Find words in the text that match the meanings below. The word is in the section shown in brackets.

- 7 Something that causes things to blow up (1)
8 To bend (2)
9 Large insects (3)
10 To put together (6)
11 The ability to remember (7)

Grammar

Find an **adjective** (a word to describe a noun) in these sentences.

- 12 Robots can go into dangerous places.
13 They can move through narrow pipes.
14 The robot does neat work.
15 They can carry hot metal.

Back To The Text...

- 16 Look at the illustration on the front of the card. If there is a collision what is likely to happen?
a The player won't be able to continue.
b The robot won't be able to continue.
- 17 The section that suggests robots don't get bored is
a section 6. b section 3.

- 18 The purpose of this text is
a to persuade.
b to inform.

Cloze

Roads before Robots

Choose **five** of the following words to complete this cloze passage.

devices succeeded
people cars years

Long before 19 thought about designing robots they were busy inventing all sorts of other 20 that would improve their lives. Karl Benz spent many 21 developing a petrol car. He was keen to find a replacement to steam-driven transport. He 22 in 1885, the same year Gottlieb Damlier built the first petrol motorbike. It wasn't until Henry Ford released the 'Model T' that 23 became an item the average person could afford.

Challenge Option

Design: Create and draw a robot that can work underwater.

