

Reading Part 3 Multiple choice

1 What films or books do you know that feature robots? What relationship do these robots have with humans?

2 Match words a–f from the text opposite with meanings 1–6.

- | | |
|---------------------------|---------------|
| a gadget | d programming |
| b mechanism | e humanoid |
| c artificial intelligence | f robotics |

- 1 a machine or creature with the appearance and characteristics of a person
- 2 a useful, usually small, piece of equipment
- 3 the science of designing and operating robots
- 4 a group of moving parts in a machine
- 5 the process of giving a computer instructions
- 6 the use of computers for human functions such as learning and making decisions

3 Read the text and discuss questions a–e.

- a Why can't shoppers buy the domestic assistants mentioned in the first paragraph?
- b How are Isaac Asimov's short stories different from those of his contemporaries?
- c Why do experts think that protecting us from robots would be difficult?
- d Why does the writer use the example of a robot taking food to Africa?
- e What do many experts think about the dangers posed by the science of robotics?

tip
Before reading the options, see if you can answer the questions or complete the statements in your own words.

4 Read the text again and choose the best option (A, B, C or D) to complete 1–5.

- 1 Shoppers can't buy the domestic assistants mentioned in the first paragraph because they
 - A are not yet in the shops.
 - B can only be acquired online.
 - C don't actually exist.
 - D are only available to filmgoers.
- 2 Isaac Asimov's short stories differ from those of his contemporaries because they
 - A were influenced by Karel Capek.
 - B are less imaginative.
 - C describe a world ruled by robots.
 - D are more grounded in science.

3 Experts believe that protecting us from intelligent robots would be difficult because they

- A can't be controlled just by programming.
- B can't be programmed to recognise adults.
- C don't respond to casual requests.
- D will never be able to obey orders.

4 The example of a robot taking food to Africa is used to show that

- A robots are capable of unselfish actions.
- B Asimov's laws require robots to think.
- C travel is a difficult concept for robots.
- D robots can make moral judgements.

5 Many experts think that the dangers posed by the science of robotics are

- A being covered up by experts.
- B over-dramatised by pressure groups.
- C overestimated by the public.
- D worthy of more discussion.

5 Discuss these questions.

- a What sort of jobs do you think we should use robots for? Think about:
 - safety
 - health
 - human limitations
- b Are there any jobs you think we should not use robots for? Why?





mean machines

Looking for a good domestic robot? According to one website, the world's first fully automated, life-sized domestic assistant is about to go on sale. There's just one catch: the website promoting this amazing gadget is just a tease, a clever bit of advertising from 20th Century Fox to promote its movie, *I, Robot*. In this sci-fi action thriller, detective Spooner, played by Will Smith, investigates the murder of a scientist employed by a fictional robotics company. Despite the fail-safe mechanism built into the robots, which prevents them from harming humans, the detective suspects one of them was responsible for the scientist's death. Further investigation leads him to believe that robots may even be planning to take over the world.

I, Robot is loosely based on a collection of short stories by science-fiction writer, Isaac Asimov. Most of these revolve around the famous 'three laws of robotics' which he first drew up in 1940. In those days, barely two decades after the word 'robot' had been coined by playwright Karel Capek, other writers were still slavishly reworking Capek's narrative about robots taking over the world. But Asimov's grasp of science fact – he gained a PhD in chemistry – lent rigour to his science-fiction and he was already asking what practical steps humanity might take to avoid this nasty fate. His solution was to program all robots to follow three laws:

- 1 A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
- 2 A robot must obey the orders given it by human beings, except where such orders would conflict with the First Law.
- 3 A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

These three laws might seem like a good way to keep robots in their place, but to a roboticist they throw up more problems than they solve. Experts in the field of A.I. (artificial intelligence) have come to the sobering conclusion that preventing intelligent robots from harming humans will require something much more complex than simply

programming them. In fact, programming a real robot to follow the three laws would be a formidable undertaking. For a start, the robot would need to be able to recognise humans and not confuse them with chimpanzees, statues and humanoid robots. This may be easy for us humans, but it poses considerable difficulty for robots. To follow rule two, the robot would have to be made capable of recognising an order and distinguishing it from a casual request – which is beyond the capability of contemporary artificial intelligence.

To follow any of the three laws, the robot would have to determine whether and to what extent any of them applied to the current situation. This would involve complex reasoning about the future consequences of its own actions and of the actions of other robots, humans and animals in its vicinity. But why should the robot restrict its actions to its own immediate vicinity? The first law, as stated above, includes no clause restricting its scope to the immediate surroundings of the robot. A robot standing in the Arctic might reason that it could take food to Africa and thereby save a child from starvation. If it remains in the Arctic, the robot would, through inaction, allow a human to come to harm, thus contravening the first law. To enable robots to avoid getting caught on the horns of such dilemmas, they would need some capacity for moral reasoning. Ensuring robots had such a capacity would be hideously complex compared to Asimov's three laws.

If these speculations seem far-fetched, the day when they become pressing issues may be closer than you suspect. Computer scientist Bill Joy is not the only expert who has urged the public to start thinking about the dangers of robotics, and Greenpeace has brought out a special report urging people to debate the matter vigorously. We should not be too alarmist, however. While the field of robotics is progressing rapidly, there is still some way to go before robots become as intelligent as Will Smith's fictional adversary. As Chris Melhuish, a leading British roboticist admits, 'The biggest threat our robots currently pose to humans is that you can trip over them.'

