

Before you start

- 1 Do you know anyone who is deaf, i.e. who can't hear? How do they communicate? Do you know any sign language?



Reading

- 2 Read the information about two inventions by teenagers and complete the chart.

	Invention A	Invention B
1 What is the invention?		
2 What problem does it solve?		
3 How does it work?		

A

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When eighteen-year-old Ryan Patterson read a story in his local newspaper about a teenage girl who couldn't hear or speak, it gave him an idea. The girl used sign language, but she needed a human translator with her all the time.

Ryan has designed a glove that can translate sign language into text. It uses electronic sensors to read the hand movements of the person who is wearing it. Then it transmits the data to a portable device that displays the text on screen. The device only translates the alphabet, but a special program allows the user to adapt hand movements. The user can give special meanings to certain hand movements.

Ryan has built two prototypes using a leather golf glove. He has tested it with students from the National Technical Institute for the Deaf (NTID). He has a patent on the device, which means that he owns the idea. He's now thinking about starting his own company so he can develop the design and market it.

B

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Hanna & Heather Craig

Hanna and Heather Craig, twin sisters aged seventeen from Alaska, have invented a new winter rescue device: a 1.2 metre-long robot called the Ice Crawler. The robot is designed to take a rope to a person in a dangerous situation, for example, on thin ice or very soft snow.

The Ice Crawler's body consists of two tracks made of silicon-reinforced rubber, which is very strong and flexible even at extremely cold temperatures. This means the robot can move over ice, snow or rough ground without getting stuck. The Ice Crawler is operated by a control panel. This allows the rescue team to stay at a safe distance from the victim. The control panel enables the user to steer the robot, move it forwards and backwards, and switch the power on and off.

The robot runs on two 12-volt drive motors – one on each of the tracks. These are powered by a 12-volt battery. A plastic tube carries the control panel's wiring. It also holds the rope that pulls the victim back to safety. A video camera is attached to the front of the robot. This helps the rescue team to see where the Ice Crawler is going in snowy conditions or on very rough ground.



Ice Crawler

Vocabulary (Text A)

3 Find and underline a word in Text A that means:

- 1 a person who changes something from one language to another (noun) _____
- 2 something that can detect, heat, light, movement, etc. (noun) _____
- 3 send information electronically (verb) _____
- 4 a piece of equipment made for a special purpose (noun) _____
- 5 to make or change something for a special purpose (verb) _____
- 6 the first model or design of something (noun) _____
- 7 the official right to make and sell a product (noun) _____

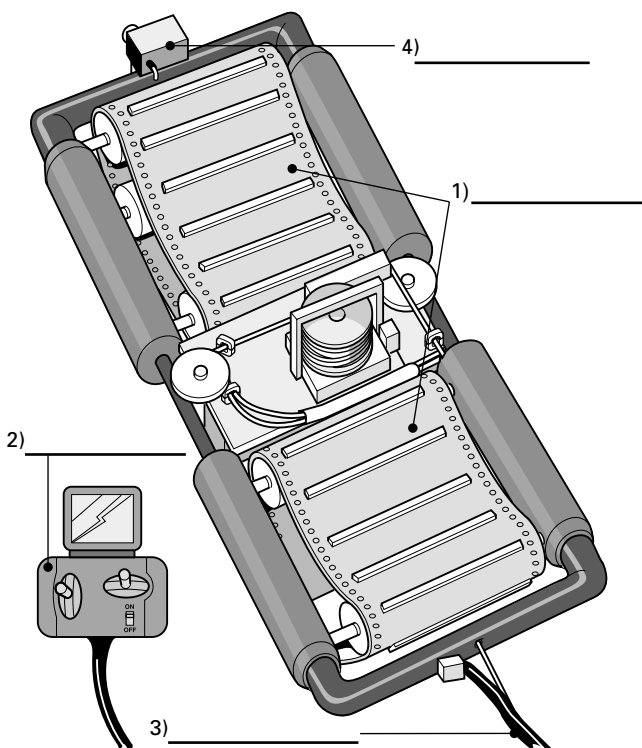
4 Now write the words in your language.

5 Here are some stages in the process of inventing a new product. Number them in a logical order.

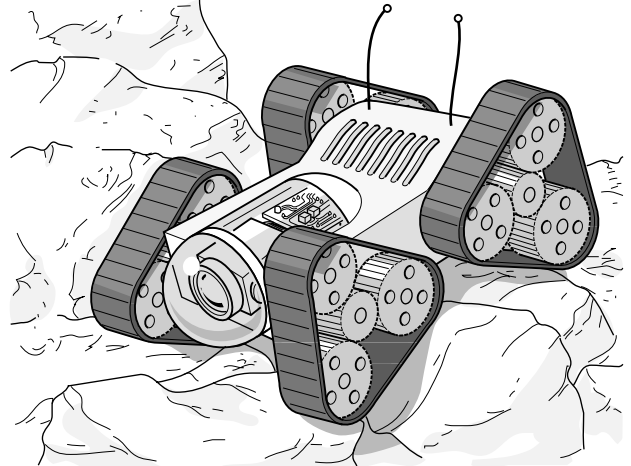
- | | |
|---------------------------------------|--------------------------|
| a build a prototype | <input type="checkbox"/> |
| b patent the device | <input type="checkbox"/> |
| c have an idea | <input type="checkbox"/> |
| d test the prototype | <input type="checkbox"/> |
| e design the product | <input type="checkbox"/> |
| f talk to a company about building it | <input type="checkbox"/> |
| g build a better prototype | <input type="checkbox"/> |

Vocabulary (Text B)

6 Look at Text B again. Label the diagram of the Ice Crawler with words from the text.



7 Complete this paragraph about another robot using the words in the box.



allows ■ attached to ■ consists of ■
 enables ■ designed to ■ operated by
 ■ powered by ■ runs on

The Trackster is ¹ _____ find people trapped in damaged buildings after an earthquake or an explosion. It ² _____ the rescue team to search for victims from a safe distance. The Trackster ³ _____ a small body with four tracks. It is ⁴ _____ a hand-held control panel. This sends a radio signal to the robot. The Trackster ⁵ _____ an electric motor which is ⁶ _____ a ten-volt portable battery. A video camera is ⁷ _____ the front of the robot – this ⁸ _____ the rescue team to see if there is anyone in the building.

Speaking

8 Work in pairs. What do you think of the inventions in Exercise 2? Could you invent something similar?

- 1 Brainstorm an idea for an invention that might help someone with a disability, e.g. someone who can't see or who can't walk, or perhaps an old person who can't move around much.
- 2 Design your invention then draw a diagram of it.
- 3 Explain your invention to the class. Say:
 - what the invention is
 - what problem it solves
 - how it works.

Get real

Search the Internet or magazines for other unusual inventions. If you find something interesting, bring it to the class. Explain it to some other students.