



Alexander Fleming

Getting started

In pairs. Have you ever had antibiotics? Why? Which of these diseases can antibiotics cure?

- | | | |
|-----------------|--------------|-------------|
| the common cold | tuberculosis | flu |
| cholera | rubella | septicaemia |

Without antibiotics, which of the diseases above can kill you?

Reading

1 **6.05 Listen and read *Background and the text: Alexander Fleming and the Discovery of Penicillin*. Why was Fleming familiar with the causes of infections?**

Background

For centuries it seemed obvious that diseases start inside the human body. The biologist Agostino Bassi (1773–1856) was the first to show that microorganisms from outside the body are responsible for most diseases. This was called the germ theory of disease and was later proven scientifically by the French chemist Louis Pasteur (1822–1895).

Scientists then tried to find a safe way to stop bacteria starting diseases. They knew a small cut or wound could lead to a fatal infection. Good hygiene and antiseptics made a big difference, but bacterial infections only became easily curable when antibiotics became available to everyone.

2 Find six words you don't know in *Background* and the text, and guess their meaning. Check in the Glossary (pp.328–338).

3 Read *Background* and the text again. Answer the questions.

- 1 Why did Fleming grow bacteria in his laboratory?
- 2 Why were the Petri dishes very dirty on 28th September?
- 3 Why did Fleming stop before cleaning them?
- 4 Why didn't Fleming continue with his work on penicillin?
- 5 Who made the first effective penicillin? Where?
- 6 Why was it an especially good time for penicillin to become commonly available?

FACT FILE

Name: Alexander Fleming
Dates: 1881–1955
Nationality: Scottish
Job: bacteriologist
Known for: discovering penicillin

ALEXANDER FLEMING AND THE DISCOVERY OF PENICILLIN

Alexander Fleming was a medical scientist. He was an army doctor in the First World War, and saw many soldiers die from infections after operations. After the war, he continued his scientific research into bacteria at St Mary's Hospital in London.

Then, one day in 1928, he made a discovery that changed the world. It was the morning of 28th September. After a holiday in Scotland, Alexander Fleming was back in his laboratory. Fleming was growing bacteria in Petri dishes and studying them. He was trying to make a medicine to kill them – an antibiotic.

As usual, the laboratory was very untidy. Fleming didn't clean his Petri dishes before going on holiday, and many of them had mould (forms of fungi) on them. Just before he cleaned them, he saw something strange. Next to the mould, there were no bacteria growing. The fungi were killing them. Fleming later identified the mould as *Penicillium* and called his medicine 'penicillin'.

The good news was that it was non-toxic to humans. The bad news was that when he tried to make more of it, it was very difficult, and he couldn't keep the penicillin for very long.

Fleming moved on to work on different medical problems. Two scientists at Oxford University, Howard Florey and Ernst Chain, made the first penicillin that doctors could use to cure large numbers of people. It was ready in time to stop thousands of soldiers dying in the Second World War.

In 1945, Fleming, and also Florey and Chain, received the Nobel Prize for their work.

