

# Curriculum Extra Unit 5

## Biology: Vaccines

### 1 Match the words in the box with definitions 1–6.

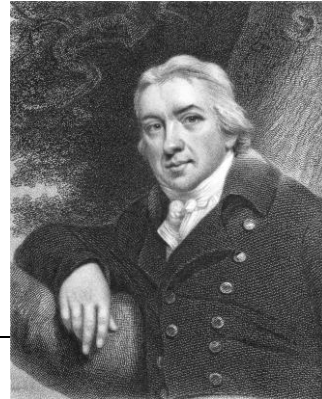
expose immunity microscope milkmaid  
pus smallpox

- 1 a piece of scientific equipment for making very small things look larger \_\_\_\_\_
- 2 an old-fashioned word for a girl or woman who milks cows \_\_\_\_\_
- 3 a thick yellowish liquid that may form in a part of the body that is hurt or sick \_\_\_\_\_
- 4 a virus that caused spots on the skin and resulted in death \_\_\_\_\_
- 5 put someone in a situation that could be dangerous \_\_\_\_\_
- 6 the body's ability to avoid an infection or a disease \_\_\_\_\_

### 2 Read the article quickly and choose the best answer, A, B or C.

The article is about \_\_\_\_ a vaccine against smallpox.

- A why Jenner was interested in developing  
B how Jenner developed  
C problems Jenner had when developing



#### Edward Jenner (1749–1823)

Edward Jenner was an English doctor who changed medical history by introducing the smallpox vaccine. Smallpox was a deadly disease which had caused human suffering for thousands of years. It is estimated that in the 20th century alone, smallpox killed 300 million people. As a result of the vaccine, the disease is now completely eradicated worldwide and people no longer die from it.

Jenner worked in the countryside among farming communities. He had often heard that milkmaids never became seriously ill with smallpox. He also knew, however, that they often caught cowpox from working closely with cows. He had even met some local people who told him that they thought that if they infected themselves with cowpox, they wouldn't get smallpox. So Jenner thought that if people got cowpox they might become immune to smallpox.

Jenner decided to do an experiment to test this theory. In 1796, he took pus from Sarah Nelmes, a milkmaid with cowpox, and used it to infect a local boy, James Phipps. Several days later, Jenner exposed Phipps to smallpox, and he was found to be immune. Jenner called this new discovery 'vaccination', using the Latin word for cow (vacca). He couldn't explain how vaccination worked, and the virus couldn't be seen with the microscopes that were used at that time. Jenner vaccinated and checked several more children, including his own son.

In 1798, Jenner published a study about his experiments, but scientists in London refused to accept what he had discovered. It wasn't until the next century that the benefits of vaccination were understood. Thirty years after Jenner's death, in 1853, the smallpox vaccination was made compulsory in England and Wales.

### 3 Read the article again and put events A–F in the correct order.

- A Jenner wrote about what he'd discovered, but he couldn't explain how vaccination worked. \_\_\_\_
- B Jenner infected people with cowpox and then exposed them to smallpox to test his theory. \_\_\_\_
- C Jenner spoke to people in the countryside who caught cowpox, but didn't catch smallpox. \_\_\_\_
- D Millions of people died of smallpox. \_\_\_\_

- E The smallpox vaccination became compulsory in England and Wales. \_\_\_\_
- F Jenner thought that there might be a link between immunity to cowpox and smallpox. \_\_\_\_

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## 4 Answer the questions.

- 1 What impact did Jenner's discovery have?  
\_\_\_\_\_
- 2 When did scientists realize the importance of Jenner's discovery?  
\_\_\_\_\_
- 3 Why do you think that scientists didn't believe Jenner at first?  
\_\_\_\_\_

## 5 Imagine you are Sarah Nelmes. Write an account of your involvement in Jenner's work. Write in your notebook.