If you catch a disease, your body creates special cells called antibodies to fight off the infection and, if you survive, you may become immune to any further attacks of that disease. The fact that some people survived several epidemics of the plague or smallpox was accepted by people throughout history even though they could not explain why it happened. This practical knowledge led to a procedure called inoculation, which was developed in China and spread through Asia.

Lady Mary Wortley Montagu (the wife of the British ambassador to Turkey) witnessed this procedure in Turkey in the early 18th century. She had nearly died from smallpox when she was younger and as she was keen to protect her children she had them inoculated in 1721. The idea quickly became very popular in Britain, and people would even have smallpox parties where they would all be inoculated together. Since doctors were paid for this, they could make a lot of money. However, inoculation did not completely solve the problem of smallpox because not everyone could afford to have it done and inoculation was not always effective or safe.

**Fascinating fact**
Inoculation in Britain was tested on condemned prisoners in 1723.

**Learning outcomes**
By the end of this topic you should be able to:
- understand Jenner’s work on vaccination
- explain why he was opposed
- explain the factors that made vaccination successful

**Smallpox parties**
Lady Mary Wortley Montagu witnessed this procedure in Turkey in the early 18th century. She had nearly died from smallpox when she was younger and as she was keen to protect her children she had them inoculated in 1721. The idea quickly became very popular in Britain, and people would even have smallpox parties where they would all be inoculated together. Since doctors were paid for this, they could make a lot of money. However, inoculation did not completely solve the problem of smallpox because not everyone could afford to have it done and inoculation was not always effective or safe.

**Fascinating fact**
Inoculation in Britain was tested on condemned prisoners in 1723.

**Activities**
1. Look at the cartoon above carefully. How does it suggest that people did not like the idea of being given cowpox as a vaccination against smallpox?
2. Study the points in the box on Jenner’s work on the opposite page and write them out as three lists:
   a) one showing all the good points about Jenner’s own work
   b) one showing all the reasons why there was opposition to Jenner’s work
   c) one showing outside events that affected Jenner’s work.
Edward Jenner, a doctor in Gloucestershire, was surprised when local people said they did not need to be inoculated. They claimed that if they had already had cowpox they would not catch smallpox. Jenner decided to check this idea and carried out tests on an eight-year-old boy called James Phipps.

‘On 14 May 1796, I took some cowpox matter from a blister on the arm of Sarah Nelmes and inserted it into two cuts I had made on James’s arm,’ said Jenner. ‘A week later he became chilly, lost his appetite and had a headache but the next day he was completely well. On 1 July I inoculated him with smallpox matter but no disease followed. Several months later I tried again, but he still didn’t develop even a mild case of smallpox!’

To make absolutely sure of his findings, Jenner vaccinated another 23 people in this way (including his eleven-month-old son) and in 1798 he decided to publish his ideas, giving the name ‘vaccination’ to his new technique of inoculation with cowpox (because vacca is the Latin for cow). However, the Royal Society refused to publish his account and he had to pay for his report to be printed himself. In 1802 the British government awarded Jenner £10,000 for his work against smallpox – and now, five years later, they have given him an additional £20,000.

### Activities

1. **Communication**
   - The link only existed between smallpox and cowpox. It did not work for any other diseases.
2. **Scientific thinking**
   - Jenner worked in a scientific way and did a number of tests.
3. **Government**
   - Jenner could not explain how the link between cowpox and smallpox worked.
4. **The development of a vaccination for smallpox**
   - Vaccination was not always successful, and some people did develop smallpox because some doctors did not carry out vaccination carefully enough.
5. **Changing attitudes**
   - Jenner did not mind other people using his ideas – he wanted lots of people to benefit from his work.
6. **In 1798 he decided to publish his ideas, giving the name ‘vaccination’ to his new technique of inoculation with cowpox (because vacca is the Latin for cow).**
7. **In 1802 the British government awarded Jenner £10,000 for his work against smallpox – and now, five years later, they have given him an additional £20,000.**

### Challenge

5. Go back to the list of killer diseases on page 20. Research when a vaccination was successfully discovered for each of them and plot them on a timeline.

### Summary

Jenner’s discovery of vaccination was an important way of preventing smallpox, but his methods could not be applied to other infectious diseases.