

Is it ok to risk the life
of a child to
POSSIBLY save the
lives of millions?

Just think for a minute...





Edward Jenner



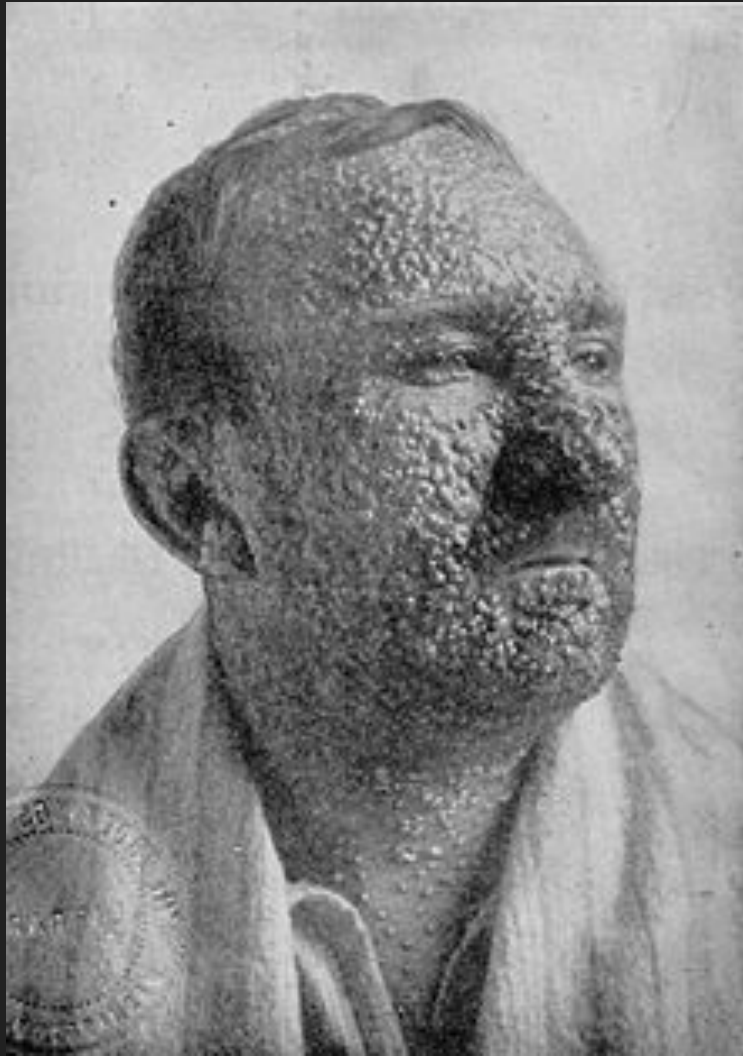
Vaccinations and Smallpox

Keywords:

Inoculation = Deliberately infecting oneself with a small amount of a disease, in order to avoid a more severe case later on

Vaccination = injecting the body with weakened germs to give the body resistance against disease

Antibody = Particles inside the body that identify and help fight germs. The body creates these when it first meets a new germ so it can fight it easier if it comes back



What Smallpox looks like

What is it then?

- Very infectious and airborne. From your lungs is enters the bloodstream.
- It infects your internal organs. You get a fever, headache, backache, and you vomit.
- It spreads to your skin as a rash with pink spots.
- They get bigger and raised. Eventually turn in to blisters (6mm diameter) and they grow deep into your skin.
- There were epidemics in 1722, 1723, 1740-42



Prognosis (Treatment)

If you are lucky, the blisters dry up and fall off leaving deep sunken scars.

If you're unlucky, you die from blood poisoning, infection, and internal bleeding.

Once you are infected there is **no cure or treatment!**



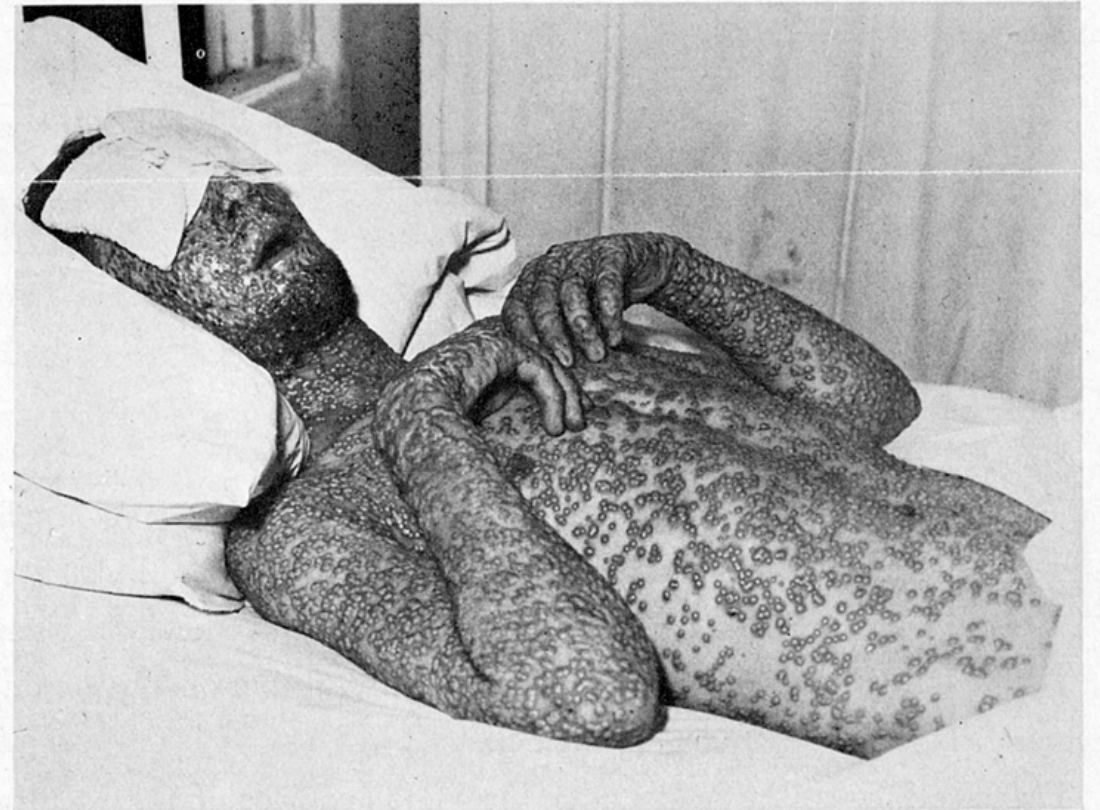
Why is it important then?

Greatest killer of the time. 10% of the population died from Smallpox (20% in towns and cities).

One third of all children's deaths from Smallpox.

3548 deaths in 1796 London alone

Using previous knowledge, you have to come up with a cause... Good luck, we need you...



New York State Department of Health Photograph

There was hope though!



Cowpox

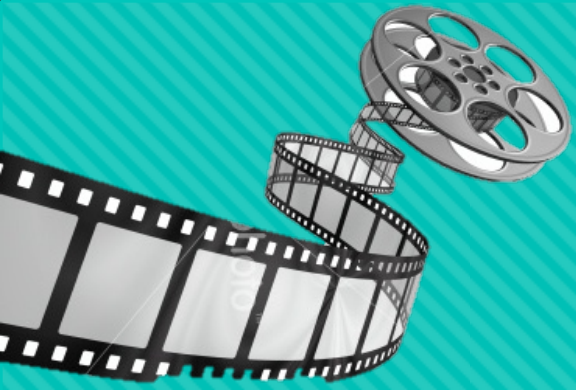
- Folk law at the time said that milkmaids didn't get Smallpox.
- Mild viral infection in cows. They get small weeping blisters of their udders.
- Milkmaids often caught Cowpox from the cows as they milked them.
- They would get slightly ill and develop some blisters on their hands, but would recover after a few days.
- These maids never caught smallpox

Ok, but who's Edward Jenner then?



- Born 1749
- Died 1823
- Trained as a surgeon from 13 worked under John Hunter.
- At 21 he focused on Anatomy.
- From 24 he was a General Practitioner and Surgeon.
- Wrote a book on smallpox vaccination

Oh and he liked to watch milk maids at work...



James Phipps Cartoon

1) As you watch the cartoon the first time try and write a series of captions explaining what is going on! You should have no less than 6 captions and the whole story should be explained within your captions.

2) Turn your 6 captions into a fully coloured storyboard!

You may also use the textbook to add additional detail to your storyboard!



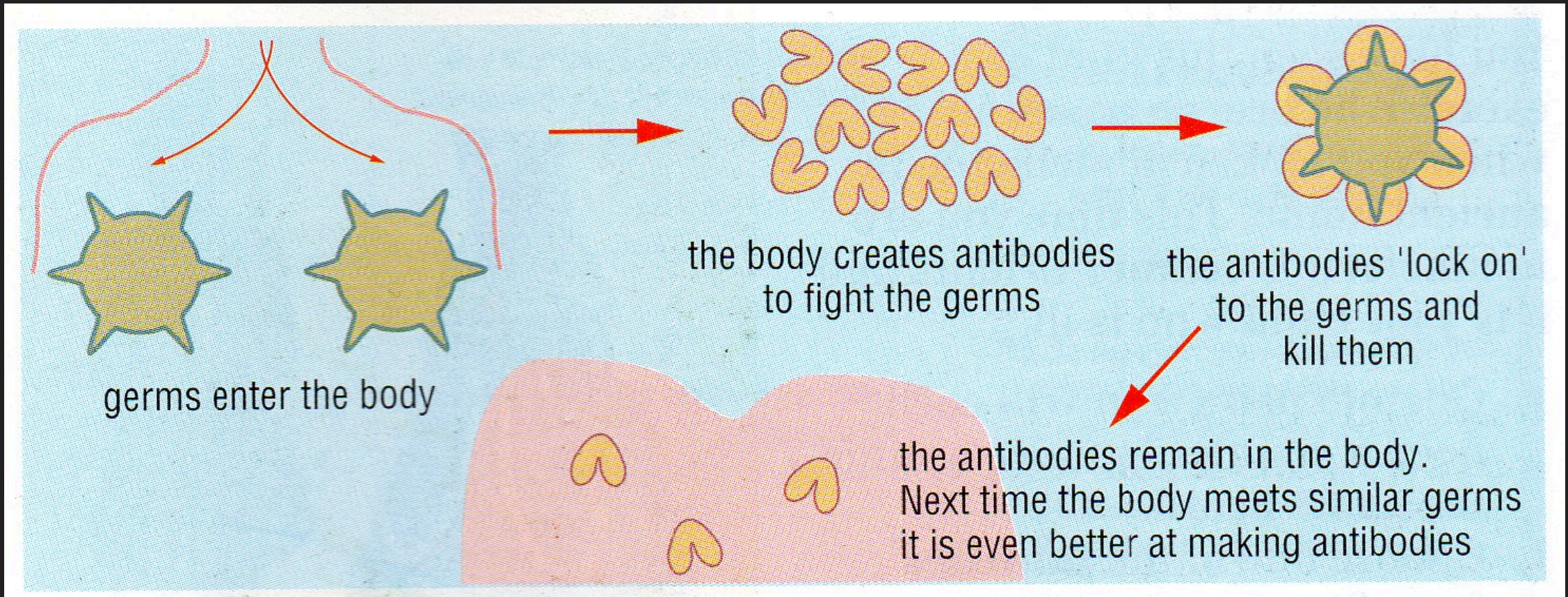
How effective was Jenner?

- Smallpox vaccination soon spread across Britain and Europe. Some use in other parts of the world.
- Some people did get Smallpox after vaccination, but it was very mild.
- Possibly saved the lives of more people than anyone else in History.
- But, what exactly did Jenner discover?

There were people before Jenner who had vaccinated people with cowpox. Jenner was the first person to publish his findings. It was his individual genius that made him work on the idea and made him successful.

How immunisation works

Draw this diagram and in your own words, **DESCRIBE** how immunisation works



Reaction & Opposition

Reactions to the new vaccination

As with so many medical discoveries, it took some time for people to accept vaccinations. Although Jenner knew that the system worked, he was not able to explain *how* or *why* it worked – and this made people suspicious. The idea of infecting someone with an animal disease was seen as extremely strange, and a lot of people were against it.

Although certain groups of people were against vaccinations, there was another, very powerful group that were in favour of them: parliament. As you can see from the timeline below, the British government favoured the new method of vaccination from the first half of the 19th century. This was because it was a safer and more reliable alternative to inoculation. It was also cheaper, because recipients of vaccines did not need to be put into quarantine, whereas those receiving the inoculation were in danger of spreading smallpox to other people.

Describe how the **GOVERNMENT** (institution factor) helped Jenner

Timeline

Smallpox and government intervention, 1840–72

1837–40 A smallpox epidemic breaks out. 35,000 people die. *The Lancet*, a medical journal, blames inoculation for the outbreak.

1852 The government makes smallpox vaccination compulsory.

1872 The British government begin to enforce the compulsory vaccination.

1803-1807: Government gave Jenner £30,000

1840 The government makes inoculation a crime.

1840 The government agrees to provide children with vaccinations at the taxpayer's expense.

1871 Public Vaccinators* are appointed.

Using animal infection in human medical trials is against God's will, and that is what I will tell my congregation.



THE CHURCH

I am not happy to see my businesses destroyed. I will use my money and position in society to encourage the media to print negative things about vaccinations.



INOCULATORS

I refuse to publish Jenner's ideas because there is a lot of opposition to them in the scientific community.



THE ROYAL SOCIETY

Why was there opposition to vaccination?



1 It's against God's laws to give people an animal disease.

2 Smallpox is a punishment for sin. The only cure is prayer and living a godly life.



3 It will cost us inoculators our jobs and profits.

4 The Royal Society says this idea is too revolutionary. They refused to publish Jenner's book.



5 I've never heard of Jenner - why should we believe a country doctor?



6 These vaccinators are clumsy. They do it in a rush and it doesn't always work.



7 I've got enough to worry about finding work and food. I don't have time to have my children vaccinated.



8 The government shouldn't interfere. It's got no right to fine people who don't get their children vaccinated.

Stick this in your book and identify the most **SIGNIFICANT** form of opposition and why.

How does this source show OPPOSITION to Jenner?



How does this source show SUPPORT for Jenner?



Jenner's Impact

Explain the impact of Edward Jenner on the improvement of medicine by the end of the 20th Century.

You should use at **least 6** pieces of evidence (3 Short Term, 3 Long Term)

Short Term

- Smallpox vaccine saved many lives, especially overseas.
- By 1800, 100,000 people had been vaccinated
- Napoleon had his entire army vaccinated
- Anti-Jenner propaganda, promoted by the inoculators slowed impact in Britain
- Some people still died because of bumbling doctors mixing up smallpox and cowpox samples or reused needles
- Royal Jennerian Society set up in 1803, 12,000 British people were vaccinated in just 2 years

Long Term

- By the end of the 19th Century, vaccination for smallpox had become normal.
- Opposition continued but the success of the vaccinations on death rates proved it worked
- From 1872, the **government** started to enforce compulsory vaccinations and the death rate fell dramatically
- Smallpox was officially announced in 1979 to have been completely wiped out!
- Jenner had shown vaccines could work which inspired and influenced **Louis Pasteur** and **Robert Koch**

You work for Jenner...

Design a poster or advert like you might see in a doctor's surgery to PERSUADE people to visit Dr. Jenner for this new vaccination.

As a minimum it should include:

What small pox can do to you if you are not vaccinated.

Why it is better than inoculation

Why they should ignore the opposition and doubts

How it works

You're a self employed GP / Inoculator

You need to produce a counter argument to your previous work making it clear:

Why people opposed Jenner

What were the risks / dangers

Anything else to help this argument

Assessment:

Exam-style question, Section B

Explain why there was rapid change in the prevention of smallpox after 1798.

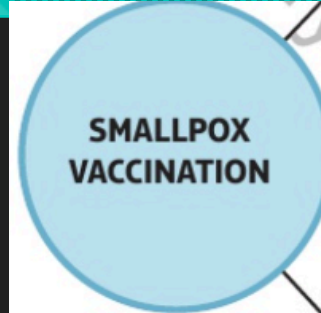
You may use the following information in your answer:

- inoculation
- the government.

You **must** also use information of your own.

12 marks

Factors



Key individual: Edward Jenner

Jenner was a trained doctor who had worked as a surgeon and apothecary as well as in a hospital. He used careful scientific method to test and prove his vaccination.

Key institution: Government

The British government played an important role in promoting the vaccine. They provided funding and set up a society to promote vaccination. Later, they made it compulsory for everybody.

Observation and experimentation

Jenner observed the pattern of cowpox and smallpox in dairy maids. He planned his experiment carefully and then repeated it several times so that he could be certain it had not been just a fluke.

Exam tip

As well as explaining medical breakthroughs in your answer, in order to show what changed you should compare with the situation before Jenner's research.