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| **Why you’ll never catch smallpox**TEACHER GUIDANCE | **C:\Users\Felix\AppData\Local\Temp\Temp1_smallpox-logo(2).zip\smallpox-logo.jpg0** |

# NATIONAL CURRICULUM LINKS (ENGLAND)

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| **Upper KS2 (ages 9-11)** |
| **Working scientifically**Identify scientific evidence that has been used to support or refute ideas or arguments **English** Distinguish between statements of fact and opinion |

# KEY LEARNING OUTCOMES

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| **By the end of this activity children should be able to:** |
| * appreciate that smallpox is the only human disease to have been eradicated and that this was achieved through vaccination
* talk about some of the efforts that are underway to eradicate other diseases through vaccination, for example polio
* show some understanding of the role that vaccination plays in world health and their own health
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# Lesson Activities

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| **Key questions** | Why will you never catch smallpox?How do vaccines help keep us healthy? |
| **Overview** | **How vaccination wiped smallpox off the face of the earth**Children revise key learning from across the activities and explore how Dr Jenner’s discovery has changed the world, and its crucial role in their own health. They learn how, through vaccination, smallpox became the first and only human disease to be eradicated. They look at what other vaccines exist today and the current battles to eradicate other diseases through vaccination.  |
| **Teaching time** | 1-2 hrs |
| **Key vocabulary** | smallpox | notification | isolation | immunity vaccination eradicated  |

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| **Stage/summary** | **Running Notes** | **TeacherPowerPoint**  |
| **Introduction** | Children should be able to talk about what smallpox was and what a vaccine is.However, they might not yet appreciate that smallpox is the first and only human disease to have been successfully **eradicated**. The last two questions on this slide encourage them to think about this. The next part of this activity looks at how this was achieved.  | TP 2 |
| **Eradication of smallpox** | Can the children suggest why people in Rahima Banu’s village might have treated her badly after she had recovered from smallpox?Look at the map on TP4. The red areas meant that people still suffered from smallpox. The areas in white meant that smallpox no longer occurred naturally here. **How do you think these areas got rid of smallpox?** *Through vaccination. Routine vaccination against smallpox stopped in the UK in the early 1970s.***It has been estimated that about 300 million people died of smallpox in the first of the 20th century!**But the last ever fatal case of smallpox occurred in 1978 and in 1980 the WHO declared that smallpox had been completely eradicated.Ask the children **how they think this was achieved**. They might well suggest that everyone in the world was vaccinated. In some countries, like the UK, this was the case and almost everyone was vaccinated against smallpox (certainly enough to achieve **herd immunity**, which children learned about in the **Measles Alert!** resource). But the poorer countries where smallpox was still occurring tended not to have organised health services to vaccinate everyone and often had people living in villages in very remote places. It would have been very hard and expensive to vaccinate everyone.The WHO launched the Global Intensified Smallpox Eradication Programme on January 1 1967. Many people thought it couldn’t be done, but the project was suggested and led by Donald Henderson, an American epidemiologist, who died in August 2016.Instead of vaccinating everyone in the target countries, the WHO workers waited until a smallpox case was reported. Then they **isolated** the ill person and vaccinated everyone living near the person (called **ring vaccination**). This stopped smallpox spreading. They carried on until no new cases were reported.Notification (telling the authorities about a case of smallpox), vaccination, and isolation are words children should be familiar with from the **Speckled Monster** and **Measles Alert!** resources.Remind children of the vocabulary, and explain how the WHO worked to eradicate smallpox in the countries where it remained.Show the children the pictures in slides TP7-9. Can they work out which word corresponds to the picture?**TP7.** The poster offers a reward for people who **notify** the authorities about a case of smallpox. WHO workers also travelled around villages with pictures of smallpox asking people if they had seen any cases.**TP8.** This is a photo of people in a village being vaccinated. There had been a case of smallpox reported in the village.**TP9.** The final naturally occurring smallpox case was **Ali Maow Maalin**, a cook from Somalia who worked in an **insolation camp** for smallpox patients and caught it from one of the patients in 1977. It is possible that a mistake was made and Ali was not vaccinated before starting to work at the camp, as he should have been. Ali was put into **isolation** and made a full recovery.The last person ever to die of smallpox was a medical photographer called Janet Parker, from Birmingham, in 1978. The University of Birmingham Medical School was conducting research into the disease and Janet was infected by mistake along with Professor Henry Bedson, who was overseeing the research. Bedson committed suicide because of Janet’s death. | TP 3TP4TP5TP6TP7-9 |
| **Thank you Dr Jenner!** | Can the children guess who the quote is by?So, **why will you never catch smallpox?** Because it has been **eradicated**. You don’t even need to be vaccinated against it anymore because it no longer exists! But it was all thanks to vaccination and Dr Jenner’s discoveries. And don’t forget little James Phipps too![Note that smallpox actually still exists in at least two places on earth. After the Birmingham incident the last remaining samples of smallpox were taken to one of two labs – one in the USA and one in the USSR – where they are carefully contained and guarded. However, some forgotten samples have turned up over the years in other places – most recently some vials of smallpox were found in a lab in USA in 2014. ]  | TP10 |
| **Eradicating polio** | Smallpox is the first and only human disease to have been eradicated. It is hoped that the success will soon be repeated with other diseases through vaccination programmes.(Note the man in the picture marking the front of the house with chalk. Can the children guess what this mark is for? They might think it is to show that someone in the house has polio, and therefore is being **isolated.** However, in actual fact it is to show that the family inside has already been **vaccinated**).For example, efforts are underway to eradicate **polio**, another highly infectious disease caused by a virus. Polio can sometimes be fatal or lead to severe paralysis.You can see from the map on TP12 that we are very close to eradicating polio. **Which countries are still affected by polio?** ***Pakistan and Afghanistan.***Children might like do some research into polio, the programme to eradicate it, and why it has not yet been successful in the last few countries. <http://www.bbc.co.uk/news/world-asia-36300034><http://www.bbc.co.uk/news/health-36055507><http://www.unicef.org/immunization/polio/><https://youtu.be/oGPEh3Wf7VE>**TP13** shows some other diseases which doctors and scientists are trying to fight with vaccination. Children could do research into these diseases and find out about the latest developments to combat them with vaccines. | TP11TP13 |
| **Questions**  | You might like to discuss some of these questions with the class of ask children to do some research into them.Some useful links:NHS vaccination schedules: <http://www.nhs.uk/conditions/vaccinations/pages/vaccination-schedule-age-checklist.aspx>Bill and Melinda Gates Foundation vaccines: <http://www.gatesfoundation.org/What-We-Do/Global-Development/Vaccine-Delivery> | TP14 |
| **Extension** | **Who is the greatest Briton who ever lived?**Ask children to read the quote from historian and broadcaster Andrew Marr. Can they identity the statements of fact and the statements of opinion in the passage? What do *they* think? Ask them to write down who they think is the Briton the world should most revere, making sure they make their argument convincing using facts and persuasive language.  | TP15-17 |