

Activity title: Vaccine memory game

This activity can be done individually or in groups

Aim:

Demonstrate that vaccines produce their protective effect by giving the body a harmless element of the infectious agent, which kick-starts an immune response and creates immunological memory. This memory enables the immune system to recognise harmful pathogens on a later occasion and respond rapidly.

Set up:

Place the objects on a tray and keep them covered with a tea-towel or cloth until you are ready to play the game. Vary the number of objects according to the ages of children. Give each child a pencil and paper.

What to do:

An adult will need to act as the facilitator.

Facilitator: How good is your memory? Do you want to play a game to see how good your memory is?

On this tray are X number of objects, in a moment I'm going to lift up this cloth and give you X seconds/minutes to memorise them, then I'll cover them back up and ask you to write down all the objects you remember.

1. Uncover the tray and place it where participants can see it. Give participants a certain amount of time to memorise the contents of the tray (less time and more objects to make it harder), and then cover it up again.
2. Participants write down all the objects they remember.
3. Uncover the objects again and compare with their answers.

Facilitator: Each of these objects is here for a reason - they are all related to vaccines. Do you know what a vaccine is?

Vaccines teach the body to recognise and defend itself against infections from harmful pathogens, such as bacteria and viruses.

Vaccines provide a sneak 'preview' of a specific pathogen, which kick-starts the body's immune system to prepare itself to prevent infection occurring.

This sneak preview is a harmless element of the pathogen that makes the body produce antibodies and *memory cells*.

When we encounter a pathogen a second time, these memory cells are able to quickly deal with the infection by producing sufficient quantities of antibodies.

Several infectious diseases including smallpox, measles, mumps, rubella, diphtheria, tetanus, whooping cough, tuberculosis and polio are no longer a threat in Europe due to the successful application of vaccines. And vaccines give the body a lasting memory.

4. Compare participants answers and give explanations about each object as suggested below.

So, your memory is pretty good! And just like you remembered the objects here, if you've been vaccinated your body remembers what a harmful pathogen looks like because the vaccine has already given it a sneaky peak. This means your body develops a lasting memory to protect it against disease and infection!

Suggested objects and explanations of relevance to vaccines:

- **Edward Jenner photo (from internet search)** - Edward Jenner was a very famous English scientist whose name has gone down in medical history. Edward Jenner was responsible for discovering the world's first-ever vaccine and his work saved so many lives – in fact Jenner's work is said to have saved more lives than the work of any other human! He was born in 1749 in Gloucestershire, where he trained as a doctor and became famous for his discovery of the smallpox vaccine. His discovery was a huge medical breakthrough; in 1980, the World Health Organisation declared the dangerous disease smallpox an eliminated disease.
- **[A mini globe](#)** – because vaccines save lives around the world but 1 in 5 children worldwide are still not receiving the vaccines they need.
- **[A mini clock or watch](#)** – because 1 child still dies every 20 seconds from a vaccine preventable disease.
- **A DNA double helix (make your own [origami version](#))** – because we are all made of trillions of cells. Our cells are told what to do by a very special molecule called DNA. DNA is a record of instructions telling the cell what its job is going to be. A good analogy for DNA as a whole is a set of blueprints for the cell, or computer code telling a PC what to do. It is written in a special alphabet that is only four letters long! Unlike a book or computer screen, DNA isn't flat and boring - it is a beautiful curved ladder. We call this shape a double helix.

- Viruses are very small particles that can infect animals and plants and make them sick. Viruses are made up of genetic materials like DNA and are protected by a coating of protein.
- Viruses hijack the cells of living organisms. They inject their genetic material right into the cell and take over. They then use the cell to make more viruses and take over more cells.
- There are many viruses that can infect people and make them sick. One of the most common is influenza which causes people to get the flu.
- Scientists have developed vaccines that help our bodies to build up immunity to a specific virus. One example of a vaccine is the flu jab. The flu jab helps the body to develop its own defences against the flu called antibodies.
- **A superhero mask** – when you get your vaccine you become a superhero. Germs and diseases, like the flu, spread from person to person. If enough people get vaccinated and become superheroes, like you, the germs won't have anyone to infect. We call this herd immunity. When you get vaccinated, you're not only protecting yourself but others too.
- **A mini toy cow** – because the word vaccine, and vaccination, comes from the name for the cowpox virus, vaccinia, to be exact.
- **Any of the vaccination giant microbes** – to explain any of the diseases the vaccines are protecting against.