How do vaccines work?

Vaccination is the safest way to protect your child against an infectious disease. Once your child has been vaccinated, they should have immunity to the disease.

You are given a small amount of a harmless form of a disease...

...Then your body makes antibodies to fight it off

Then if you encounter the disease again...

...your body already has the antibodies, so you don’t get sick.

You are immune.
How effective is vaccination?

Vaccines are considered one of our greatest global health achievements and are estimated to save 2–3 million lives a year.

Thanks to vaccines, life-threatening diseases that used to be common in young children in the UK are now relatively rare.

- **Diphtheria cases**
  - Introduction of vaccine
  - 1910 to 1940

- **Pertussis cases**
  - Introduction of vaccine
  - 1940 to 1957

- **Measles cases**
  - Introduction of vaccine
  - 1940 to 1968

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Celebrate Vaccines
with the British Society for Immunology
What is ‘herd immunity’?

If only a few people are vaccinated...

...then one person is infected...the disease spreads very fast

But if lots of people are vaccinated...

...then the disease can’t spread very far, so the whole community stays safe.

This is ‘herd immunity’
What’s in a vaccine?

**Water**
The main ingredient.

**Preservatives and stabilisers**
Maintain vaccine quality, safe storage and prevent contamination.
*Example: Sorbitol; naturally found in fruit in larger amounts.*

**Active ingredient**
A very small amount of a harmless form of the bacteria or virus you are immunising against.

**Adjuvants**
Create a stronger immune response to the vaccine. Pose no significant risk to health in the very small quantities used.
*Example: Aluminium; naturally found in drinking water at higher levels.*

**Residual traces** of substances that have been used during vaccine manufacture, measured as parts per million or billion in the final vaccine.
*Example: Formaldehyde; naturally found in human body.*