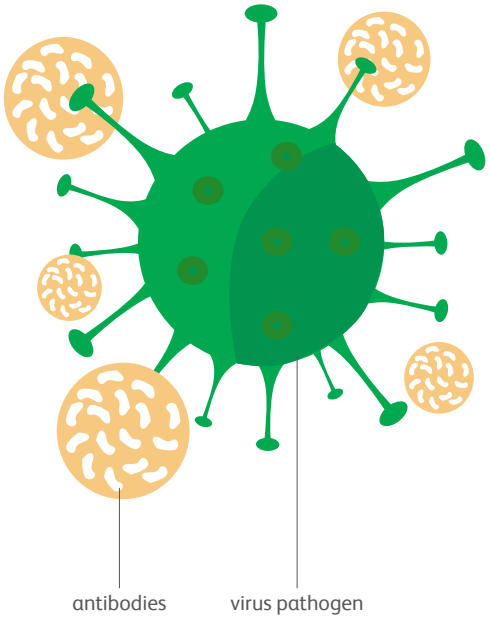
Activity Sheet 1

How Vaccinations Work

The immune system

The **immune system** is designed to defend the body against disease-causing **bacteria** or **viruses**. When these **pathogens** enter the body, the immune system recognises that they shouldn't be there. **White blood cells** make **antibodies** that attach to the pathogens and disable them – but it can take several days for the cells to produce the right type of antibody. During this time, the bacteria or virus can multiply into billions and make the person ill.

Once the correct antibody is identified, the white blood cells make enough to get rid of the bacteria or virus. The antibodies stay in the blood, ready to help the body defend itself if the same type of bacteria or virus enter again.[1]



Vaccination

Vaccination uses the power of the body's natural immune system. The person is **inoculated** (given a fragment or weakened/dead form of the disease-causing bacteria or virus). The body produces the correct antibodies to fight it and can quickly disable the bacteria or virus if they enter the body in the future. The person becomes **immunised** against the disease.[2]

Vaccination doesn't just protect individuals, ensuring their immune system can fight a certain disease; when lots of people are vaccinated, it helps to protect the whole community and stop diseases spreading. This is sometimes called '**herd protection**' or '**herd immunity**'. For example, if someone has measles but everyone around them is immune to measles, the disease will be unable to spread. This helps to protect groups of people who are particularly vulnerable to disease, but often cannot safely receive vaccines (e.g. new-born babies).[3]

Questions

1. **What type of cells make antibodies?**
2. **How does vaccination use the body's immune system?**
3. **What are two benefits of vaccination?**
4. **Why do you think fragments or weakened/dead forms of the disease are given during vaccination?**

1. http://vk.ovg.ox.ac.uk/vk/how-do-vaccines-work, last accessed: April 2020
2. http://vk.ovg.ox.ac.uk/vk/how-do-vaccines-work, last accessed April 2020
3. http://vk.ovg.ox.ac.uk/vk/herd-immunity, last accessed: April 2020

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