

Key Stage 4 Science home learning term 3 week 5

Infections

Many illnesses are caused by tiny living organisms that get into the body. Organisms that cause disease are called pathogens. There are many types of pathogen. Two of the most important groups are bacteria and viruses.



Bacteria

Many bacteria are helpful. Some turn milk into yoghurt or break down wastes in the soil. 100 times smaller than a human cell. Antibiotics work against them. Can cause: Sore throat and earache, food poisoning and meningitis

Viruses

All are harmful but only some cause disease in humans. 10 000 times smaller than a human cell. Antibiotics do not work against them. Can cause: Flu, AIDS, mumps, measles, rubella.



Give one difference between viruses and bacteria.

What do you think would happen if we were able to kill all the bacteria in the world?

SARS is a disease caused by a virus. It makes you feel weak, you ache all over and get a high temperature. For every ten people who catch SARS, one will die! In 2003 an outbreak started in southern China. To try to prevent the disease spreading, people

began to wear face masks. People entering Hong Kong from mainland China were tested for high temperatures, a sign of the disease. If your temperature was too high, then you might not have been allowed into the country. The plans worked and, by March 2004, the SARS epidemic had passed.

[What Is A Virus ? | Best Learning Videos For Kids | Dr Binocs | Peekaboo Kidz - YouTube](#)



Flu jab?

Most years, we have an outbreak of influenza in the UK. We call it flu. Flu is caused by a virus. People with flu get aches and pains, feel weak and will have a high temperature. You can get a flu jab. This helps to protect against the disease. A flu jab is a vaccination. It contains chemicals from the virus that trigger your body's defence reaction. White blood cells in the body produce chemicals called antibodies. Antibodies destroy the virus before it can do any damage. The body's self-defence system is called the immune system. Vaccinations increase our natural immunity. The first time the body produces antibodies, it is quite slow. The next time the virus gets into the body, the immune system produces lots of antibodies very quickly.

[How Vaccines Work? | VACCINATION | Importance Of Vaccine | The Dr Binocs Show | Peekaboo Kidz - YouTube](#)

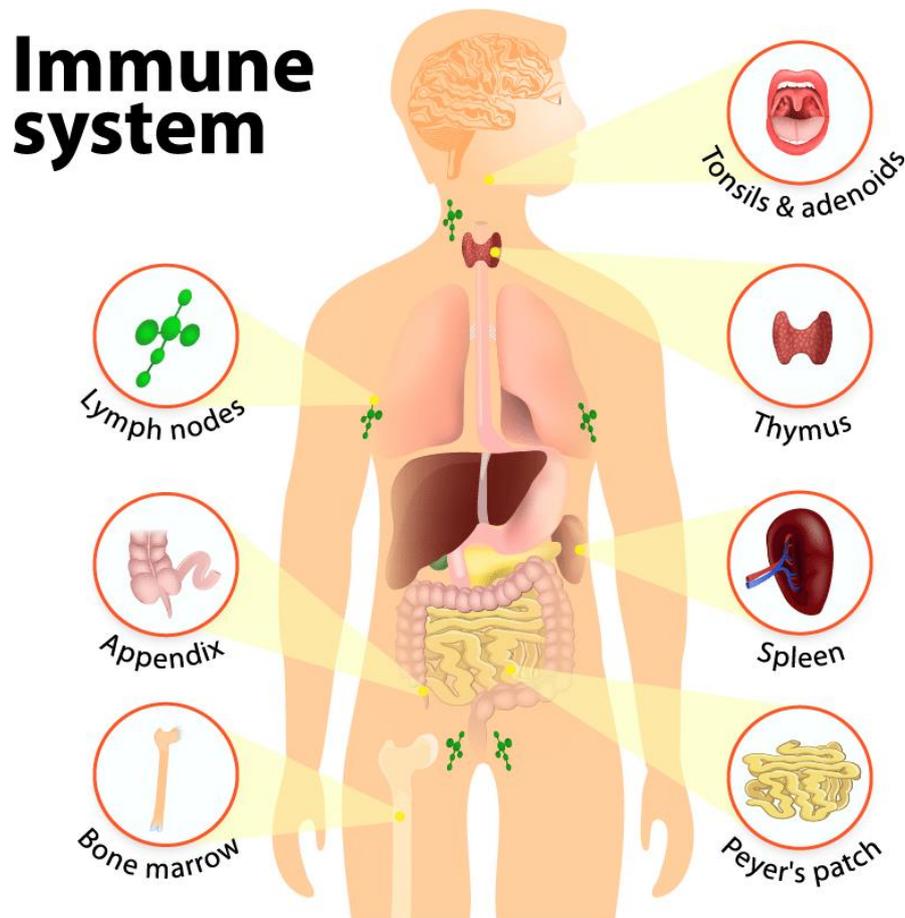
Treating illnesses Sometimes, when we are ill we just need to rest and wait. Sometimes we take drugs to destroy the pathogens (the microorganisms that are making us ill). Antibiotics are drugs that destroy bacteria. There are many different types of antibiotics. The most famous is probably penicillin.

[What are antibiotics? How do antibiotics work? - YouTube](#)

All drugs need to be tested before we use them. Some drugs can kill pathogens but also harm the patient. Side effects are things the drugs do that we do not want. Side effects include feeling sick, having a high temperature or even an increased risk of serious illness. People may become addicted to the drugs they are taking. Drug trials are often double blind. The researcher provides two sets of tablets. One set contains the drug to test. The other set does not. Even the researcher who gives the patients the drugs does not know which is which, to stop them influencing the patients. The tablets without the real drug are the control or placebo.

A group of patients is divided into two. One set are given the real drug. The other set is given the placebo. The patients do not know whether they are getting the real drug or the placebo. The doctors giving them the drug do not know. Only the researcher knows. If the people who get the real drug get better and those given the placebo drugs do not, then the researcher knows the drug works. If both sets of patients get better, then the researcher knows the drug has no effect.

[The Immune System Explained I - Bacteria Infection - YouTube](#)



This is the system in your body that protects you and fights off infections, viruses and bacteria.

You can email your completed work to me via homelearning@ifield.kent.sch.uk so that I can mark your work and support you. I am very happy to answer any questions or just let me know how you are getting along.

Keep safe and well

Mrs Hargood 😊