

Year 8 Knowledge Organiser: Microbes

Key terms

Pathogen	A microorganism that causes disease.
Bacteria	A type of pathogen that produces toxins that damage tissues.
Viruses	A type of pathogen that lives and replicates within cells and causes cell damage. It is difficult to kill viruses without damaging cells.
Antibodies	Some white blood cells produce antibodies. These stick to pathogens and destroy them or stick them together.
Antibiotics	Antibiotics kill bacteria.
Vaccine	This contains a dead or weakened form of a pathogen

Types of pathogen:

Bacteria (salmonella, meningitis)	Virus (Chicken pox, measles)	Fungi (athletes foot)
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Antibiotic Resistance

Antibiotics are **medicines** that can kill **bacteria**, but NOT viruses. They can't kill viruses because viruses live and reproduce inside cells.

•UNFORTUNATELY, bacteria can become **resistant** to antibiotics. This means that a particular antibiotic does not work on them.

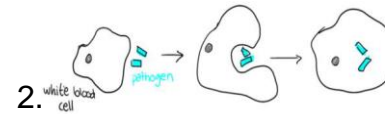
Transmission

Transmission of a disease means 'how it is passed on' – so transmission is the spreading of a pathogen from one living organism to another. This can be by the air, water, food, insects, or contact

Specific defences

The most important cells in the immune system are the white blood cells. These work by:

1. **Engulfing** microorganisms and digesting them

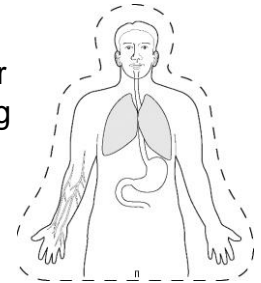


2. **Antibodies** that target **specific** microorganisms and destroy them

Non-specific Defences

Trachea
Produces **mucus** to **trap pathogens** . Contains **cilia** to **move mucus** for swallowing

Nose
Contains **hairs** and **mucus** to **trap pathogens**



Stomach
Contains **hydrochloric acid** to destroy pathogens.

Skin
A **physical barrier** to pathogens.

Vaccination

A vaccine contains a **dead or weakened** form of a **pathogen**.

- A vaccine causes white blood cells to produce antibodies to destroy the pathogen.
- Specialised white blood cells (memory cells) remain in the blood afterwards.
- This means that if an infection by the real pathogen takes place in the future, the immune response is **faster** .
- This means the pathogen is destroyed before you even realise you are ill.

