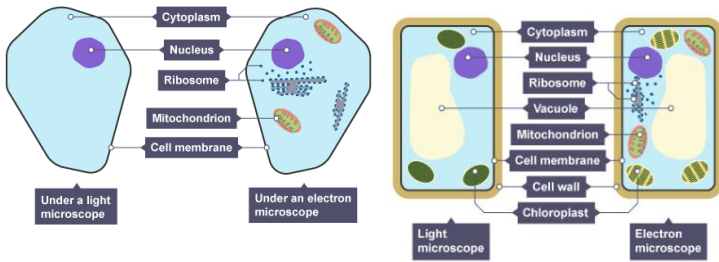
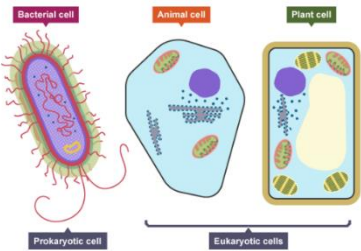


Cells – Structure and Function



Function

Cytoplasm	A jelly-like material that contains dissolved nutrients and salts and structures called organelles. It is where many of the chemical reactions happen.
Nucleus	Contains genetic material, including DNA, which controls the cell's activities.
Cell membrane	Its structure is permeable to some substances but not to others. It therefore controls the movement of substances in and out of the cell.
Mitochondria	Organelles that contain the enzymes for respiration, and where most energy is released in respiration.
Ribosomes	A tiny organelle where protein synthesis occurs.
Chloroplast	Organelles that contains the green pigment, chlorophyll, which absorbs light energy for photosynthesis. Contains the enzymes needed for photosynthesis.
Cell wall	Made from cellulose fibres and strengthens the cell and supports the plant.
Permanent vacuole	Filled with cell sap to help keep the cell turgid.



	Eukaryotic Cell	Prokaryotic Cell
Types	Plant and animal	bacteria
Size	Larger	Smaller
DNA	In the nucleus	Free in cytoplasm

Microbes and disease

Communicable diseases

Communicable - Infectious diseases which are passed between individuals

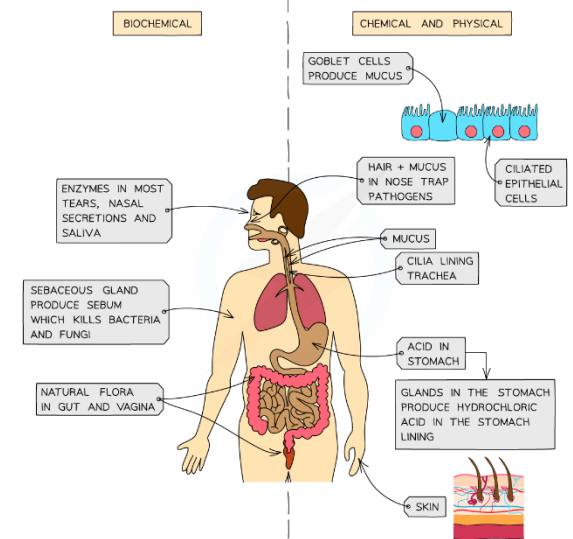
Non communicable - Non-infectious, caused by genes, environmental factors and lifestyle

Disease	Microorganism	Transmission
HIV/AIDS	Virus	Direct Contact/Bodily Fluids
Cholera	Bacteria	Water
Athletes Foot	Fungus	Direct Contact
Flu	Virus	Airborne
Cold	Virus	Airborne
Salmonella	Bacteria	Water
Ring Worm	Fungus	Direct contact

Antibiotics – Medicines used to kill the bacteria

Painkillers – used to treat the symptoms of diseases

Human defence



Role of white blood cells

Ingesting microorganisms



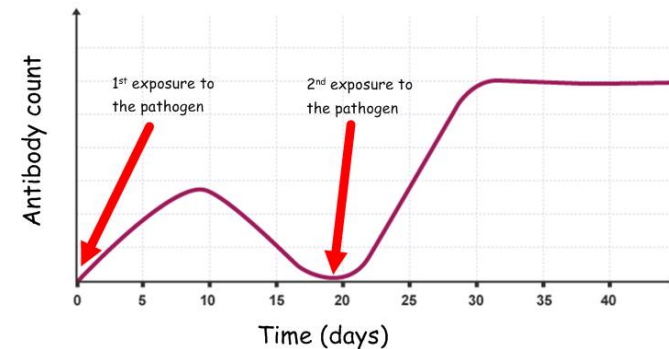
Producing antibodies



Producing antitoxins



Vaccination involves injecting dead or weakened pathogens into the body. This stimulates the white blood cells to produce antibodies which 'remember' the pathogens in case the person gets infected again in the future. If this happens, the body responds much faster



Reducing the spread of communicable diseases

Method	Example	How it works
Sterilising water	Cholera	Chemicals or UV light kill pathogens in unclean water.
Suitable hygiene – food	Salmonella	Cooking foods thoroughly and preparing them in hygienic conditions kills pathogens.
Suitable hygiene – personal	Athlete's foot	Washing surfaces with disinfectants kills pathogens. Treating existing cases of infection kills pathogens.
Vaccination	Measles	Vaccinations introduce a small or weakened version of a pathogen into your body, and the immune system learns how to defend itself.
Contraception	HIV/AIDS	Using barrier contraception, like condoms, stops the transfer of bodily fluids and sexually transmitted diseases.

