Bacterium cells are also single celled organisms. Bacteria **has cytoplasm, cell membrane and cell wall**. There is also **genetic material which floats around** in the cytoplasm because there is no nucleus.



A specialised cell is a cell which has a specific function. Below are some examples:

Specialised cell	Function
Palisade leaf cell	They are adapted to carry out photosynthesis.
	The top is packed with chloroplasts to get
	more sunlight. The high surface area allows
	carbon dioxide to diffuse in.
Guard cells	They are adapted to open/close pores.
	It closes and opens the stomata in a leaf. When
	there is too much water, the pores are opened
	to allow excess water out and important gasses
	in. When there isn't enough water, the pores
	close so that too much water vapour doesn't
	escape. They are sensitive to light , therefore
	when it is night; the pores are closed to reduce
	water loss.
Red blood cells	They are adapted to carry oxygen around body.
	Shape increases the surface area; therefore

Anaerobic respiration

When you do intense and vigorous exercise, the body cannot supply enough oxygen to the muscles. The body then starts doing anaerobic respiration instead of aerobic respiration.

Equation:

Glucose → Energy + Lactic acid

This method isn't a good way of converting glucose into energy because the lactic acid produces causes muscle fatigue (Tired, stop contacting efficiently)

Another disadvantage of anaerobic respiration is that it doesn't release as much energy as aerobic respiration.

Oxygen Debt:

- After anaerobic respiration occurs, there is an oxygen debt.
- This means that the body has to repay the oxygen that wasn't supplied to the body.
- This causes you to breath hard and deep to get more oxygen into your blood stream.
- The blood flows through the muscles to remove the lactic acid by oxidising it which produces Carbon Dioxide and water

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<u>DNA</u>

DNA contains all the instructions to put an organism together and allow it to work/function properly. DNA is found in the nucleus of animal and plant cells, in very long molecules called chromosomes. A gene is a section of the DNA. It consists of instructions to make a specific protein. Cells make proteins by stringing amino acids together into a specific order. Only 20 amino acids are used, but they make up thousands of different proteins. Genes tell cells in which order to put the amino acids together.

Almost everybody has their own unique and individual DNA. However, identical twins are an exception because they have the exact same DNA.

2 uses of DNA fingerprinting: →Forensic science: DNA taken from a crime scene can be compared to the DNA of suspects. The person who's DNA matches is the most likely suspect. →Paternity testing: To see if a man is the father a particular child.

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