BIOLOGY – TOPIC 1

THE NATURE AND VARIETY OF LIVING ORGANISMS

All living organisms share the same basic eight characteristics which are known as MRS GRENC:

Movement – Organisms move to things like water and food, and they move away from harm like predators. This even happens in plants.

Respiration – Organisms release energy from food through respiration.

Sensitivity – Organisms respond to surroundings and react to changes.

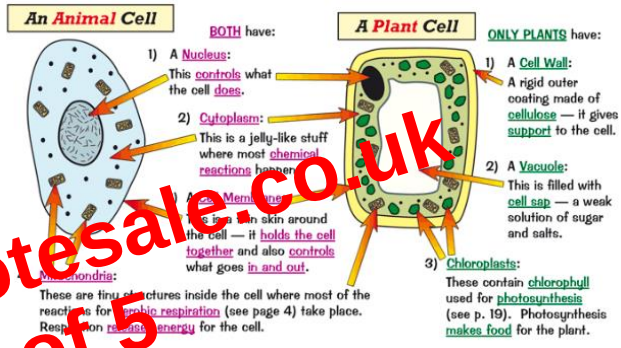
Growth – All organisms can grow and develop; even very small organisms have an adult form.

Reproduction – Organisms reproduce and produce offspring so their species can survive and continue.

Excretion – Organisms excrete waste products such as carbon dioxide and urine.

Nutrition – All living organisms need nutrients for energy and growth and repair, e.g. proteins, fats and carbohydrates with minerals and vitamins.

Control – Organisms can control their internal conditions like water content and temperature.



Eukaryotic – Eukaryotic cells are complex and contain all animal and plant cells. Eukaryotic cells contain a nucleus.

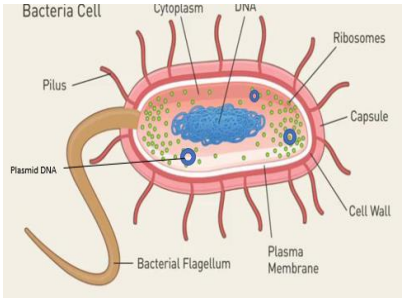
Prokaryotic – Prokaryotic cells are smaller and simpler, for example bacteria. They don't contain a nucleus.

NUCLEUS – Also contains genetic material which is arranged into chromosomes.

CYTOPLASM – It contains enzymes that control chemical reactions.

LARGE VACUOLE – It also maintains the internal pressure to support the cell.

CHLOROPLASTS – Where photosynthesis occurs.



BACTERIA CELL

DNA – One long circular chromosome that controls the cells activities and replication. Floats in the cytoplasm.

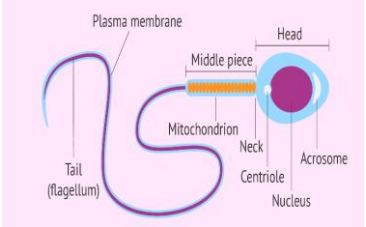
FLAGELLUM – Covered in membrane. Long, hair like structure that rotates to make bacterium move. Not in all bacteria but most have it.

Plasmid DNA – Small loops of extra DNA that aren't part of the chromosome.

Some bacteria can carry out photosynthesis but most feed off other living or dead organisms.

Specialised Cells

SPERM CELL



Streamlined shape and long tail to help it swim to the egg cell.

Lots of mitochondria in mid-section to provide energy to swim the distance.

Has acrosome at front where enzymes are stored to digest through the egg cell membrane.