

Prokaryotic Cells

Prokaryotic cells are smaller than eukaryotic cells and have no nucleus or nuclear envelope.

Prokaryotic Cells

No true nucleus/ only an area where DNA is found.

DNA is not associated with proteins

Some DNA may be in the form of plasmids

No membrane-bound organelles

No chloroplasts, only bacterial chlorophyll

Ribosomes are smaller (70S)

Cell wall made of murein

May have a capsule

Eukaryotic Cells

Distinct nucleus with a nuclear envelope

DNA is associated with proteins called histones

No plasmids and DNA is linear

Membrane-bound organelles

Chloroplasts present in plants and algae

Ribosomes are larger (80S)

Where present, cell wall is made of cellulose

No capsule

Bacteria:

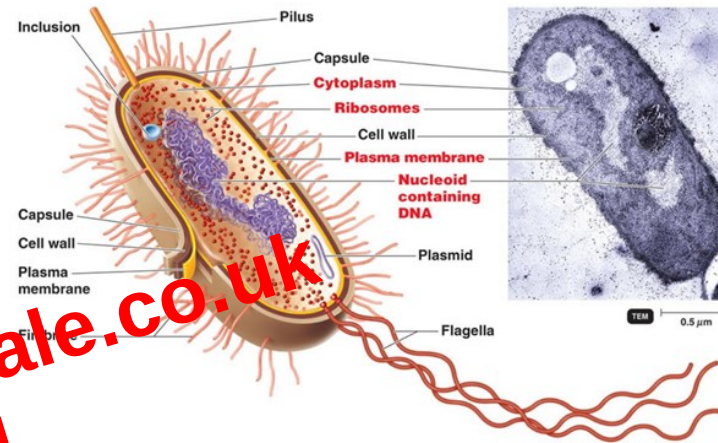
All bacteria possess a **cell wall**: physical barrier that excludes certain substances / protects against mechanical damage.

Cell-surface membrane: Acts as a differentially permeable layer, which controls the entry and exit of chemicals.

Capsule: Protects bacterium from other cells.

Circular DNA: possesses the genetic information for the replication of bacterial cells.

Plasmid: possesses genes that may aid the survival of bacteria in adverse conditions.



Viruses

Viruses are acellular, non-living particles.

They are smaller than bacteria.

They **contain nucleic acids** such as DNA or RNA as **genetic material** but can **only multiply inside living host cells**.

The nucleic acid is enclosed within a protein coat called the **capsid**.

Some viruses, like HIV are further surrounded by a lipid envelope. **The lipid envelope or capsid have attachment proteins which are essential to allow the virus to identify and attach to a host cell.**

