

They are very small and measured in nm (nanometers), they could only be seen through an electronic microscope.

A Virus **has a protein coat around it**, and **genetic material inside** it (RNA or DNA).

Viruses are not considered a living organism because they don't have any of the seven characteristics, except that they **reproduce by replication**, but that only happens inside the host cell.

Viruses strike humans by the following steps:

1. A virus sticks its self to a cell and injects the genetic material into the it
2. The virus reproduces more of its self by replication
3. The virus keeps on replicating until the cell bursts
4. The new viruses go out and kill other cells

Kingdom Bacteria:

A bacterium is a single-celled organism that lives everywhere on earth. It can only be seen by a microscope

Structure of bacteria:

Cell Wall: It's made of a substance called peptidoglycan, which contains glycogen and sugars.

Cell Membrane: It protects the bacterium from bursting when too much water is present and gives it its shape.

Cytoplasm: It's where the chromosomes are kept and it stores granules of various materials.

Chromosome: A single DNA strand coiled up, it contains the bacterium's genes.

Slime Capsule: This is an extra feature that is not present in all bacteria, it is created by the bacterium when the external conditions are not favourable.

Flagellum: This is an extra feature that is not present in all bacteria, it helps in moving and swimming.

Adaptation:

Bacteria have managed to adapt its self in order to survive in various conditions. They obtain their food by various methods:

Autotrophic Bacteria: They make their own food by photosynthesis.

Heterotrophic Bacteria: They feed on ready made food, they are unable to create their own.

There are three types of heterotrophic bacteria, these are:

Saprophytic Bacteria: They secrete enzymes which digest dead organic matter to simple soluble substances which the bacterium feeds on, thus causing Decomposition.

Mutualistic Bacteria: These live on the roots of plants, they use Nitrogen in the airspaces between the soil to convert it to nitrate ions which they feed on.

Pathogenic Bacteria: These are parasites, they cause diseases to plants and animals.

Bacteria also reproduce extremely quickly by binary fission producing numerous offspring in a short time.

Some bacteria has a flagellum which is very useful for movement and swimming.

Some bacteria respire aerobically while others respire anaerobically.

Kingdom Fungi:

Fungi are Multicellular organisms, except for yeast which is a unicellular fungus. Some fungi are not made of cells, but rather of microscopic threads called hyphae.