**2.1 – Unicellular Organisms *(Notes)***

* Key Terms for this section
  + Organism - Living things which can come in all shapes & sizes, can live in a variety of habitats, have common basic needs and are made up of cells.
  + Unicellular – Organisms made up of a single
  + Multicellular – Organisms made up of more than one cell
  + Phytoplankton – Unicellular organisms that live in the oceans
  + Decomposer - They complete the cycling of matter by converting nitrogen in soil in order to support plant life and the terrestrial food chains.
  + Essential – Without which we cannot make do.
  + Paramecium – A unicellular organism
  + Amoeba – Comes from a Greek word meaning change. The amoeba changes shape as it hunts and captures food.
  + Cilia – Tiny hair that act like oars
  + Flagellum – Looks a bit like a tail and helps organism “swim” along
  + Cytoplasm – jelly like material which fills the cell and surrounds the organelles. It contains the nutrients which the cell needs to survive.
  + Extension – Continuation and a part of a larger whole.
  + Psuedopod – Comes from two greek words. *Pseudes* means “false” and *pous* means “foot”. So it translates into “false foot”.
  + Enzymes – Chemicals used for breaking down and digesting food.
  + Terrestrial – Living or present on Earth
  + Carnivores – Consumes meat
  + Herbivores – Consumes vegetation
  + Omnivores – Can consume both meat and vegetation
  + Engulfed – Surrounded from all sides and taken in by the thing which had surrounded it.
* Unicellular - Organisms made up of a single cell (usually smaller than a speck of dust).
  + They can live everywhere that can sustain life (water, soil, and in or on multicellular organisms).
  + Scientists believe that they may have been on Earth for as long as 3.8 billion years.
  + Some are harmful while others are essentials for life to continue on Earth.
  + Simple structure
  + Perform same basic activities as complex plant and animal organisms.
    - Move, eat, respond to stimuli, reproduce and expel waste that results from cellular activities.
  + *Examples: Diatoms, bacteria and amoeba*
* Phytoplankton – Unicellular organisms that live in the oceans (p.38, Fig 2.6).
  + They contain chlorophyll to convert the Sun’s energy into food.
  + Provide most of the Oxygen in Earth’s atmosphere and are the foundation of the ocean food chain.
* Unicellular Decomposers – A group of single-celled organisms that are essential for life on Earth (e.x.: bacteria).
  + They complete the cycling of matter by converting nitrogen in soil into a form of nitrogen that can support plant life and the terrestrial food chains.
* Diatoms – Unicellular organisms
  + Live inside glass like shells which they make themselves (p.39, Fig 2.7)
  + They make their food through photosynthesis
* Movement of unicellular Organisms – There are a variety of ways.
  + Paramecia have cilia, which are tiny hair that act like oars and propel the organism along (p.39, 2.8)
  + E. Coli bacteria move by rotating a flagellum that looks a bit like a tail (p.39, Fig 2.9). These organisms swim along.
  + Amoeba moves by changing shape and forcing its cytoplasm into extensions called pseudopods.
* Amoebas – Not just a mere blob.
  + Thrives in water based environments (salt or fresh).
  + Can live in wet decaying vegetation, soil or in other living organisms (including humans).
  + There are many species (p.40, Fig 2.10) and most are harmless to humans but some cause disease.
  + They have many of the characteristics typical of animal cells.
    - Body is surrounded by selectively permeable cell membrane.
    - Commonly visible organelles include one or more nuclei (depending on the species), cytoplasm, food vacuoles, and a special vacuole that pumps water out of the cell to prevent it from bursting.
    - Water enters amoeba by osmosis. Oxygen diffuses into the organism and carbon dioxide waste diffuses out of the organism.
  + Can be carnivores, herbivores or omnivores.
  + Despite their microscopic size they are predators. They prey upon algae and bacteria.
  + Its hunting skills are based upon its ability to change shape, which is a result of having a very soft cell membrane and cytoplasm.
  + It changes its shape as it moves and captures prey (p.40, Fig. 2.11).
  + The food engulfed by the amoeba becomes a vacuole and is digested by chemicals called enzymes. The nutrients are then absorbed by the organism and the vacuole disappears. Waste products are eliminated through the cell membrane.