

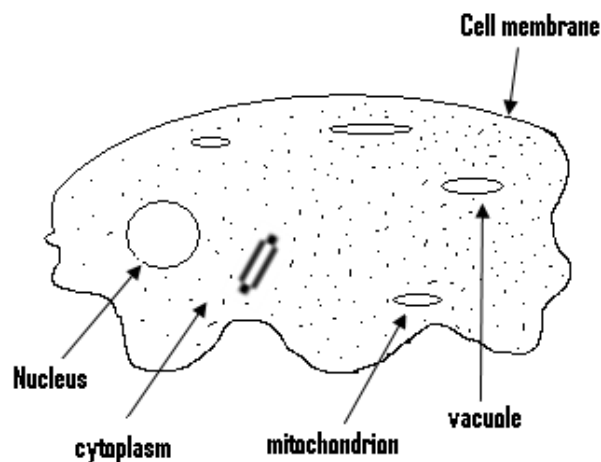
# Chapter Fourteen

## The Cell and the Blood

### Cell:

- All living things are made of cells, which are the smallest units of living things.
- Since these cells are living items, they perform basic life processes such as excretion, breathing and reproduction.
- The cell is made up of a jelly – like fluid called the cytoplasm and a structure called the nucleus.
- The cytoplasm is mostly made up of water which contains salt and sugar.
- Apart from that, the cytoplasm also contains fat and protein.
- When a cell grows into an adult, it divides into two equal parts and each part grows into an adult cell, which also divides into two.
- This division which is controlled by the nucleus is the way and manner in which cells reproduce.
- There are two types of cells and these are the plant cell and the animal cell.

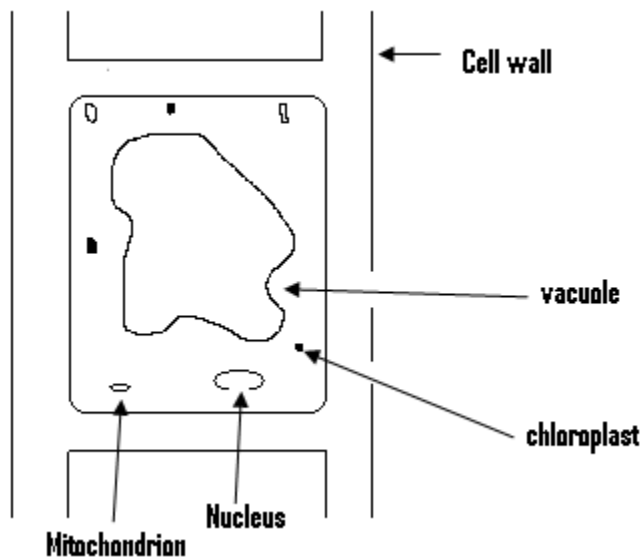
### The animal cell:



- Animal cells are of different shapes and while some are spherical in shape, others are irregular or spiral in shape.
- They are also of different sizes for some are bigger than others.

- Its outermost cover is called the cell membrane, which means that the animal cell is covered by or found within the cell membrane.
- Protoplasm is the name given to the nucleus and the cytoplasm.
- Found also within the animal cells are the mitochondrion and open spaces called the vacuoles.
- Food to be used by the cell is kept within the vacuole.
- Apart from that, waste products produced by the cell are kept within the vacuole.

### **The plant cell:**



- Unlike the animal cell, the plant cell has a fixed shape.
- It consists mainly of the cell wall, chloroplast, mitochondrion, cytoplasm, nucleus and vacuole.
- The cell wall covers or protects the protoplasm. i.e. the cytoplasm and the nucleus.
- Found within the plant cell are the chloroplasts, which give the green colour to most leaves and stems.
- Apart from that, these chloroplasts absorb the sunlight needed by the plant for photosynthesis.
- Food and waste are kept within the vacuole.

### **Differences between the plant and the animal cells:**

- (1) Plant cell has cell wall, while the animal cell has cell membrane.
- (2) Plant cell has chloroplast but animal cell does not have chloroplast.
- (3) Plant cells are bigger than animal cells.

### **Tissue:**

- This is formed when a group of cells come together to perform the same duty.
- Examples of tissues found in animals are the bones, the nerves and the muscles.
- Also examples of tissues found in plants are the phloem and xylem.

### **Organ:**

- This is formed when a group of tissues come together to perform the same function.
- Examples of organs found in animals are the heart and the kidney, and that of those found in plants are the roots, the stem and the leaf.

### **System:**

- This is formed by the coming together of different organs to perform the same function.
- An example is the circulation system, which consists of the heart, the blood, the veins, the arteries and the capillaries.
- The excretory system consists of the kidney, the bladder and the urethra.

### **Organism:**

- This is formed by the coming together and the functioning together of various systems.

### **Blood:**

- This is referred to as a living tissue, and no part of the body can live without it.
- The blood performs many tasks or work for the body.
- It supplies the cells of the body with the food and the oxygen they need.
- It also carries the waste products produced by the body, to special organs for them to be removed from the body.

- It is the heart which pumps blood through out the body.
- Even though blood flows away from the heart through the arteries, it is returned to the heart through the veins.
- It is the lungs which supply the blood with oxygen, and removes carbon dioxide from it.
- While the kidney removes any poison found in the blood, it is the liver which supplies the blood with food.