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STUDY NOTES

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## Science

### **CHAPTER: 6 Structure and functions of cells**

#### **Today's Topic: Nucleus**

#### **Nucleus:**

One of the most important component of the living cell is the nucleus. Generally, it is spherical in shape and located in the centre of the cell. In order to see it clearly with a microscope it should be stained. A membrane called the nuclear membrane separates the nucleus from the cytoplasm. It is porous and thus, allows the movement of materials between the cytoplasm and inside the nucleus.

With a powerful microscope, you can also see a smaller spherical body situated inside the nucleus. This spherical body is called **nucleolus**. Apart from the nucleolus, the nucleus also contains thread-like structures called **chromosomes**. The chromosomes carry genes and also help in inheritance or transfer of characters from the parents to the off spring. However chromosomes can be only seen at the time of cell division.

The nucleus is also the control centre of the cell. It directs the growth of the cell and also controls all the activities that go within the cell. It can, therefore, be compared to the brain in animals.

The cytoplasm and the nucleus together make up the **protoplasm** (Proto means first and plasma means liquid). Protoplasm is called the living substance of the cell. The main constituent elements of protoplasm are carbon, hydrogen, oxygen and nitrogen. It also contains some other elements also.

Is the structure of the nucleus same in cells of plants, animals and bacteria? No! A bacterial cell does not have a well-organised nucleus as multicellular organisms. It does not have a nuclear membrane cells which have nuclear material but no nuclear membrane are called **prokaryotic cells**. The organisms with these kinds of cells are called prokaryotes (pro: primitive; karyon; nucleus). Examples of such organisms are bacteria and blue green algae. Cells which have a well organised nucleus with a nuclear membrane are called eukaryotic cells. These organisms are called **eukaryotes** (eu: true ; karyon :nucleus). These include all organisms apart from bacteria and blue green algae.

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## HOMEWORK (Based on Previous Study Notes)

*Now answer the following questions:-*

1. Define Nucleus.
2. Define Chromosomes.
3. Define Protoplasm.
4. Define Prokaryotic cells.
5. Define Eukaryotic cells.