



**BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034**

**SUBJECT: - Biology**

**Class IX -CHAPTER - THE FUNDAMENTAL UNIT OF LIFE**

**Guidelines:**

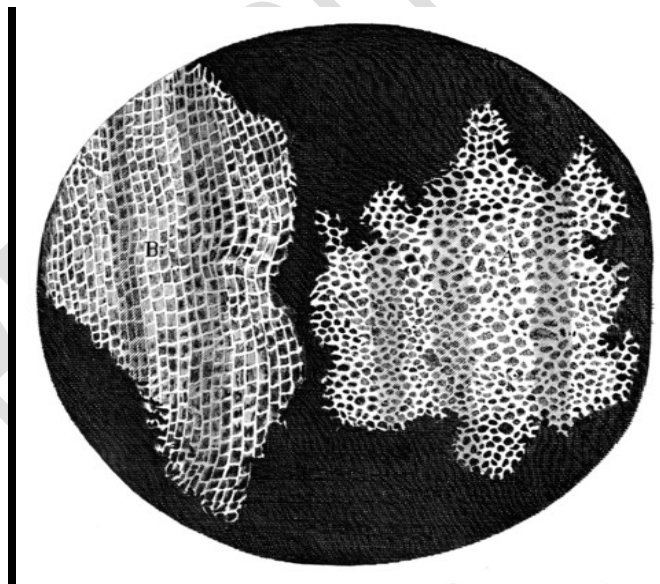
**Dear Students**

- Refer to the content given below.
- It will help you to understand the concept and complete the assignment that follows.
- Maintain a new notebook for Biology.
- Link for the Book:- [http://ncertbooks.prashanthellina.com/class\\_9.Science.Science/CHAP%205.pdf](http://ncertbooks.prashanthellina.com/class_9.Science.Science/CHAP%205.pdf)

**SUB-TOPICS:-**

- **INTRODUCTION**
- **WHAT ARE LIVING ORGANISMS MADE UP OF?**
- **TYPES OF CELLS**
- **ASSIGNMENT**

All living organisms are made up of small compartments called **cells**. The cells were first discovered by **Robert Hooke** in **cork cells** as a structure that looks like a honeycomb. The small compartments/boxes were addressed as cells and it was a very significant discovery in the history of science. Image is shared for reference: -

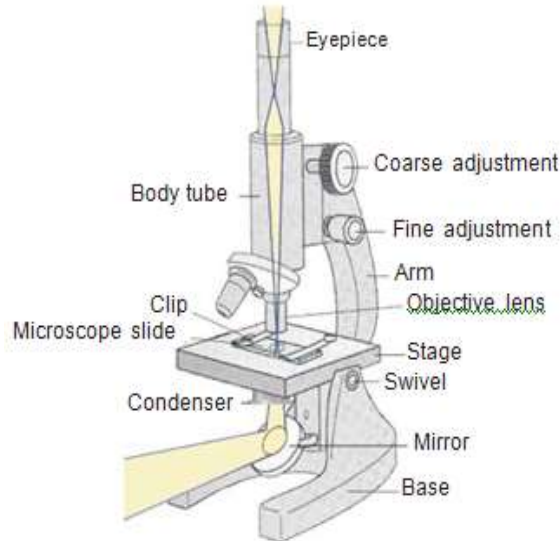


## WHAT ARE LIVING ORGANISMS MADE UP OF?

Open the link shared below as it clearly states the procedure and observations too for the preparation of a temporary stained mount of onion peel.

<https://www.cbsetuts.com/ncert-class-9-science-lab-manual-slide-onion-peel-cheek-cells/>

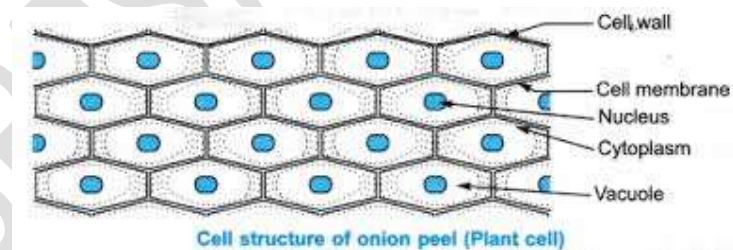
A compound microscope is used to observe different materials in the laboratory, and you have been familiarised with the parts and working of a compound microscope in classes 7 and 8.



Open the link shared below to see video showing the steps you can follow to prepare a slide of onion peel and then observe under the compound microscope:-

<https://www.youtube.com/watch?v=cmnhBJKfvNw>

The onion peel cells when observed under the microscope appear as bricks placed in a wall.



### The following are the significant discoveries /events regarding cells:-

- **Robert Hooke** first discovered **cells** in 1665 in a cork slice with the help of a primitive microscope.
- **Leeuwenhoek** (1674), with the **improved microscope**, discovered the free-living cells in pond water for the first time.
- **Robert Brown** in 1831 discovered the **nucleus** in the cell.
- **Purkinje** in 1839 coined the term '**protoplasm**' for the fluid substance of the cell.

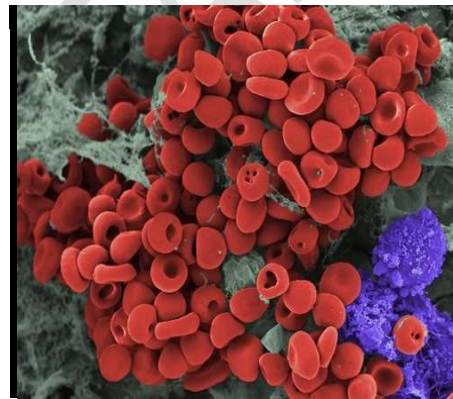
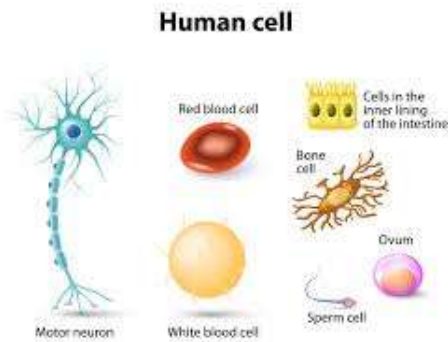
- **The cell theory**, that all the plants and animals are composed of cells and that the cell is the basic unit of life, was presented by two biologists, **Schleiden** (1838) and **Schwann** (1839).
- The cell theory was further expanded by **Virchow** (1855) by suggesting that **all cells arise from pre-existing cells**. With the discovery of the electron microscope in 1940, it was possible to observe and understand the complex structure of the cell and its various organelles.

Many microscopic single celled organisms were also discovered by and by. Eg:- Amoeba, Paramecium, Bacteria, Chlamydomonas, etc.

UNICELLULAR ORGANISMS	MULTICELLULAR ORGANISMS
1. Organisms with only one cell.	1. Organisms with many cells.
2. All functions are performed by the same cell.	2. Different sets of cells perform different functions- Division of Labour.
Eg- Amoeba, Paramecium, Bacteria, Yeast, Chlamydomonas, etc.	Eg- All plants and animals, Mushroom, Penicillium, etc.

### TYPES OF CELLS: -

Cells come in a variety of shapes and sizes and each cell has specialised structures that help it in performing a variety of functions- **CELL ORGANELLES**. A collection of pictures of human cell types is shared for reference: -



RBCs

### ASSIGNMENT:-

1. Cell is the structural and functional unit of an organism. Justify.
2. All cells arise from pre- existing cells. Evaluate.
3. Write down the names of different types of plant and animal cells (5 each).
4. Do you think an individual cell is living? Explain your answer.
5. Identify the following types of cells:-

