



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

SUBJECT:- BIOLOGY

CLASS VIII : CHAPTER:- CELL - STRUCTURE AND FUNCTIONS

Week: 8th December to 11th December, '20

No of blocks: 1

GUIDELINES FOR STUDENTS:

Dear Students,

- Refer to the following content of the chapter.
- These notes will help you to understand the concept of the lesson.
- Do the assignment questions in the Biology notebook.
- Suitable Video links have been provided for better understanding of the concept.
- Do read NCERT too for better understanding of these concepts.

SUBTOPICS:

The topics we will cover in this e lesson are as follows:

- **Activity to observe the components of a plant cell**
- **Activity to observe the components of an animal cell**
- **Cell structure and function**
- **Parts of a cell: Cell membrane, nucleus, cytoplasm.**

Instructional aids /resources:

NCERT LINK FOR THE CHAPTER: <https://ncert.nic.in/textbook.php?hesc1=8-18>

- YouTube Links
- <https://www.youtube.com/watch?v=cL1zzfEYiY8>
- <https://www.youtube.com/watch?v=cL1zzfEYiY8>
- <https://www.youtube.com/watch?v=eop5fn8T89o>

LEARNING OUTCOMES:

Learners will be able to:-

- Define the terms tissue and organs.
- Appreciate the importance of basic components of a cell.
- List the basic components of a cell.
- Draw the shapes of onion peel and cheek cells.
- Understand the procedure of preparing temporary mounts of plant and animal cells.

Activity1: To observe the components of a plant cell:

Watch the video for better understanding:

<https://www.youtube.com/watch?v=cL1zzfEYiY8>

- ➔ Peel an onion
- ➔ Place a small piece of the dry and thin onion peel in a drop of water on a glass slide.
- ➔ Put a drop of methylene blue solution on this thin layer and place a coverslip on it (while ensuring that no air bubbles get trapped in the coverslip).
- ➔ Place the slide under the microscope.

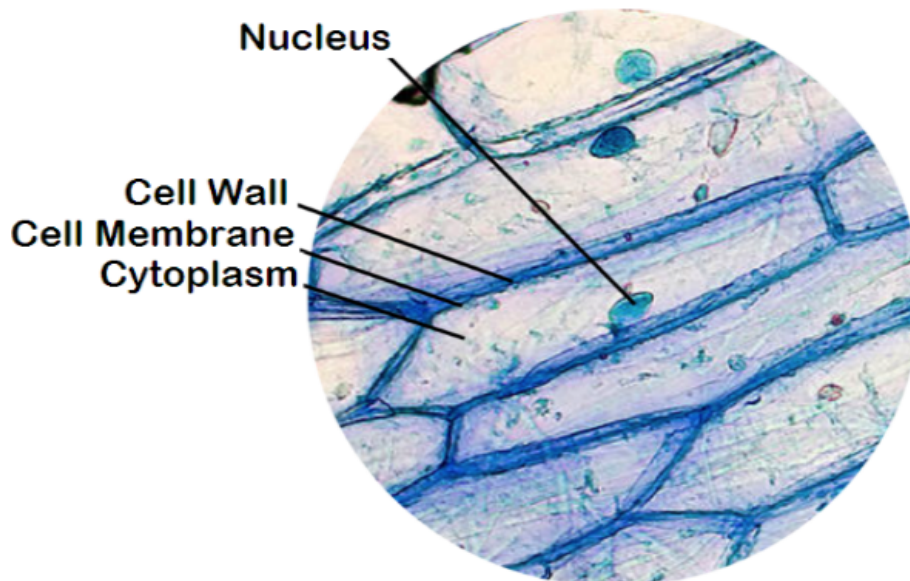


Figure 5: Onion peel cells under microscope

- ✓ **You will see:**
- ✓ The boundary of the onion cell is a cell membrane, which is covered by another thick covering called the cell wall.
- ✓ The dense round body in the centre of the cell is called the nucleus.
- ✓ The jelly-like substance between the cell membrane and the nucleus is called the cytoplasm.

Activity 2: To observe the components of an animal cell:

Watch the video for better understanding:

<https://www.youtube.com/watch?v=cL1zzfEYiY8>

- ➔ Scrape the inside of your cheek lightly with a clean toothpick.
- ➔ Place it in a drop of water on a glass slide.
 - Add a drop of iodine solution or methylene blue solution and place a coverslip on it. Place the slide under the microscope .

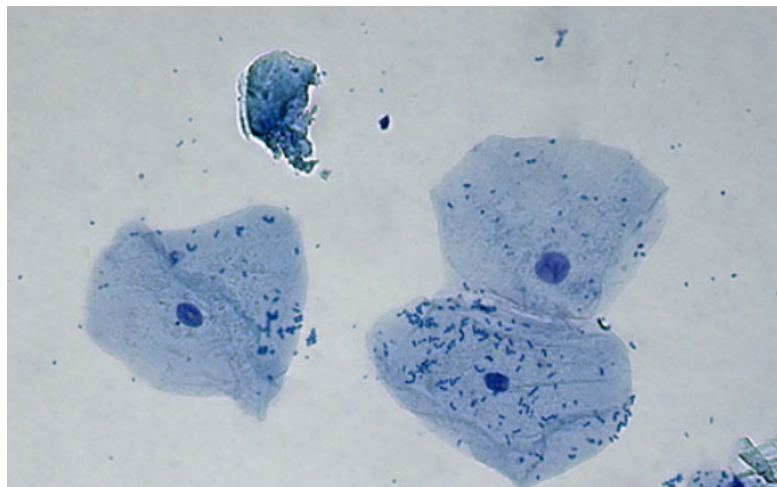


Figure : Cheek cells

You will see:

Cell membrane (Cell wall is absent in animal cells), Nucleus, and Cytoplasm.

LESSON DEVELOPMENT:

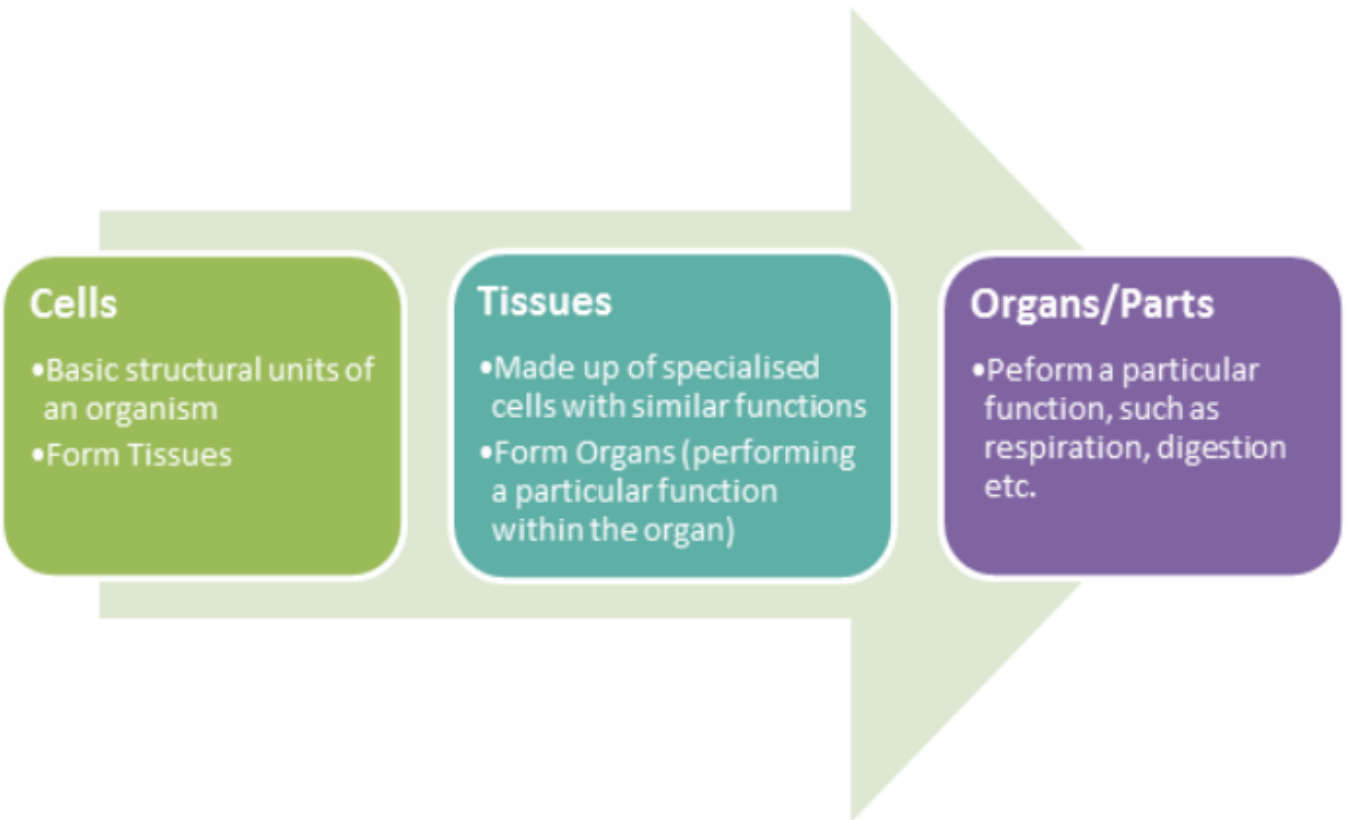
Cell Structure and Function

- (i) Each organ in the living organisms performs different functions such as digestion, assimilation and absorption. Similarly, different organs of a plant perform particular/ specialized functions. Example: roots help in the absorption of water

and minerals.

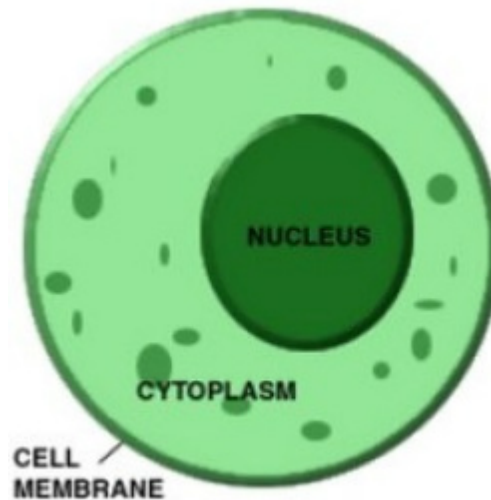
- (ii) Each organ is further made up of smaller parts called tissues. A tissue is a group of similar type cells performing a particular function.

- (iii) In a unicellular organism, a single cell performs all the basic functions of life but in multicellular organisms there is division of labour.



Parts of the Cell:

The basic components of a cell are cell membrane, cytoplasm and nucleus.



1. Cell Membrane:

(i) The cytoplasm and nucleus are enclosed within the cell membrane, also called the plasma membrane.

(ii) It is living part of the cell, thin, delicate and elastic.

(iii) This membrane separates cells from one another and also the cell from the surrounding medium.

(iv) It is selectively permeable. It allows the flow of limited substances in and out of the cell.

(v) This gives shape to the cell.

(vi) In addition to the cell membrane, an outer thick layer in cells of plants, called cell wall is present.

(vii) This additional cell wall surrounding the cell membrane is required by the plants for protection against variations in temperature, high wind speed, atmospheric moisture, etc. They are exposed to these variations because they cannot move.

(viii) Cells can be observed in the leaf peel of Tradescantia, Elodea or Rhoeo.

2. Cytoplasm:

(i) Cytoplasm is the jelly-like substance present between the cell membrane and the nucleus.

(ii) Various other components or organelles of cells are present in the cytoplasm. Like mitochondria, golgi bodies, ribosomes, etc.

3. Nucleus:

(i) It is very important component of the living cell. It is generally dense and

spherical organelle and located in the centre of the cell. It can be seen easily with the help of a microscope. Nucleus is separated from the cytoplasm by a membrane called the nuclear membrane. This membrane is also porous and allows the movement of materials between the cytoplasm and the inside of the nucleus.

(ii) It consists of nucleolus, thread-like structures called chromosomes. These carry genes and help in inheritance or transfer of characters from the parents to the offspring. The chromosomes can be seen only when the cell divides.

(iii) Genes contain genetic codes which are responsible for the unique physical character of an animal or a plant.

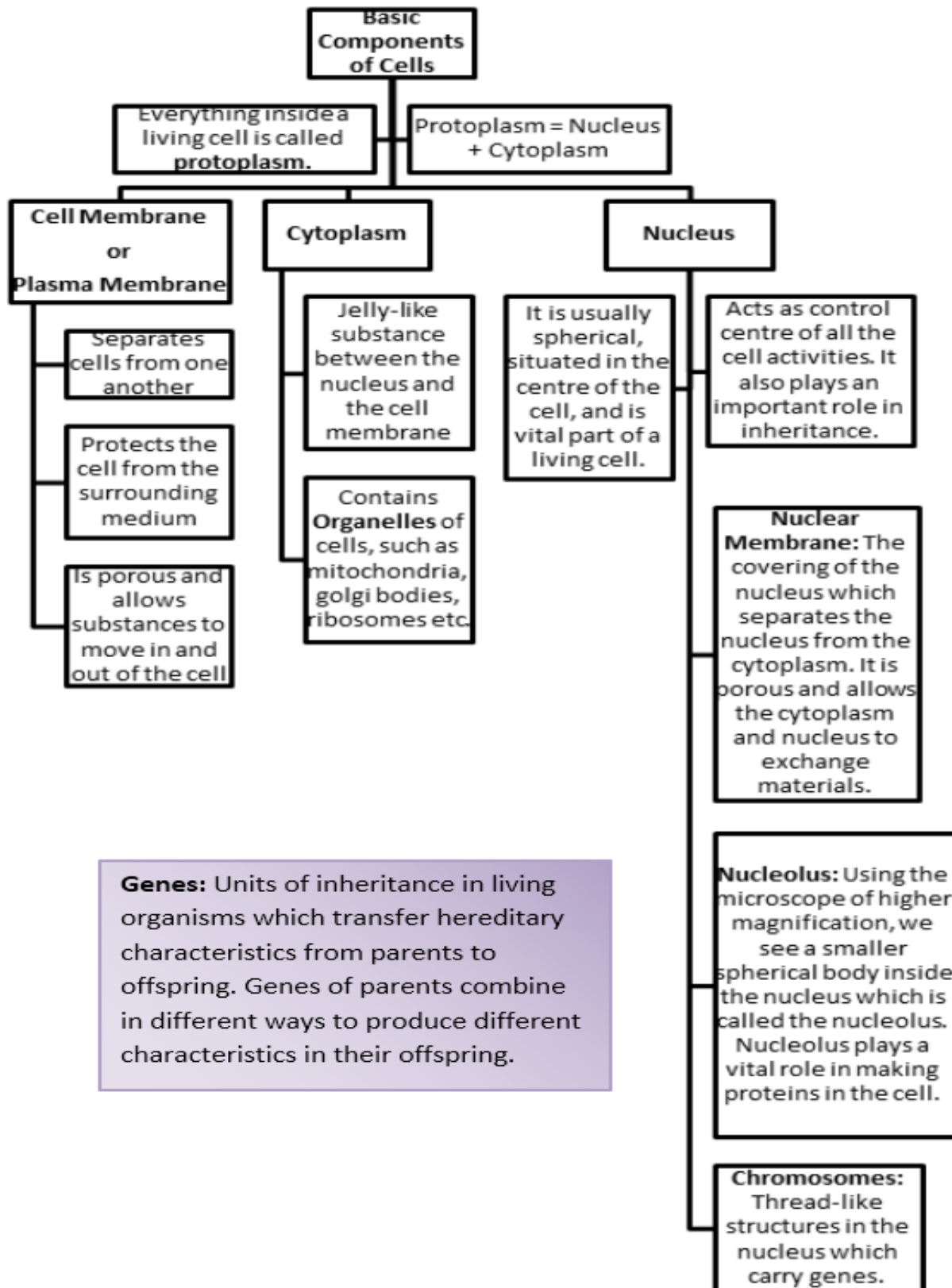
(iv) Nucleus acts as the control centre of the activities of the cell. The entire content of a living cell is known as protoplasm. It includes the cytoplasm and the nucleus. It controls all the metabolic activities of the cell.

(v) Nucleus is the storehouse of genes. Without a nucleus, a cell can neither survive nor show specialized activities.

- There are some other organelles (or components of cells) too. These include mitochondria, ribosomes, and Golgi bodies.

Watch the video for better understanding:

<https://www.youtube.com/watch?v=eop5fn8T89o>



ASSIGNMENT

Q1. MCQ

A. The jelly like fluid of a cell is

- a) Nucleus
- b) Cell wall
- c) Cytoplasm
- d) All of these

B. Which one of these is not the basic component of a cell?

- a) Cell membrane
- b) cell wall
- c) nucleus
- d) cytoplasm

C. Nucleus is separated from cytoplasm by

- (a) nuclear membrane
- (b) nucleoplasm
- (c) organs
- (d) cell membrane

D. Tissues combine to form

- (a) nucleus
- (b) cells
- (c) organism
- (d) organs

E. Cell wall is found in

- (a) plant cells only
- (b) animal cells only
- (c) both (a) and (b)
- (d) none of them

Q2. Short answer type questions

1. State any two functions of nucleus.
2. Distinguish between the following by giving one point for each:

- i) protoplasm and cytoplasm
- ii) Cell membrane and nuclear membrane

3. What are genes? Where are they found in a cell? What function do they perform?
4. Plant cells need cell walls. Evaluate.
5. Justify

- 1) Nucleus is called the control centre of a cell.
- 2) Cell membrane is said to be selectively permeable.
