

# **Meruvambayi M.U.P School**

## **Teaching Manual**

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**Subject: Basic Science(Eng. Medium)**  
**STD: VI**

### **Unit.1**

## **Caskets of life**

### **Learning outcomes:**

- Explain that cell is the fundamental unit of life.
- Explain unicellular and multicellular organisms with examples.
- Identify and explain that the size of the organisms is not based on the size of the cell but on the number of cells.
- Identify and illustrate parts of the cell.
- Illustrate plant cell and animal cell and find out the similarities and differences.
- Observe cells using microscope.

## **Module-1-Cells**

*Explain that cell is the fundamental unit of life.*

### **Topic 1**

*Cell is the basis of life.*

#### **Materials required:**

ICT, hand lens, microscope.

#### **Activities**

1. Discussion- Difference in size of the organisms.
2. Shows the different types of organisms having different size on the screen.(slide<sup>3</sup>)
3. Arrange the organisms according to their size. (slide<sup>4</sup>)
4. Observation using hand lens- small organisms like ants.
5. Introduces microscope.(slide<sup>14</sup>)

### **Topic 2**

*Cell is the basis of life*

#### **Materials required:**

Pictures of unicellular organisms, microscope, slide, cover glass, hay, soaked water, micro organisms (models).

#### **Activities:**

- 1.Experiment- Observation of unicellular organisms using microscope(in soaked hay)
2. Shows videos (slide<sup>1</sup>) and pictures (slide<sup>2</sup>) on the screen.
3. Discussion- micro organisms.

### **Topic 3**

Explains unicellular and multicellular organisms with examples.

#### **Materials required:**

Reading cards, ICT (pictures)

#### **Activities:**

1. Discussion- Cell is the basis of life.
2. Show the reading cards of unicellular organisms and multicellular organisms.
3. By using pictures (slide<sup>4</sup>), compare the visibility of organisms and other small organisms.

### **Topic 4**

The reason for the size of the organisms is not based on the size of the cells but on the number of cells.

#### **Materials required:**

ICT (pictures), Microscope, slide, pure water, methylene blue stain, two new tooth brushes and cover glass.

**Activities:**

1. Observe the pictures in the text book.
2. Discussion based on the pictures.
3. Experiment- Observation of cheek cells of a child and the teacher through microscope.
4. Shows videos(slide<sup>6</sup>) and pictures(slide<sup>5</sup>) of cheek cells on the screen.

**Topic 5**

*The reason for the difference in the size of the organisms is the difference in the number of cells.*

**Materials required:**

Pictures (ICT) of houses of different size.

**Activities:**

1. Discussion- How does the body grow without bringing about any change in the size of cells.
2. Picture discussion(ICT)- Construction of big house and small house.

**Module- 2**

## **Topic 1**

*Different types of cells.*

### **Materials required:**

Pictures(ICT), Videos of observation cells(ICT), Microscope, charts/models of various types of cells.

### **Activities:**

- ◆ Discussion- Asks the shape of all the cells in a human body the same as that of cheek cells.
- ◆ Activity- Shows the slide of the blood cells and observes through a microscope.
- ◆ Discussion- Asks the shape of these cells are similar to the cheek cells.
- ◆ Shows the videos of observing blood cells through microscope.(slide<sup>4</sup>)
- ◆ Shows the slides of various types of cells and asks their names.
- ◆ Shows various types of cells on the screen. (slide<sup>3</sup>)

## **Topic 2**

*Identify and illustrate the parts of cells.*

### **Materials required:**

Pictures of animal cell (slide), chart/model, pictures of some types of cells (slide).

**Activities:**

- ◆ Shows the pictures of animal cell on the screen(slide<sup>2</sup>)- let them draw in the book.
- ◆ Discusses the components of the cells.
- ◆ Asks them to draw the given types of cells and label them.(slide<sup>4</sup>)

**Topic 3**

*Identify the plant cell*

**Materials required**

Microscope, onion peel, pictures of cells in onion peel

**Activities:**

- ◆ Let them observe the onion cell through the microscope.
- ◆ Let them draw the outline of the shape, what they have observed.
- ◆ Compare it with the figure given in the text book.
- ◆ Shows the pictures of onion peel(slide <sup>3</sup>) on the screen.

## **Topic 4**

Identify the guard cells in the leaf.

### **Materials required**

Microscope, leaf, pictures of guard cells in the slide.

### **Activities:**

- Observe a leaf through microscope.
- Find out the difference in the shape and size of the cells in the leaf.
- Shows the pictures of the cells showing guard cells (slide<sup>1</sup>).

## **Topic 5**

*Illustrate plant cells and animal cells and find out the similarities and difference.*

### **Materials required:**

Pictures of plant cells and animal cells (ICT), models, work sheet.

### **Activities:**

- Shows the pictures of plant cells and animal cells (slide<sup>1</sup>) on the screen.
- Shows the models of animal cells and plant cells.
- Asks them to compare both the cells. (slide<sup>4</sup>)
- Gives work sheet. (slide<sup>5</sup>)

## **Topic 6**

*Observe the plant cells using microscope.*

### **Materials required:**

Microscope, cross section of tender stem, charts and pictures (ICT), video(ICT).

### **Activities:**

- Observe the cross section of tender stem through microscope.
- Discussion- Plant cells have cells that differ in size and shapes.
- Shows the videos of observing cross section of tender stem.(slide<sup>5</sup>)

