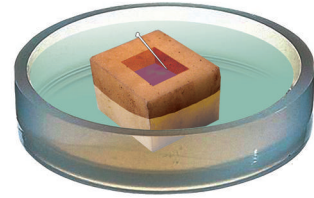


Movement of materials across the cell membrane



All the organisms in the world are made up of cells. You know that cell is the Basic unit of life. You have learnt about different parts of and their specific duties in the chapter “Structure and functions of cell”. It is very interesting to know how substances pass through cells. There is a wonderful mechanism. Let us learn.

Activity-1

Get in-go out

Let us look at the substances in the table. Some are needed by the cells while some are discarded by the cells.

Substance	Should go into the cell	Should go out of the cell
Oxygen		
Glucose		
Proteins		
Fats		
Vitamins		
Minerals		
Carbon dioxide		
Wastes		

Identify and tick mark which substances should go in and which substances should go out of the cell.

- Which substances should enter into the cell? Why?
- Which substances should come out of the cell? Why?

- Can you name any other substances, which should enter into the cell?
- Which substances should enter into the cell and go out of the cell?

You know that cell performs different functions. For these different types of

substances are required by the cell. These are solids like glucose, liquids like water, and gases like oxygen. To understand the entry or exit of substances into and out of the cell, let us do the following activities.

For doing these activities, we have to prepare different solutions.

Preparing Solutions:

To prepare sugar solution we need sugar and water. In a sugar solution sugar is the solute and water is the solvent. Sugar dissolves in water forming sugar solution.

Preparation of saturated solution :

Take 100 ml of water in a beaker. Add sugar/salt. Stir till it is dissolved. Repeat it till little amount of it is left at the bottom of the beaker which will not dissolve. This is the saturated solution of sugar/salt (in cold water).

Which one is more concentrated solution?:

Take three beakers with one hundred ml. of water in each. Add half teaspoonful of sugar to the first beaker, one teaspoonful to the second and one and a half teaspoonful to the third. Compare the three solutions and answer the following. The solution of which beaker will be most sugary? What is the reason? Can we convert the solution of beaker I into solution of beaker III? How? How can we make the solution of the third beaker indicated to that of the first? How much water should we add to the solution in the third beaker to make it similar to solution of the first beaker? Solutions with different amount of solute dissolved in them are solutions of different concentrations. The amount of sugar present

in the 100 ml of water is the concentration of the sugar. Which beaker has the most concentrated solution?



Lab Activity

Aim : Observation of material in different solutions

Material: 1. Two beakers 2. Tap water
3. Sugar 4. Dry grapes or kishmish

Procedure: Take 100 ml of water in a beaker. Keep dry raisin (kishmish) in it.



Fig-1 Kishmish kept in tap water

Leave it for one hour. Observe what has happened. Take it out and compare it with the dry raisin. Is there any change in the size of kishmish. (You may try the same activity with slightly dried carrots and other such vegetables) Do you ever observe that your mother dipped wilted vegetables in water. Can you identify the reason.

Then take 100 ml of saturated solution of sugar in a beaker, which was already prepared.



Fig-2 Swollen kishmish kept in tap water