

UNIT - 2

PLANTS AND ANIMALS

After studying this unit you :

- recognize the differences between plants and animals.
 - movement
 - nutrition
 - respiration
 - growth
 - reproduction

Do plants and animals resemble each other ? Some of the characteristics of plants and animals are similar.

Both plants and animals-

- grow
- move
- are made up of cells
- can reproduce
- have definite life span
- respire
- need food
- discharge excess of water and wastes
- show response to stimulus

Inspite of similarities, plants and animals differ from each other in certain characteristics.

Know this :

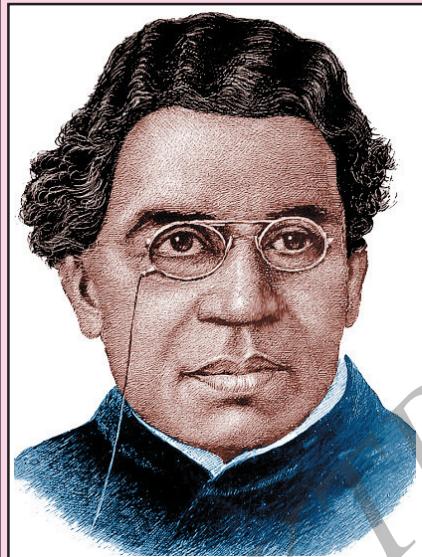


Fig. 2.1
Jagadish Chandra Bose
(1858-1937)

Jagadish Chandra Bose was a physicist, biologist, and archaeologist. He made significant contributions to plant science. He invented **crescograph**, an instrument which records the plant growth. He proved experimentally that **plants are living beings and they show response to stimulus**. He founded the **Bose Research Institute** in Kolkata.

Differences between plants and animals :

1. Movement :

Animals can move from one place to another on their own.

Plants do not move from one place to another. Their movement is restricted to some parts. Their roots fix them to the soil. However plants show certain movements.

Example :

- a) bending of leaves towards sunlight.
- b) folding of leaves
- c) movement of roots into the soil.

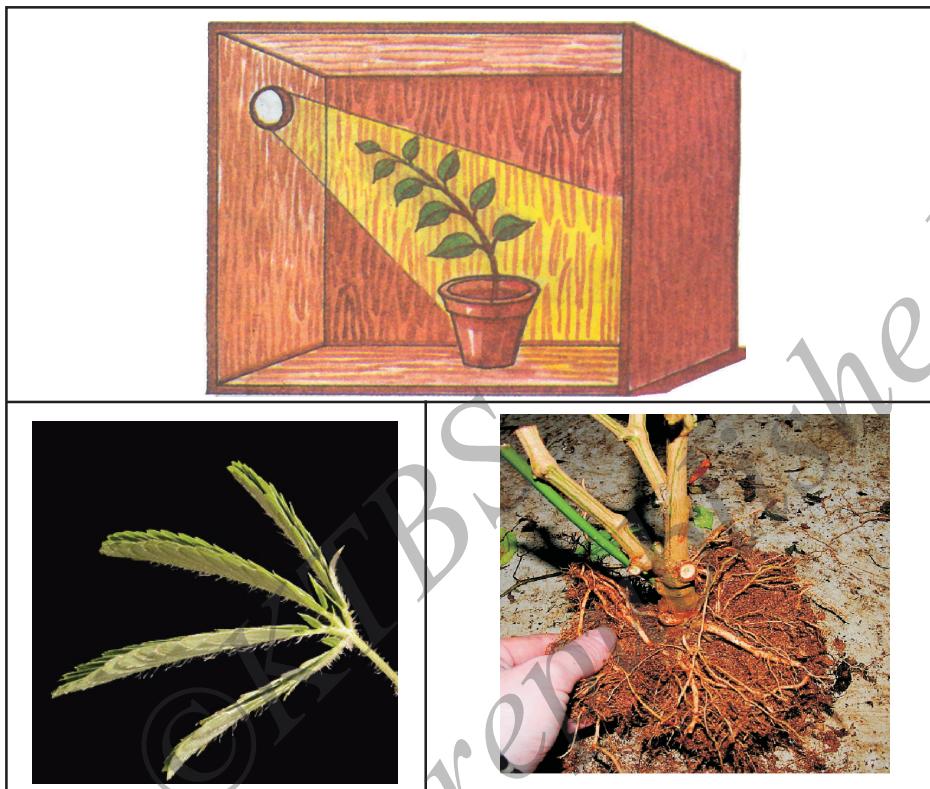


Fig. 2.2
Movement of plants.

Know this :

Certain animals such as sponge cannot move

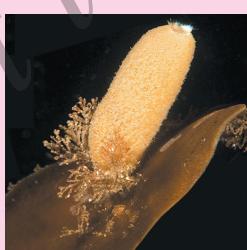


Fig. 2.3
Sponge

Know this :

Plants like chlamydomonas move (float) on water surface.

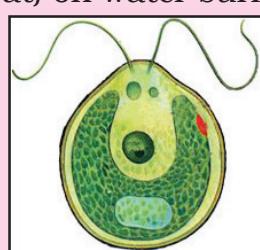


Fig. 2.4
Chlamydomonas

Have you ever observed a climber like bitter gourd ? It always moves towards a support.



Fig. 2.5
Climber moving towards a support

2. Nutrition :

You know that animals depend on plants or other animals for food. How do plants get their food ? Green plants prepare their own food by a process called photosynthesis. These plants are called **autotrophs**. Animals which depend upon plants or other animals for food are called **heterotrophs**. You will learn more about autotrophs and heterotrophs in higher classes.

Activity 2.1 : Write the names of ten vegetables that you use in your house.

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

3. Respiration :

Both plants and animals respire continuously until their death. They take in **air** from the atmosphere, use **oxygen** and give out **carbon dioxide**.

Word help :

Atmosphere - thin layer of air that surrounds the earth.

Know this :

In plants, oxygen released during photosynthesis is made available for respiration. However, rate of photosynthesis is greater than that of respiration.

Animals have definite organs to respire.

For Example,

- a) Lungs in man
- b) Gills in fish
- c) Skin in earthworm
- d) Skin, buccal cavity and lungs in frog

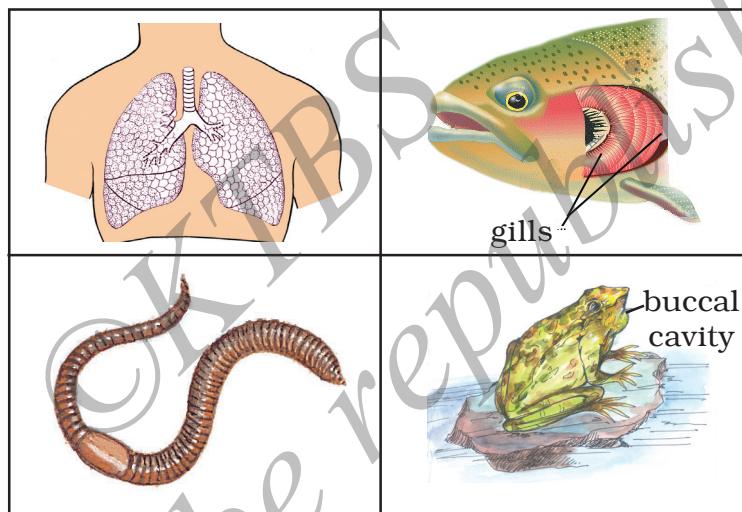


Fig. 2.6

Try this :

Observe the movement of buccal cavity of a frog.

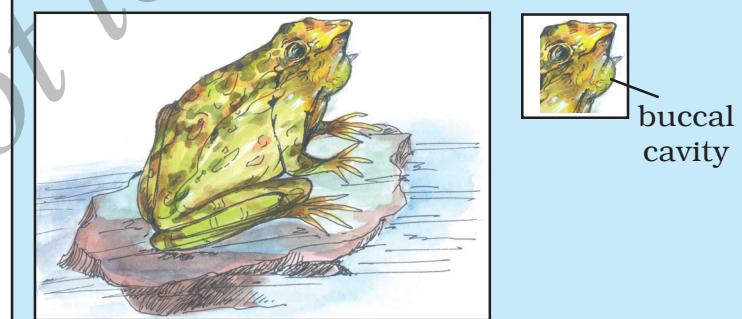


Fig. 2.7

Plants respire through small openings called **stomata** which are present on the lower surface of leaves.

Word help :

Stomata - tiny openings present on the lower leaf which can be seen through hand lens.

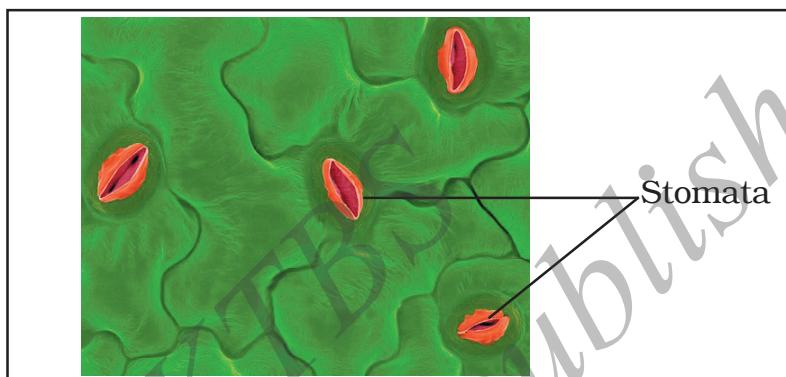


Fig. 2.8

Lower surface of the leaf with stomata

Activity 2.2 : Observe the transverse section (T.S.) of a leaf under the microscope to see stomata with the help of your teacher.

4. Growth :

You are familiar with different parts of a plant, namely, roots, stem, branches, leaves, flowers and fruits. Growth in plants is more in parts like root tip, shoot tip or tips of branches.

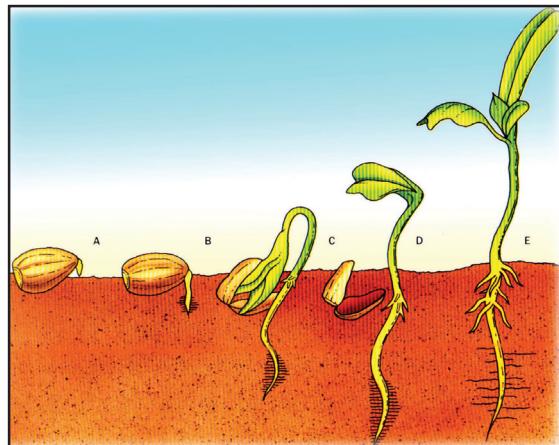


Fig. 2.9
Growth in Plants

In animals, growth is not restricted to particular areas as in the case of plants.

Know this :

The rate of growth is individualistic both in plants and animals.

5. Reproduction :

You know that the living organisms reproduce to continue their progeny. Both plants and animals reproduce through several methods.

Animals like human beings, cats, cows, dogs, give birth to young ones.



Fig. 2.10



Some animals like birds, snakes, butterflies, lizards, frogs, turtles reproduce by laying eggs.

Fig. 2.11

Plants like papaya, mango, cucumber, pumpkin reproduce by producing seeds.

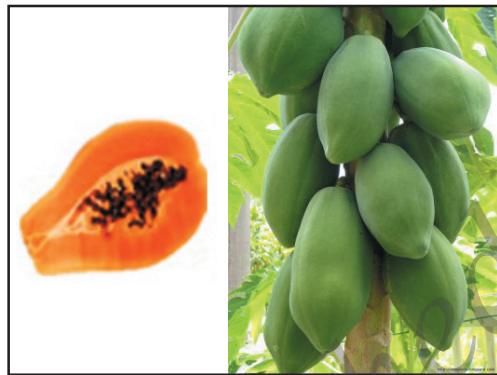


Fig. 2.12



Fig. 2.13

Some plants like sugarcane, potato, rose plant reproduce by their cuttings having nodes.

Remember :

- Plants and animals differ from each other in certain characteristics like movement, nutrition, respiration, growth and reproduction.
- Green plants which prepare their own food are called autotrophs.
- Animals which depend upon plants or other animals for their food are called heterotrophs.
- Animals have definite organs to respire- for example, lungs in man, gills in fish, skin in earthworm, skin, buccal cavity and lungs in frog.
- Growth in plants is more in parts like root tip, shoot tip or tips of branches.

Tips :

- To get more oxygen, grow more plants.
- Save plants ; Save life.

Exercises :

I. Choose the most appropriate answer and put a tick (✓) mark against it :

1. The respiratory organs of the fish are
a) lungs b) gills
c) skin d) buccal cavity
2. The green plants which prepare their own food are called
a) autotrophs b) heterotrophs
c) climbers d) annuals

II. Fill in the blanks with suitable words :

1. Animals which depend upon either plants or animals for their food are called _____
2. Plants respire through small openings called _____

III. Answer the following questions :

1. What are the differences between plants and animals ?
2. How do plants show movement ? Give two examples.
3. How does the growth of plants differ from the growth of animals?
4. Mention different methods by which plants and animals reproduce.