

- Growth in plants
- Response in plants



1 Growth and Response in Plants

We see many living things around us, such as humans, animals and plants. All these living beings have some common features and some differences as well. If we look carefully, all the living beings have two properties in common. First, they grow and develop, and second, they are sensitive, i.e. they respond to stimuli.

Growth in Plants

Growth is the common characteristic of all living beings. All the living beings grow surely.

When a seed is sown, it grows into a sapling. It grows slowly and becomes a plant. As the plant grows, branches and leaves emerge out. Later, buds, flowers and fruits grow on it.

A plant keeps on growing till it dies. But animals grow only up to a certain age.

This is proved by the fact that every animal has a fixed number of organs.

If any branch or leaves of a plant are broken, new branches and leaves take its place. But if any animal loses an organ, it is lost for ever.

The parts of a plant do not grow at the same rate. The lower portion of the root and the upper part of the trunk grow the fastest.

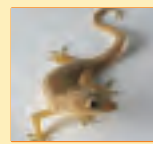


Growth of a plant



Strange But True

* If the tail of lizard is cut, it grows back.



Response in Plants

Plants are sensitive to light, sound, touch, humidity, etc. In their presence, the plants show their response. The external reason or cause to which a plant reacts is called a stimulus. Come, let us study about some responses shown by a plant.

Light : Generally, plants are very sensitive to light. Light is very important for the life of a plant because plants make their food by photosynthesis in its presence only. But some plants display extreme sensitivity to light. Let us conduct an experiment.

Experiment

Take a green potted plant. Put it in a box as shown in the figure. Make a round hole in the wall of the box. Take care, there should be no other hole in the box from where the sunlight may come in. Keep on watering the plant everyday.

After 4-5 days, you will observe that the plant has turned towards the sunlight.

This proves that the plants are sensitive to light.



Observe a sunflower. It always faces the sun. From morning till evening, to face the sun, the flower moves from east to the west.



Reactions in a sunflower

Flowers of lotus and daisy bloom only in the sunlight. As soon as the sunrays fall on them in the morning, their petals start opening. When the sun sets, the petals close too.

Sunlight has a reverse effect on a flower of queen of night. It blooms at night and the petals close at the first light of the day.

Sound : Sound also affects the plant. It has been proven by different experiments that flowers are more healthy at places where light music is played. At the same time, plants at the roadside, where heavy traffic plies, are generally not healthy. That's why the leaves of such plants soon turn yellow.

Touch : Plants are sensitive to touch as well. Look at a mimosa plant. As soon as you touch it, its leaves close. They open back when the object that is touching them is removed.



Night blooming Jasmine



Effect of sound on plants



Touch-me not plant (Mimosa plant)

'Venus Flytrap' is a carnivorous plant. As soon as any insect touches its flower, the petals turn inside and trap it. Then the digestive juices start working on the insect. All this happens so fast that the insect does not have any chance of escaping.




Venus Flytrap

Humidity : The roots of the plants always turn towards humidity. The roots of the plants of desert region are very long and go deep into the ground in search of water.

Children, besides light, sound, touch and humidity, plants also react to cold, heat and smoke as well.

Do You Know ?

* An Indian scientist, J.C. Bose, made a machine called 'Crescograph' to check the responses of plants.




Looking Back.....

- ❖ All living things have some common characteristics as well as some differences.
- ❖ Living beings have two characteristics in common—growth and response.
- ❖ All the animals grow only up to a certain age while plants grow continuously.
- ❖ All the parts of the plant do not grow at the same rate.
- ❖ Plants are sensitive to light, sound, touch and humidity, and react to them.
- ❖ The external cause to which a plant respond is called stimulus.
- ❖ Plants respond to cold, heat and smoke as well.



Exercise

A. Tick (✓) on the correct option : (MCQs)

1. How many characteristics are common in all the living beings ?
 (a) One (b) Two (c) Three
2. Whose natural quality is growth ?
 (a) Living beings (b) Non-living beings (c) Both
3. What is necessary for photosynthesis ?
 (a) Sunlight (b) Rain (c) Sunshine
4. Which one is a carnivorous plant ?
 (a) Marigold (b) Sunflower (c) Venus flytrap

B. Answer the following questions :

1. What are the two characteristics common in living beings ?
2. What is the difference between the growth in animals and plants ?

3. What do you understand by stimulus ?
4. How are the plants sensitive to light ?
5. Why are the roots of plants of the desert regions long ?

C. Fill in the blanks :

1. _____ is the normal characteristic of living beings.
2. The _____ of animals do not grow back if lost _____.
3. Plants respond extremely to _____.
4. _____ also affect the plants.
5. _____ is a carnivorous plant which reacts to _____.

D. Write True or False :

1. The leaves and branches of plants do not grow back if broken once. _____
2. All the parts of the plants do not grow at the same rate. _____
3. The sunflower always faces the sun. _____
4. Plants are generally sick at the places with pleasant music. _____

E. What happens when :

1. The tail of a lizard is cut ?
2. Sunlight shines on the lotus flower ?
3. Moonlight falls on flower of queen of night ?
4. Some insect touches the Venus flytrap ?

F. Match the following :


- | | |
|-------------------------|--|
| A | B |
| 1. Living things have | to touch also. |
| 2. Every plant grows | sensitive to touch. |
| 3. Plants are sensitive | some common features and some differences. |
| 4. Some plants react | till death. |
| 5. Mimosa plant is | extremely to light. |

Creative Task

Do the following :

1. Take a potted plant. Write down its length. Measure its length every alternate day. Observe the growth in its length.
2. Collect petals of five flowers and paste them in your scrapbook. Write two lines about each.

Investigation :

 For more information about growth and reaction in plants, log on to : <http://en.wikipedia.org/wiki/lving-organisms>

