

CBSE Class 10 Biology Activity Chapter: Life Processes

Activity 1:- To show that chlorophyll is essential for photosynthesis.

Material Required:- A potted plant of variegated leaf such as money plant, white paper sheet, pencil, beaker, water bath, iodine solution and alcohol.

Procedure:-

1. A potted plant with variegated leaves is placed in sunlight for about six hours.
2. Pluck a variegated leaf from the plant and trace the outline of this leaf on a piece of paper.
3. Dip the leaf in boiling water for a few minutes and then immerse it in a beaker containing alcohol and boil it in a water bath till it decolorizes.
4. The leaf is then dipped in a dilute solution of iodine for a few minutes.
5. Take out the leaf and rinse off the iodine solution.
6. Observe the changes in colour of the leaf.

Observation:-

1. The leaf has two type of patches- bluish black and yellow. The bluish black area contains starch and the yellow areas without starch.
2. Bluish black areas are the ones, which were green previously, while non-green areas remain pale coloured.

Conclusion:- This experiment proves that only chlorophyll containing areas i.e., green parts of the leaf produce starch which is a product of photosynthesis. Thus, chlorophyll is essential for photosynthesis.

Activity 2:- To show that Carbon dioxide is necessary for photosynthesis.

Material Required:- Two healthy potted plant of same size, two glass plates, two bell jars, Vaseline, watch glass, potassium hydroxide, alcohol, spirit lamp and beaker.

Procedure:- Keep the two potted plants of same size, in dark for three days so that the leaves become free from starch.

1. Place the potted plant(a) on a glass plate and put a watch glass containing potassium hydroxide(KOH) by the side of the pot and cover it with a bell jar.
2. Place the other potted plant(b) on a second glass plate and cover it with a bell jar.
3. Vaseline is used to seal the bottom jars to the glass plates so that the set up is air-tight.

4. Both the plants are kept in sunlight for two hours.
5. Pluck a leaf from each plant and test the same for the presence of starch.

Observation:- The leaf of plant (b) without potassium hydroxide turns blue-black, while the leaf of plant (a) with potassium hydroxide remains pale coloured or colourless.

Conclusion:- This experiment demonstrate that the leaf plant(b) has synthesized starch with the help of photosynthesis and leaf of plant (a) has not synthesized starch as it does not contain carbon dioxide as the same is absorbed by potassium hydroxide. So, photosynthesis did not occur in (a)

Activity 3:- To show that carbon dioxide is produced during respiration.

Material Required:- Two test-tubes, freshly prepared lime water, syringe or pichkari, rubber tube and a glass tube.

Procedure:-

1. Pour freshly prepared lime water in each test-tube (A & B)
2. Blow air in test- tube B through the lime water with the help of glass tube.
3. Pass air through lime water in tube A with the help of a syringe or pichkari fitted with a fine rubber tube.

Observation:-

1. Lime water turns milky in tube B showing that we exhale carbon dioxide.
2. In tube A, lime water take long time to turns milky.

Conclusion:-

1. Lime water turns milky when carbon dioxide mixes with it.
2. Air blown out from mouth contain carbon dioxide.

CBSE Class 10 Biology Activity Chapter: Control and Co-ordination

Activity 1:- Response of the plant to the direction of light.

Requirements:- Conical flask, water, wire mesh, 2-3 freshly germinated bean seeds, cardboard box open from one side.

Method:- Take a conical flask and fill it with water. Cover the neck of the flask with a wire mesh. Now, keep two or three freshly germinated seeds on the wire mesh. Keep this flask in the cardboard box (open from one side) in such a manner that the open side of the box faces light coming from the window. Observe the plant after few days. Now, turn the flask so that the shoots are away from light and the roots towards light. Leave it undisturbed in this position for a few days and then observe the difference if any.

Observations:-

1. When the flask is placed in the cardboard (open from one side) in a manner that the open side of box faces light coming from the window, the shoots of freshly germinated seeds have shown growth by bending towards light (positive phototaxis) and roots have shown growth by bending away from light (negative phototaxis)
2. When the flask was turned in a manner that the shoots moved away from light and roots moved towards light, you will find after few days that the shoots have again grown by bending towards light and the roots have grown again by bending away from light.

This experiment, therefore, shows that the shoots of plants respond by showing growth movement towards light (positive phototropism) and roots of plants respond by showing growth movement away from light (negative phototropism)

Activity 2:- Action of Gustatoreceptors and Olfactoreceptors

- Put some sugar in your mouth. How does it taste?
- Block your nose by pressing it between your thumb and index finger. Now eat sugar again. Is there any difference in its taste?
- While eating lunch, block your nose in the same way and notice if you can fully appreciate the taste of the food you are eating.

Observations:-

1. When we put sugar in our mouth, it tastes sweet.

2. When we eat sugar after blocking our nose by pressing it between thumb and index finger, we find no difference in its taste.
3. While eating lunch, when we block our nose by pressing it between thumb and index finger, we find that we cannot fully appreciate the taste of food.

Explanation and Conclusion:-

1. Gustatoreceptors are present in specific regions of tongue in our mouth. They respond to taste stimulus. When we eat sugar, these gustatoreceptors get stimulated and send message in the form of nerve impulses to specific region of brain. Here, information is interpreted and we feel sweet taste of sugar.
2. When we eat sugar after blocking our nose, we still find no difference in its taste. It is so because pressing of nose blocks stimulation of olfactoreceptors which are sensitive to smell. However, Gustatoreceptors, present in the tongue, get stimulated when these come in contact with sugar.
3. The food we normally eat during lunch contains both tasty and aromatic substances. These stimulate Gustatoreceptors(present in tongue) and olfactoreceptors(present in nose). Thus, we appreciate fully the taste of food. When we block our nose, while eating lunch, the olfactoreceptors are not stimulated. Hence, we can not feel smell of food. However, we feel the taste of food since Gustatoreceptors get stimulated on coming in contact with food. Thus, we cannot fully appreciate the taste of food.

CBSE Class 10 Biology Activity Chapter: How do Organisms Reproduce?

Activity 1:- To examine growth of bread mould fungus (Rhizopus) on the moist slice of bread .

Requirement:- Moist slice of bread, Petridish, magnifying glass.

Method:- Wet a slice of bread in water and place it in a petridish or watch glass. Keep the moist slice of bread in a cool and dark place for 1-2 days. Observe the slice with the help of a magnifying glass.

Observations and Conclusion:- A white cottony mass appears on the surface of moist bread which turns black within few days. The white cottony mass is due to growth of bread mould (Rhizopus). The spores of fungus are present in the air. They settle on the moist bread and germinate to form white cottony mass of vegetative mycelium. The vegetative mycelium develops asexual sporangia which are black in colour. Each sporangium contains hundreds of minute black- coloured spores. These spores are dispersed in air to germinate on suitable substratum.

Activity 2:- To observe the different parts of seed.

Method:- Soak a few seeds of Bengal gram(Chana)in a beaker and keep them overnight. Decant excess water and keep the seeds in a wet cloth. Leave them for a day. Now the seeds get germinated by giving out a few mm of radicle. Cut open the seeds carefully to observe the different parts.

Observation:- Observe the brown coloured testa that encloses two cotyledons laden with stored food material. A small embryo consisting of radicle and plumuls lies in between the two cotyledons.

CBSE Class 10 Biology Activity Chapter : Heredity and Evolution

Activity 1:- Observe the ears of all the students in the class.

Method:- Prepare a list of students having free or attached ear lobes and calculate the percentage of students having each. Find out about the ear lobes of the parents of each student in the class. Correlate the ear lobe type of each student with that of their parents. Based on this evidence, suggest a possible rule for the inheritance of ear lobe types.

Discussion and conclusion:- Presence of free ear lobes and attached ear lobes is an example of variation in Human population. The observations recorded by you will reveal that vast majority of the students of your class and their parents have free ear lobes.