TENDER HEART HIGH SCHOOL, SEC-33B, CHD.

Class - VII Subject - Biology
Chapter - 4. Photosynthesis and Respiration
Teacher - Ms. Nidhi

Good Morning Children! This lesson is of Class - VII for the subject of Biology, Chapter - 4, Photosynthesis and Respiration of your textbook titled Concise Biology, Selina Publications. It is being submitted to you on **28.10.2024**

Dear students, today we are going to discuss how respiration takes place in plants. Also we are going to discuss how respiration is different from photosynthesis.

Plants also respire day and night in order to live. They continually absorb oxygen and give out carbon di-oxide.
The exchange of gases in plants takes place by the process of diffusion through stomata present mostly on the lower surface of leaves.

Although the process of respiration takes place day and night, the process of photosynthesis takes place only during the daytime. You all know that in photosynthesis plants absorb carbon di-oxide and give out oxygen. A portion of this oxygen is used by the plants for respiration and the rest is given out through stomata. Carbon di-oxide released as a result of respiration is used by the plants for photosynthesis.

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Now let us conclude the process of respiration in plants.

→ Intake of oxygen from the air.
→ Oxidation of food stored in the plant.
→ Release of energy during oxidation.
→ Release of end products – carbon di-oxide and water.

$$C_6H_{12}O_6 + 6O_2 \xrightarrow{\text{enzymes}} 6CO_2 + 6H_2O + ATP.$$

Children, you have studied photosynthesis earlier in this chapter and also respiration now. So pause the audio for three minutes and write down the differences between photosynthesis and respiration.
3 minutes are over. Let us discuss the differences between photosynthesis and respiration

In photosynthesis food is synthesized by carbon di-oxide and water. During this process plants utilize carbon di-oxide and give out oxygen. Also, it takes place only in the green parts of plants, especially the leaves. Lastly we can say that it occurs only during the day in the presence of sunlight.

On the other hand, during respiration food is broken down releasing energy and giving out carbon-dioxide and water. During this process plants utilize oxygen and give out carbon di-oxide. Also, this process takes place in all parts of the plant. Lastly, respiration

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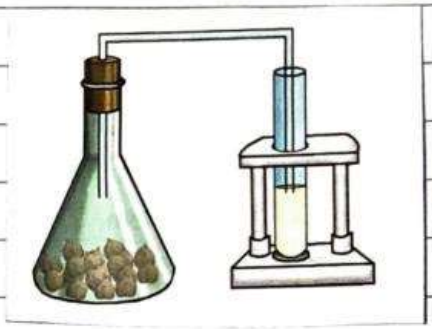
occurs both during the day and at night.

Now children let us understand with an activity that carbon di-oxide is produced during respiration in germinating seeds.

→ For this we need a test tube, test tube stand, conical flask and connecting tube.

→ Keep some germinated seeds in the conical flask.

→ Pour some freshly prepared lime water in the test tube.



→ Keep the whole apparatus this way for 1-2 hours

What happens to the colour of the lime water?

The lime water turns milky. This shows that that germinating seeds respire and produce carbon di-oxide which moves through the connecting tube into the test tube containing lime water.

Please note children, if, instead of germinating seeds we take boiled seeds then they will not show any sign of germination because they are dead and hence will not give out carbon dioxide gas as given by germinating seeds.

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With this topic we have completed our chapter. So children go through the entire chapter and its audios again to understand it well. Also, do the following questions as home assignment whose answers will be forwarded to you on 5th of November 2020.

Home assignment.

Q1. Differentiate between aerobic and anaerobic respiration.

Q2 Explain how photosynthesis is different from respiration.

Q3. Do plants respire all day and night or only during the day? Give reasons.

Q4 What happens to the energy liberated during respiration?

Q5. Do plants need oxygen? If so, what is its source?

Q6. State True or False.

(i) Green plants prepare their food by using raw materials, oxygen and water.

(ii) The chlorophyll enables the plants to use light energy.

(iii) The free oxygen in the atmospheric air is the result of photosynthesis.

(iv) Photosynthesis occurs only in chlorophyll-containing parts of the plants.