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STUDY NOTES

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Science

CHAPTER: 8 Understanding Plants

Today's Topic: Leaf

Leaf:

The leaf is one of the most important part of a plant because it performs the functions of photosynthesis, respiration and transpiration. The green colour of leaves is due to the presence of a pigment called chlorophyll, which makes it possible for leaves to use sunlight and turn carbon dioxide from air and water into carbohydrates by a process called photosynthesis.

The carbohydrates prepared by the leaves is used for providing energy to all parts of the plant. The excess carbohydrates are stored as starch in different parts of the plant. Oxygen is produced as a by-product of photosynthesis and is released by the plant during this process.

Leaves differ widely in shape, size and colour, which help us distinguish between different kinds of plants. However, essentially every leaf has two well-defined parts called the blade and the petiole. The blade is the expanded part of the leaf, which is the

most clearly visible part. The petiole is the part of the leaf that connects the blade to the stem.

In all leaves there is a thick vein in the middle of the leaf, which is called the midrib from which other veins branch out. The arrangement of veins in a leaf is called the **leaf venation**. If it is net-like on both sides of midrib, as found in a peepal leaf, the venation is called **reticulate venation**. If the veins are parallel to one another, as found in grass or maize plants, the venation is called **parallel venation**.

Leaves have tiny pores called stomata that open and close to allow the movement of gases in and out of the leaf cells. Carbon dioxide from air enters the leaf and oxygen is released. Plants also lose a lot of water through the stomata-a process called **transpiration**. Transpiration helps in cooling plant and enables the flow of mineral, nutrients and water from roots to the rest of the plant.

Leaves of certain plants, such as cacti, are modified to form spines. Spines reduce the loss of water from the plants and also protect it from grazing animals. Some leaves of the pea plant are modified to form tendrils.

Stomata: Minute pores in a leaf through which gases and water vapour can pass.

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