

# Knowledge Organiser - Year 3 - Science: plants



Plants are a group of living things that grow in the earth with roots, stems and leaves and make their own food. They produce most of the world's oxygen, and are important in the food chain, as many organisms eat plants or eat organisms, which eat plants.

## Key Vocabulary

<b>Germination</b>	The development of a plant from a seed or spore.
<b>Fertilisation</b>	Where the pollen from one flower is fuses with the ovum from another flower of the same species.
<b>Flowers</b>	The colourful and scented petals on the plant that attract insects to pollinate the plant and then produce the seeds.
<b>Leaves</b>	The parts of the plant that make food using the sun, water and carbon dioxide. They are green and are attached to the branches or stems.
<b>Life cycle</b>	The period of time it takes from germination of the seed, to the production of a new seed or completion of reproduction of that plant.
<b>Nutrients</b>	The essential minerals needed for plant growth found in the soil.
<b>Phloem vessels</b>	Part of the stem that moves food made in the leaves to all other parts of the plant.
<b>Pollination</b>	The act of transferring pollen from the stamen of one flower to the stigma of another flower, to create a seed.
<b>Reproduction</b>	Making a new plant from the adult plant often a seed, but can be runners, tubers or spores.
<b>Roots</b>	Usually below the ground, these fibres hold the plant firmly in place and transport the nutrients and water to the plant.
<b>Seed formation</b>	Seeds form at the base of the flower, usually inside a fruit.
<b>Seed dispersal</b>	The means to spread the seeds away from the adult plant often by animals, birds or the wind, giving the plant room to grow and have enough water and nutrients.
<b>Stem</b>	The part of the plant that holds up the leaves and flowers and transports the water and food up and down the plant.
<b>Transport</b>	The system in a plant that moves food and water around.
<b>Trunk</b>	The large, wide, wooden stem of a tree.
<b>Xylem</b>	The part of the stem to transport water from the roots, to the leaves and flowers.

## Working Scientifically

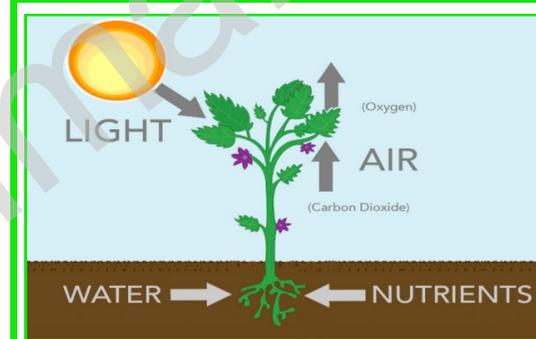
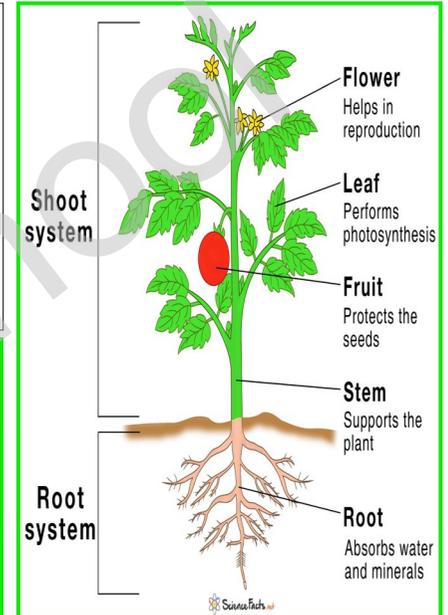
Pupils should be given a range of scientific experiences to enable them to raise their own questions about plants. They should help to make decisions about what observations to make, how long to make them for (experiment observing changes made over time) and the type of simple equipment that might be used. They should collect data from their own observations and measurements, and make decisions about how to record and analyse this data. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate.

## Key Question: What do the different parts of flowering plants do?



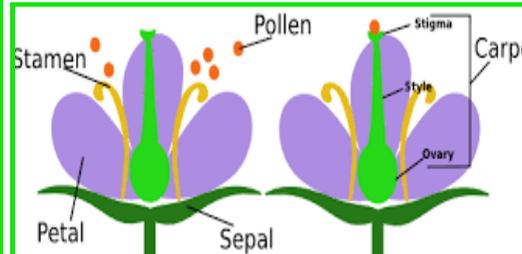
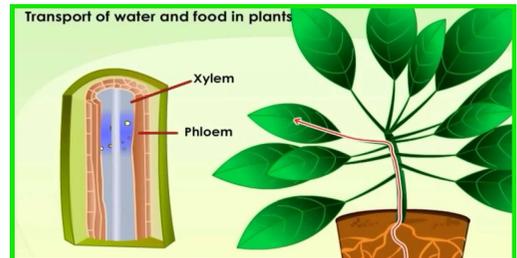
After the plant has leaves, it will grow a flower. The flower has stamen to produce pollen and a stigma to receive pollen from another plant. The flowers are colourful and scented to attract insects to the plant. The insects drink the nectar, get covered in pollen and transport the pollen to another plant. This is the process of pollination and is vitally important so that new seeds are made and then fruit grows around the seeds, to complete the lifecycle.

The process of germination starts with a seed. With the correct conditions of warmth, water and enough space to grow, a root and a shoot will emerge from the seed and when the stored food has been used up, the seed must have grown a stem and a leaf so that the plant can start to make its own food. The roots will anchor the plant in the soil and take up water and nutrients.



In order for a plant to be healthy, it needs some essential conditions to be present. Without all of these conditions, the seed will remain as a seed. First of all the temperature needs to be warm, which is why germination begins in spring. The ground must have water and once the first shoot appears above ground, the seedling will need light and air (carbon dioxide) in order to make its own food. Nutrients from the soil are also required. A plant needs 17 basic nutrients to grow well!

Fertilisation is when the pollen from one flower arrives at the stigma of another, travels to the ovary and joins with the ovum to make a new seed. The ovary then becomes the fruit and is moved away from the parent plant, either by animals, birds, the wind or with water (rivers).



Inside the stem of a plant or trunk of a tree, there is a transport system. Water from the roots and food made by the leaves needs to travel up and down the plant to the other parts of the plant or tree. The stem has two types of tube to do this – the xylem vessels transport water and the phloem vessels transport sugar (food) from the leaves. As food is made, Oxygen is released by the leaves as a waste product, essential to our lives.