

# Knowledge Organiser - Year 2 - 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.

## Key Vocabulary

<b>Bulb</b>	A bulb is a large round seed bud, that produces a plant from this underground food storage supply.
<b>Flowers</b>	The colourful and scented petals on the plant that attract insects to pollinate the plant and then produce the seeds.
<b>Germination</b>	The development of a plant from a seed or spore.
<b>Growth</b>	The gradual development in size and height of a plant.
<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>Mature</b>	A mature plant or tree is one that is fully grown and has developed to its maximum size.
<b>Nutrients</b>	These are chemicals that all plants need to make energy, grow, develop, and make new seeds. They are found in the soil.
<b>Pollination</b>	The act of transferring pollen from one flower to another flower, to create a seed.
<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>Seedling</b>	This is a young plant developing out of a seed. It starts with the germination of the seed and has three main parts: the tiny root, the first shoot, and the beginning of seed leaves.
<b>Seed formation</b>	Seeds form at the base of the flower, usually inside a fruit. They are able to develop into the new plant under the right conditions.
<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>Reproduction</b>	Making a new plant from the adult plant often from a seed, but can be from runners, tubers or spores.
<b>Temperature</b>	Measured in degrees Celsius and tells us how hot the environment is.
<b>Trunk</b>	The large, wide, wooden stem of a tree.

## Working Scientifically

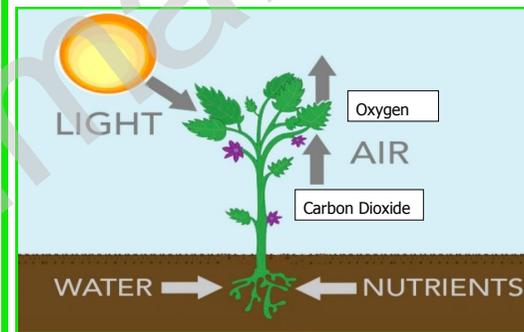
Pupils should use the local environment throughout the year to observe how different plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants. For example: Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them. Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.

## Key Question: What do healthy plants need to grow?

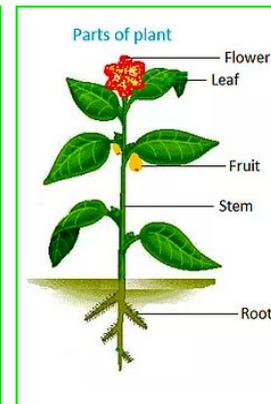
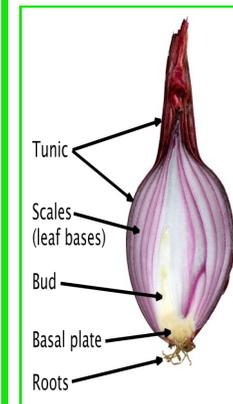
What does a bean need to grow? How will you test this? The seed is covered with a hard coat or shell and first needs to take in water to break this cover. When it is warm enough, it will then send out a first root and then a shoot, which will seek out the light. Once the shoot is above ground, it needs to form leaves so that the plant can start making its own food. Up until this point, the seedling has been using the stored food inside the seed case to allow it to grow. The roots will anchor the plant in the soil and take up water and nutrients.



So what will happen if the plant does not have enough light, fertilizer, water and heat? Will it grow differently?



Some flowers and vegetables grow from bulbs instead of seeds. They have larger food stores than the seeds, so can take much longer to grow and need to be planted deeper and left in the soil over the winter. They should be planted in late September when the soil has chilled, two to three times deeper in the soil than the size of the bulb. When they grow in Spring time, their leaves will have long striped veins to let the water travel through. When they have flowered, leave them to die back and they will flower again next year!



Initially, bulbs or seeds need air, warmth and water to start to grow. If they grow healthily from a seed or bulb into a plant, they can continue making their own food through their leaves once the leaves grow above soil level. A plant needs 17 basic nutrients, which they get from the soil through their roots and only needs light once the leaves have grown.