

Manor Primary School Knowledge Organiser – Lower KS2 Science

Topic: Plants

Phase: LKS2

Strand: Biology

What should I already know?

- Plants need a number of different things in order to grow, including water and nutrients, light, the right temperature, space and time.
- Plants begin life as seeds or bulbs. Seeds do not need sunlight as they have their own food store.
- Water and oxygen allow seeds and bulbs to germinate (start to grow).
- Plants have a life cycle, that includes the seed, seedling and flowering stages.

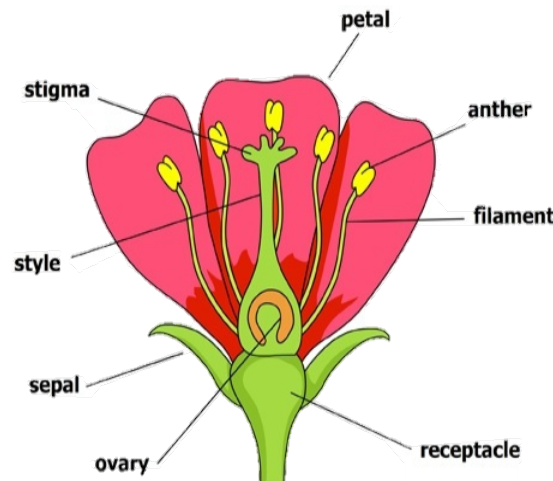
At the end of the unit, I will be able to:

- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.
- Investigate the way in which water is transported within plants.
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Key Knowledge

The Role of flowers and plants

- Flowers play an important role in the reproduction of plants.
- The male part of a flower is called a stamen – it is made up of a filament and an anther. The anther contains pollen.
- The female part of a flower is called a carpel. It is made of a stigma, a style and an ovary.
- When the male pollen lands on the female stigma pollination occurs.
- This process means that a seed is produced.
- Insects are drawn to flowers by bright petals. When they feed on the flower's nectar they are dusted with pollen. They then spread this to other places when they leave.



We are MANOR! As Scientists we will...

Manners

Develop a respect and understanding for the natural world, its people, animals and plants. Share ideas, celebrate good work, value others' contributions, or discussions and debates.

Aspiration

Learn by being challenged in a series of well-designed scientific enquiry and investigation tasks linked to meaningful contexts and develop a knowledge of scientists and careers to broaden our horizons. Be aspirational in developing scientific knowledge and conceptual understanding through biology, chemistry and physics.

Nurture

To recognise that we live in a wonderful world made up of many different people and living things. We will develop an appreciation and respect for the diverse world and environment in which we live, showing care and compassion for the environment around us.

Open-Mindedness

We will be open-minded so that we can conduct experiments or observe what is happening in order to see patterns that might emerge or to gain new knowledge. We will use our curiosity and learn to wonder why something behaves a certain way.

Resilience

Engage confidently with the science curriculum and learn that anything is possible and failure is not something to fear but to learn from. We will develop our scientific enquiry and investigation skills with patience and care, repeating investigations to check the accuracy of results.

Functions of Different Plant Parts



Roots

- The roots grow into the ground. They are responsible for pulling water and minerals to the plant
- They expand into the ground to widen the area they can find water. They also help to anchor the plant into the ground.



Stem/Trunk

- The stem/trunk carries the water and nutrients up to the leaves.
- The stem also carries food from the leaves to the rest of the plant.
- Stems grow upwards, reaching up for the sun.



Leaves

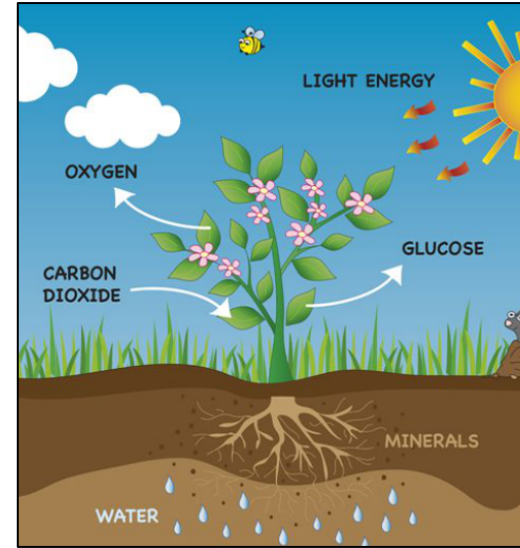
- Leaves are responsible for catching sunlight. They also allow both air and water to enter the plant.
- Leaves have veins inside them, to allow water and nutrients to flow. There are many different sizes & shapes of leaves, to fit the plant's needs.



Flowers

- Flowers are the parts of plants that are responsible for making both food and seeds.
- The petals of a flower attract insects for pollination. The flower has male and female parts, which work together to make seeds.

Requirements for Life



Plants need air, light, water, nutrients, temperature and space in order to live and grow. The amounts needed of each of these requirements varies from plant to plant.

- A plant that is kept in a dark place will grow tall and spindly, as it searches for light.
- A plant that is not watered will have a weak stem. Its leaves will dry up and eventually it will die.
- A plant that is not given enough space will have stunted growth and may die if it cannot reach enough light.
- A seed will not germinate at all if the temperature is too cold.

Water Transport in Plants

Water is found in the soil by the roots.

The water is drawn up from the roots to the stem.

The water travels up small tubes in the stem called xylem.

Water reaches the leaves and flowers, keeping them hydrated.

Water escapes from the plant as vapour (a gas) through tiny holes

Plants Quiz

1) Which part of the plant is brightly coloured to attract insects and birds?

2) What 6 things do plants need in order to live and grow?

3) What will happen to a seed if the temperature in which it is kept is too cold?

4) What is the male part of the plant called?

5) What is the name of the process from which a seed is produced?