Enriching lives every day; enabling our school community to learn, achieve and flourish through living 'life in all its fullness'

Sustainability

Subject: Science

Year group: 3

Term: Summer

Unit name: Plants

Prior Knowledge - Which things are living and which are not. A variety of common wild and garden plants, including deciduous and evergreen trees and how to identify them. The structure of common flowering plants, including trees (including leaves, flowers, fruits, roots, bulbs, seeds, stem, trunks and branches). Seeds and bulbs grow into mature plants. Plants need water, light and a suitable temperature to grow and stay healthy. Different vegetation belts and climate zones around the world. Plants and animals depend on each other to survive.

Scientific enquiry	
Classifying	Classify flowers based on the children's own criteria. (This does not meet the curriculum objectives for this topic, but it is a good opening activity to assess prior knowledge.)
Observing over time	Observe celery (with roots and leaves) in coloured water. Observe white carnations (freshly cut) in coloured water. Gather seeds and photographic evidence of blossoms/flowers and berries on a particular trail throughout the year.
Pattern seeking	Investigate what happens when conditions are changed e.g. more/less light/water, change in temperature, nutrients (Baby Bio vs other brands).
Comparative/fair testing	Not relevant
Researching	Research the functions of the parts of flowering plants. Research different methods of seed dispersal. Research different methods of pollination.

National curriculum:

- 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 vocabulary	
Photosynthesis	The process in which green plants use sunlight to make their own food.
Pollen	A fine powder produced by flowers. It fertilises other flowers of the same species so that they produce seeds.
Pollination	To pollinate a plant or tree means to fertilise it with pollen. This is often done by insects.
Seed dispersal	Seeds that are scattered, separated, or spread through a large area. Seeds can also be dispersed by animals, water and wind.
Wind pollination	Pollination of plants by means of pollen carried on the wind.

Spiritual Development

By learning about how plants grow, transport water and their life cycle, children will develop an awe and wonder about the natural world around them. *Luke 5:26: And amazement seized them all, and they glorified God and were filled with awe, saying 'We have seen extraordinary things today.'*

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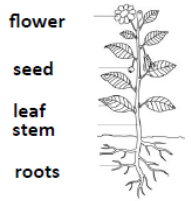
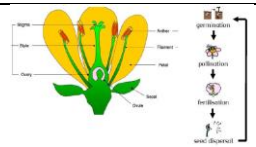
Key Learning Assessment Statements- what will the children know by the end of the unit? *Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Different plants require different conditions for germination and growth.*		
To understand that plants are producers and make their own food.	The **petals** on a **flower** are usually bright - this is to attract bees and other insects so that they can collect **pollen** to make **seeds.** The **seeds** are then able to grow to make new **plants**. This is called **germination.** **Leaves** use **carbon dioxide** and sunlight to make food for the **plant**. The **stem** carries water and other **nutrients** from the **roots** to the rest of the **plant**. **Leaves** use this water to make food. The **stem** also helps to keep the **plant** upright so that the sunlight can reach it easier. The **roots** help to 'anchor' the **plant** in the **soil**. They also **absorb** water and **nutrients** from the **soil** for the **stem** to carry to the rest of the **plant**.	
To know that seeds contain enough food for the plant's initial growth		
To know that leaves absorb sunlight and carbon dioxide.		
To understand that plants need to grow and that the amount of each depends on the type of plant.	Air, water, sunlight, **nutrients** from the **soil,** room to grow, suitable **temperature** The amount of each of these may vary depending on the type of **plant**. For example, cacti need less water than other **plants**.	
To know that plants have roots, which provide support and draw water from the soil.	Water is **absorbed** from the **soil** by the **roots.** It is then **transported** from the **roots** to the **stem** and then to the rest of the **plant**	
To know that flowering plants have specific adaptations, which help it to carry out pollination, fertilisation and seed production.	The **flower's** job is to create **seeds** so that new **plants** can grow. **Pollination** occurs when **pollen** from the **anther** is transferred to the **stigma** by bees and other insects. The **pollen** then travels down and meets the **ovule.** When this happens, **seeds** are formed - this is called **fertilisation. Seeds** are then **dispersed** so that **germination** can begin again.	

Assessment for learning	**Activity Ideas**
Recapping prior knowledge- beginning of unit- what do children already know? Beginning of each lesson- focus on recall of previous learning (quick quizzes)	Observe what happens to plants over time when the leaves or roots are removed. Observe the effect of putting cut white carnations or celery in coloured water. Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space. Spot flowers, seeds, berries and fruits outside throughout the year. Observe flowers carefully to identify the pollen. Observe flowers being visited by pollinators e.g. bees and butterflies in the summer. Observe seeds being blown from the trees e.g. sycamore seeds. Research different types of seed dispersal. Classify seeds in a range of ways, including by how they are dispersed. Create a new species of flowering plant.