**Plants**

**NC Statutory Guidance**

Pupils should be taught 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

**Working Scientifically**

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

* asking relevant questions and using different types of scientific enquiries to answer them
* setting up simple practical enquiries, comparative and fair tests
* making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
* gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
* recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
* reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
* using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
* identifying differences, similarities or changes related to simple scientific ideas and processes
* using straightforward scientific evidence to answer questions or to support their findings.

**Resources**

Twinkl PlanIt to be adapted. Lesson 2 moved to the end.

**Lesson Overview (Statutory in Bold)**

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| WALT | Knowledge to be Taught | Skills to be Taught and Investigations | Vocabulary |
| Name different parts of flowering plants and explain their jobs. | The roots anchor the plant in the ground.  They absorb water and nutrients from the soil.  The stem or trunk holds the plant up.  It also carries water and nutrients from the roots to the leaves  The leaves make food for the plant using sunlight and carbon dioxide from the air.  Flowers are brightly coloured to attract insects and birds.  The insects carry pollen to other flowers.  Flowers use the pollen to make seeds to grow new plants. | **To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers** | Flower  Leaves  Stem  Roots |
| Set up an investigation to find out what plants need to grow well. | Plants are living things.  There are **7 life processes** that tell us if something is alive.  The 7 life process are movement, respiration, growth, reproduction, excretion, nutrition and sensitivity. Plants do all 7 of these things.  Plants need certain conditions to help them grow well. | **To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow)**  Choose investigation question: what happens if a plant has not water, can a plant grow in the dark, if a plant has no heat will it still grow? Work on planning and prediction. | Movement  Respiration  Growth  Reproduction Excretion  Nutrition  Sensitivity |
| Record observations and present results using scientific language. | When scientists have completed an investigation, they make a ‘**conclusion**’. This is a summary of what they have found out. | To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables  To report on findings from enquiries, including oral and written explanations and presentations of results and conclusions | Observation  Conclusion |
| Investigate how water is transported in plants. | The process of water transportation is the way water moves through a plant.  The roots absorb water from the soil.  The stem transports water to the leaves.  Water evaporates from the leaves.  This evaporation causes more water to be sucked up the stem.  The water is sucked up the stem like water being sucked up through a straw. | **To investigate the way in which water is transported within plants**  Investigate how temperature affects rate at which water in transported by placing a white carnation in dyed water. | Transportation  Evaporation  Comparative test |
| Name different parts of a flower and explain their role in pollination and fertilization. | Parts of a flower.  Pollination occurs when pollen from the anther is transferred to the stigma.  Insects like bees and butterflies are attracted to the bright colours of the petals and the sweet scent of the flower.  They visit the flower to drink a sweet liquid called nectar.  When an insect goes into the flower to drink the nectar, some grains of pollen brush off the anthers onto their body.  When the insect visits another flower for more nectar, the grains of pollen transfer from the insect's body to the sticky stigma of the new flower.  This is pollination. | **To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal** | Anther  Filament  Stamen  Style  Stigma  Carpel  Ovary  Ovule  Pollen  Petal  Sepal  Stem  Seed  Pollination  Fertilization |
| Understand and order the stages of the life cycle of a flowering plant. | The life cycle of a flowering plant shows the changes that happen to the plant over the course of its lifetime.  The main stages of the life cycle of a flowering plant are:  Germination – when a seed begins to grow.  Growing and flowering - Once the seed has germinated the plant grows bigger and then forms flowers.  Pollination - Pollination occurs when pollen from the anther is transferred to the stigma, often by an insect.  Fertilisation and seed formation - Fertilisation happens when the pollen travels from the stigma down the style to the ovary.  The pollen joins with an ovule to form a seed. The seed forms inside the ovary.  Seed dispersal - Once the seeds are fully formed, the plant needs to disperse them.  This means that the plant needs to move or transport the seeds away from the parent plant in some way so that they don't all try to grow in the same place.  There are lots of different ways that seeds can be dispersed.  (water, dropping, wind, shaking, eating, bursting, carrying) | **To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal** | Germination  Pollination  Anther  Stigma  Fertilization  Style  Ovary  Ovule  Seed  Dispersal |