Year 3 Biological Science: Plants (How Plants Live and Change) Unit 3

Scientific Model (KS2):

Energy Transfer Model

- Make it clear that energy from the light energy is transferred to the plant.

Scientific Investigations:

- Observing Changes over Time
- Looking for Naturally- Occurring Patterns and Relationships
- Identifying and Classifying Things
- Researching Using Secondary Sources
- Comparative and Fair Testing

Scientists:

- Sir Joseph Banks - Banks introduced 80 species of plants, including the eucalyptus and the banksia, which is named after him
- Tom Hart Dyke - This plant hunter hunts rare plants such as orchids.
- David Douglas - was a Scottish botanist, best known as the namesake of the Douglas fir.

Scientific Skills Taught:

ASK
- To ask relevant questions
- To decide when to use secondary sources to find answers
- To make simple predictions based on knowledge of science

BREAKDOWN
- To set up simple tests
- To decide what equipment to use
- To make decisions about the type of enquiry
- To use different enquiry types to test questions

CAPTURE
- To observe carefully
- To measure accurately using standard units
- To measure using a range of equipment
- To gather data and record in different ways
- To make systematic observations
- To identify differences, similarities, and changes
- To group, sort and classify using different criteria

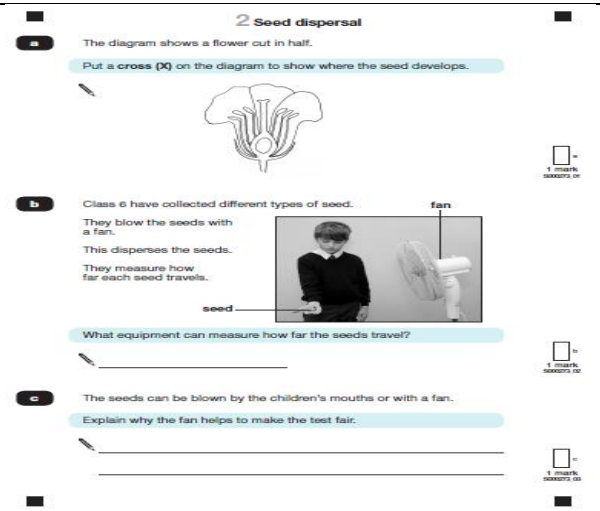
DESCRIBE
- To draw simple conclusions
- To present data in different ways
- To explain what they have found out using correct scientific language
- To record finding using correct language in varied ways
- To answer questions based on evidence orally and in writing

Prior Learning:

- Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants)
- Find out and describe how plants need water, light, and a suitable temperature to grow and stay healthy. (Y2 - Plants)

Curriculum	Learning Intention	Knowledge and Key Vocabulary
Making links to learning and discuss the model (if needed)	What do we know about plants? Create a Mind map of what is recalled – with questions derived from SGAP based questions to activate prior knowledge.	
Knowledge and skills through investigations Pupils should be taught to: - identify and describe the functions of different parts of flowering plants: roots, - stem/trunk, leaves and flowers	What is the function of the parts of a flowering plant? • name the different parts of a plant • explain the jobs that the different parts of a plant do What do plants need to grow well?	**Knowledge:** - Name four parts of a flowering plant and their function - Explain why plants need nutrients - Explain how plants obtain nutrients - Define evaporation

- 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. Notes and guidance (non-statutory): - Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. - They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. - Note: Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens. Pupils might work scientifically by: - comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time. - looking for patterns in the structure of fruits that relate to how the seeds are dispersed. - They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.	1. Describe patterns in data, charts & graphs 2. Analyse prepared data (charts/graphs) 3. Tabulate results and form conclusions regarding pre-requisites. 4. Investigate what happens to plants when they are put in different conditions. **5. Make it clear that energy from the light energy is transferred to the plant, using the Energy Transfer Model.** How is water transported in plants? • explain the function of the stem • understand how water is transported in a plant • investigate how water is transported around plants • set up a comparative investigation • suggest ways to find answers • make a prediction • make a conclusion How do plants reproduce? • identify and name the different parts of a flower • classify features of seeds to decide their method of dispersal • explain what each part of a flower does • explain the process of pollination • explain how pollination leads to fertilisation What part do flowers play in the life cycle of plants? • understand the process of seed dispersal • understand the processes of pollination, fertilisation and germination • order the different stages of the life cycle of a flowering plant How did the different species of plants get to the UK? • can identify plants in local area. • describe how new plants were brought to our country • identify botanist who have brought plants to the UK	- Explain the transpiration cycle. - Understand what is meant by fertilisation in the context of a flowering plant. - Describe the life cycles of flowering plants: Seed Dispersal. Germination,Growing and Flowering, Pollination -Pollen,Fertilisation and Seed Formation **Vocabulary:** carpel (pistil) -The female parts of the flower. Made up of the stigma, style and ovary. The job of the style is to hold up the stigma. The stigma collects the pollen when a pollinator brushes by it. The ovary contains the ovules, which are the part of the flower that gets fertilised and eventually becomes the new seed. Sepal -Leaf-like structures that protect the flower and petals before they open out. Pollination -When pollen (a fine powdery substance produced by a flowering plant) is moved from the male anther of a flower to the female stigma. Pollinator -Animals or insects which carry pollen between plants. Examples include birds, bees and bats. Germination -When a seed starts to grow. seed dispersal -A method of moving the seeds away from the parent plant so that the seeds have the best chance of survival.

Application and Assessment Activity	 2 Seed dispersal a The diagram shows a flower cut in half. Put a cross (X) on the diagram to show where the seed develops. 1 mark b Class 6 have collected different types of seed. They blow the seeds with a fan. This disperses the seeds. They measure how far each seed travels. fan seed What equipment can measure how far the seeds travel? 1 mark c The seeds can be blown by the children's mouths or with a fan. Explain why the fan helps to make the test fair. 1 mark Twinkl End of Unit Assessment Page 06 of 12

Thinking Deeper:

- Children split a flower stem in half lengthways and putting each half in a different colour of water. They predict what they think will happen to the flower.

Links to other subjects:

- Subject Specific links –
  - Literacy and Maths – Recording – explanation texts, non-chronological reports, analysis of data, classifying into Carroll diagrams or Venn diagrams.
- Personal Development – Mental wellbeing promoted by spending time in nature.
- SMSC – learning how to look after plants and to respect nature.
- Cultural Capital –
- To appreciate plants from other countries and how they ae now in the UK
- Careers – Gardening, Horticulture, Farming
- British Values – to understand that some plants are protected by law such as bluebells
- Equality – equality within class/groupwork, everyone having opportunities to participate