Dereham Church Infant and Nursery School- Science

Year group: Two	Area/topic: Plants, Autumn 1

(objectives from NC/ELG/Development matters)

Working scientifically:

*Asking simple questions and recognising that they can be answered in different ways.
*Observing closely, using simple equipment.
*Performing simple tests.
*Identifying and classifying.
*Using their observations and ideas to suggest answers to questions.
*Gathering and recording data to help in answering questions.

Plants:

*Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (Year 1, B1)
*Identify and describe the basic structure of a variety of common flowering plants, including trees. (Year 1, B2)
*Observe and describe how seeds and bulbs grow into mature plants. (Year 2, B3)
*Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Year 2, B4)

Living things & their habitats:

*Explore and compare the differences between things that are living, dead, and things that have never been alive. (F1)

Prior learning	Future learning
Plants: *Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees *(Year 1)* *Identify and describe the basic structure of a variety of common flowering plants, including trees. *(Year 1)* *Observe and describe how seeds and bulbs grow into mature plants. *(Year 2)* **Seasonal changes:** *Observe changes across the four seasons. *(Year 1)* *Observe and describe weather associated with the seasons and how day length varies. *(Year 1)*	**Plants:** *Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. *(Year 3)* *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. *(Year 3)* *Investigate the way in which water is transported within plants. *(Year 3)* *Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. *(Year 3)*

Working scientifically & encouraging scientific enquiry

Observing over time:

*Children will each plant their own seed to observe the growth over time; they will record this through drawing and writing or verbal explanation depending on individual needs. Children will use simple equipment to measure the growth of their plant.

*Children will complete a comparative test as a class and observe what happens whilst recording what they notice.

Comparative and fair testing

*As a class, children to complete a comparative test planting cress seeds which are placed in different conditions. Each pot of seeds will be place under a different condition, without sunlight/water/soil/suitable temperature. Children will use prior knowledge to predict the outcome of the test. Children will observe what happens to each pot and record data.

Identifying and classifying

*Children to identify and correctly name a variety of plants including flowering plants and trees.

Pattern seeking

*Children to keep a record of the measurement of a plant they grow from a seed. Children to compare how much the plant grows week on week and see if they notice any patterns. Children to also compare the growth of their own plant to others in the class and look for patterns in growth.

Research using secondary resources

*Children to see and discuss images and photographs of different types of plants including flowers and trees.

*Children to view labelled diagrams of plants including trees and flowers.

*Using ID charts to support naming plants.

What pupils need to know or do to be secure

Key knowledge and skills	Possible evidence
*I can correctly name the parts of a plant and a tree and use the vocabulary roots, stem, petals, fruit, flower, seed, bulb, trunk, branch, leaves and bark. (B2) *I recognise each part of a plant has a job to do. (B2) *I can identify and name a range of British trees, plants and flowers. (B1) *I understand and can explain what a plant needs to grow, be healthy and survive including sunlight, water, soil, air, space and a suitable temperature. (B4)	**There will be evidence of children meeting the 'I can' statements through:** *Quotes taken from discussions. *Children can correctly use the key vocabulary during lessons. *Children recording through drawing.

*I can explain **why** a plant needs water, light, soil, air, space and a suitable temperature. (B4) *I can plant a seed to observe, describe and explain how it grows into a plant. (B3) *I can keep a plant diary to record what is happening to a seed/bulb by drawing and writing descriptions using scientific vocabulary. (B3) *I can use equipment to measure the growth of a plant over time. (B3) *I can conduct a comparative experiment to investigate what would happen to a seed/bulb without water/light/soil/suitable temperature and record what happens. (B4) *I can make a prediction using my prior knowledge of how plants grow as well as the word 'because' to explain my prediction. *I can explain my findings at the end of an experiment over time. *I can recognise and explain that a plant is alive and how I know. (B4 & F1) *I can name plants from different parts of the world. (B1) *I can compare plants from around the world and how they survive in different habitats. (B4) *I can explain the life cycle of a plant including how a plant begins and how it creates more plants. (B3) *I understand and can explain seed dispersal. (B3) *I can explain that a plant is a living thing because it can breathe, grow and reproduce. (B4 & F1)	*Children recording measurements of plant growth and using suitable equipment to do this. *Photographs of children's learning. *Written explanations of understanding or adult scribing a child's understanding depending on individual needs. *Children asking questions around plants.
Key vocabulary Life cycle, roots, stem, petals, fruit, flower, seed, bulb, trunk, branch, leaves, bark, shoot, seedling, germination, pollinate/pollination, pollen, survival, disperse/dispersal, air, nutrients, temperature, thermometer, fertilisation, photosynthesis, comparative experiment, fair test, oxygen, carbon dioxide, healthy.	

Common misconceptions	Books linking to this area
*Children may think that plants are not living, as they cannot be seen to move, eat, drink etc.	*The tiny seed by Eric Carle *The magic and mystery of trees by Jen Green

*Seeds are not alive. *Children may believe that all plants begin as seeds. *Children may think that all seeds and bulbs need to sunlight to germinate. *Children may think plants only grow when a seed/bulb is planted by a person.	*A seed is sleepy by Dianna Hutts Aston *Bloom by Anne Booth and Robyn Owen Wilson *Look and wonder: The amazing plant life cycle story by Kay Barnham *Eddie's garden and how to make things grow by Sarah Garland *Life cycles, acorn to oak tree
Memorable first hand experiences	**Opportunities for communication**
*Observing trees and plants in the outdoor area. *Comparative experiment planting the same type of seed in different conditions to see what will happen to each without one thing it needs for survival. *Each child planting and growing beans and keeping a diary of this. *Making paper sycamore seeds to take outside and observe what happens when dropped. (Understanding seed dispersal). *Using magnifying glasses to observe flowers and find where the seeds are.	*Children to be given opportunities for communication with partners, groups and whole class to discuss as completing practical activities and also to share findings. *Children to compare with one another the growth of their beans and to share with children in the other class. *Through the use of Explorify.

Communication and Interaction	Cognition and Learning
*Visual aids, pictures of equipment with words labelled, word mats with pictures for key words in that lesson. *Freedom to explore scientific equipment and investigate in own way. *Hands on experiences to encourage communication and interaction with others. *Pre teaching any new vocabulary.	*Opportunity for lots of hands on exploration and verbally sharing thoughts and ideas. *Freedom to explore scientific equipment and processes. *Pre teaching new vocabulary or concepts. *Activities adapted if needed for safety and ease. *Visual aids, pictures of equipment, mats with key words and pictures *Learning recorded through photos and adult quotes, children not expected to write for recording their understanding. *Using working walls to aid learning and remind of previous learning.
Social, Emotional and Mental health	**Sensory and Physical**
*Awareness of individual needs, any potential triggers within the curriculum and the child's background. *Pre prepare children for any activity they could find triggering or difficult in some way. *Practical activities or experiments to be completed within a smaller group or 1:1 if needed. *If the class are sharing their learning within a large group, take the child in a smaller focus group if they struggle with social situations. *Adjustments made where needed to suit individual.	*Adult support with any practical activities. *Awareness of the individual's likes or dislikes and their own reactions to sensory activities. *If a child enjoys sensory activities, then plan for this wherever possible within the lesson.