

TOPIC	NATIONAL CURRICULUM	KEY VOCABULARY	POSSIBLE TRIP
PLANTS (1)	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.	TIER 2 (Academic): Identify, describe, explore, investigate, transport, absorb, function, process. TIER 3 (Topic Specific): Air, Light, Water, Nutrients, Soil, Transportation, Roots, Stem, Leaves, Flower, Photosynthesis, Energy, Carbon dioxide, Oxygen, Sugar, material.	Kew Gardens (Royal Botanic Gardens): Offers dedicated Key Stage 2 workshops focusing on plant structure, seed dispersal, pollination, and plant requirements for growth inside their glasshouses and outdoor learning spaces. Chelsea Physic Garden: Features hands-on sessions where pupils investigate soil types, dissect flower parts, and explore plant adaptations in London's oldest botanic garden.
PRIOR LEARNING	Y2: Basic plant structures, seeds, bulbs, and basic survival conditions (water, light, warmth).		

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
ENQUIRY QUESTION	What are the core parts of a flowering plant and what jobs do they do?	How does water travel upward through a plant's stem?	Why do plant leaves need sunlight and air?	Do plants need soil nutrients to grow strong and healthy?	How do plant growth requirements vary between different species?	What happens to plant health when specific life requirements are missing?
LEARNING OBJECTIVES	To identify, dissect, and label the main parts of flowering plants.	To investigate and observe water transportation through stems.	To explore how leaves make food (photosynthesis basics) using light and air.	To comparative-test plant development with and without soil nutrients.	To research adaptation requirements of varied plants (cactus vs fern).	To analyze test data on plant requirement variables and evaluate health.
ACTIVITY WORKING SCIENTIFICALLY SKILLS	OBSERVING & DISSECTING: Dissect real flowering plants; isolate roots, stem, leaves, petals; record structure details.	OBSERVING OVER TIME: Place celery stalks/white carnations into colored dye water; slice stems to track upward dye travel over 48 hours.	PATTERN SEEKING: Cover sections of live leaves with foil; observe chlorophyll color loss and energy changes over days.	COMPARATIVE TESTING: Grow seedlings in water, standard soil, and nutrient-enriched soil; measure stem growth weekly.	RESEARCHING: Compare water/light/space needs of desert cacti, rainforest ferns, and woodland trees using secondary sources.	PATTERN SEEKING: Compare 5 test pots missing 1 key variable (Light, Water, Air, Room, Nutrients); record comparative data in tables.

ASSESSMENT	Detail jobs of roots (anchor/absorb), stem (support/transport), leaves (food maker), flowers (reproduction).	Describe how stems act as transport tubes carrying water to leaves/petals.	State that leaves absorb light and carbon dioxide to generate plant energy.	Explain that soil provides vital mineral nutrients for growth and repair.	State that environmental requirements vary depending on plant origin.	Summarize the 5 essential growth requirements for flowering plants.
END POINT ASSESSMENT	Pupils can describe functions of roots, stem, leaves, and flowers, explain that leaves absorb light/air to produce food, demonstrate water transport through xylem vascular systems, and evaluate growth variations across plant species.					
HIGHER ORDER QUESTIONS	What would happen to a plant's stem stability if its roots were damaged?	Why does coloured dye travel to the edges of flower petals?	Why don't underground roots contain green chlorophyll like leaves?	How can hydroponic plants grow in pure water without natural garden soil?	Why would a desert cactus rot and die if planted in a damp UK rainforest garden?	Which missing growth requirement causes plants to grow long, tall, and yellow?
FURTHER OPTIONAL QUESTIONS/BIG QUESTIONS FOR DISPLAY	- How does water travel uphill from roots to leaves against gravity? - Why are leaves considered tiny food factories? - Can a plant survive without soil?					
INCLUSION & ADAPTATION	Real plant dissection with magnifiers and pre-labelled target cards.	White carnation stem in blue dye with visual before/after recording diary.	Leaf foil mask activity with visual Green/Yellow colour swatch cards.	Pre-planted seedlings with visual height measurement rulers attached.	Visual picture cards comparing Cactus (Dry/Sun) vs Fern (Wet/Shade).	Symbol-supported condition matrix (Sun, Water, Soil, Space, Air icons).
GREATER DEPTH	Research root hair cell surface area and osmotic intake of soil water.	Measure transpiration rates in stems under warm fan air vs cool still air.	Explain basic photosynthesis equation ($CO_2 + Water + Light \rightarrow Glucose + Oxygen$).	Investigate N-P-K (Nitrogen, Phosphorus, Potassium) fertilizer roles in plant development.	Design an automated terrarium ecosystem matching specific tropical plant needs.	Plot multi-variable plant growth curves on line graphs and analyse anomalies.