

**National Curriculum Objectives:**

*(Statutory requirements)*

- 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.

**Experimental and investigative work focuses on:**

<b>Planning an investigation:</b>	<b>Obtaining and evaluating evidence:</b>
<p>-Ask/raise relevant questions about the world around them.</p> <p>-Use/ make decisions about the most appropriate type of scientific enquiry to use to answer the question:</p> <ul style="list-style-type: none"> <li>▪ Comparing differences and changes</li> <li>▪ Describing in order to classify</li> <li>▪ Surveying to identify patterns and support classification.</li> <li>▪ Describing the effect of changing things</li> <li>▪ Looking for relationships between variables (patterns) and becoming confident with fair testing.</li> <li>▪ Using secondary resources including the internet and 'experts'.</li> </ul> <p>-Recognise when a simple fair test is necessary and help to decide how to set it up, making decisions about what observations to make, for how long and using what equipment.</p> <p>-Recognise that factors other than those that we are changing may have an effect and seek to control these factors.</p>	<p><u>Gathering evidence:</u></p> <p>-Set up simple practical enquires.</p> <p>-Make systematic and careful observations</p> <p>-Take measurements using standard units using a range of equipment (including force meters, data loggers, thermometers etc.)</p> <p><u>Recording and presenting data:</u></p> <p>-Record and present findings through a variety of ways and using scientific language:</p> <ul style="list-style-type: none"> <li>▪ Drawings</li> <li>▪ Labelled diagrams</li> <li>▪ Keys</li> <li>▪ Bar charts</li> <li>▪ Tables</li> </ul> <p><u>Interpreting and explaining evidence:</u></p> <p>-Report on findings in a range of ways (oral and written explanations, displays and presentations of results and conclusions)</p> <p>-Use results to draw simple conclusions, make predictions for new values, and raise further questions.</p> <p>--use scientific evidence to answer questions or support their findings.</p> <p>-identify differences, similarities or changes related to simple scientific ideas and processes.</p> <p><u>Evaluating procedures:</u></p> <p>-Use results to suggest improvements.</p>

**Most children will:**

- **Know** the names of parts of the plants.
- **Know** that some foods come from plants and which parts.
- **Understand** the role of the root in the plant.
- **Identify** the different parts of the plant and know the purpose of these parts.
- **Understand** the variety of ways that plants disperse their seeds.
- **Identify** the conditions needed for germination.
- **Know** the ways in which water is transported within plants.
- **Understand** the life cycle of a flowering plant.

**Some will progress less and will:**

- **Identify** the different parts of the plant.
- **Know** that plants disperse seeds.

**Others will progress further and will also:**

- **Explain** why plants need to disperse their seeds.

**Key vocabulary:**

**Previously taught:** living, not living, healthy, leaves, roots, leaf, bulb, stem, flower, petals, seasons, seed, seedling, shoot, fruit, (names of local plants and animals), reproduce, germinate, habitat, weather

**New:** evidence, measure, nutrients, light, soil, transport, volume, water, warmth, insect, pollen, pollinate, nectar.

Session	Learning Objectives	Introduction	Main activity	Application and review	Resources
1 (Sept)	<p>To revise the names of parts of plants.</p> <p>To know that some foods come from plants</p>	<p>Part 1: Explain that children are going to study plants in more detail. Ask them to discuss with a partner what they already know about plants from their work in Years 1 &amp; 2. Give children 5 minutes to complete a KWL grid with a partner to show what they remember. Share with class.</p> <p>Part 2: Ask a volunteer to draw a simple plant on f/c or IWB. What labels could be added? Leaf, stem/stalk, root, flower, etc. What would we call the stem if it was a tree? Trunk. Can children suggest more details, e.g. petals? All parts of a plant have a function (a job to do in the life of the plant). Ask for suggestions from children and list them on f/c, e.g. leaves – collect sunlight, make food for plant; flowers – attract insects, make seeds; stem – support leaves and flowers; roots - take in water from soil, etc. Don't add other functions at this stage. Explain that children are going to look more closely at plants today and over the course of the year by setting up some investigations to find out more about the functions of the various parts.</p>	<p>Part 1: List as many food sources you can that come from a plant. Expected and exceeding to state which part of the plant you are eating e.g. carrot – root. (100 science lessons year 3 pg135)</p> <p>Part 2: Children to complete Plant Parts (1) independently after the class discussion. Expected and exceeding to complete final bullet point referring to the roots as anchors for the plant – keeping it stable in the ground.</p>	<p>What things do you eat come from plants?</p> <p>What parts do you eat?</p> <p>What is each part of the plant called?</p>	<p>Food Source sheet (Expected and exceeding)</p> <p>Labelling the plant – flap sheet (differentiated)</p> <p>KWL grid</p>
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2 (Sept)	<p>To understand the purpose of the different parts of the flower in reproducing</p>	<p>Many plants are not planted by humans. They reproduce like other living things. We will be exploring how plants reproduce. This is pollination and fertilisation.</p> <p>Dissect lily in front of class – taking the parts of the flower out.</p>	<p>Complete sheet matching up the role each part of the flower plays. Differentiated.</p>	<p>All children to cut the parts of flower (paper) and label correctly in their books.</p>	<p>Flower parts</p> <p>Scissors</p> <p>Pollination &amp; fertilisation</p>

		Go through the PowerPoint – can the children label the parts of the flower we have pulled out? Stick photograph into book.		Most children accurately completed their pollination sheet.	sheet Lily Magnifying glass Knife Gloves
Session					
3 (Sept)	To understand the variety of ways plants disperse their seeds.	Once the plant has been pollinated, it needs to disperse its seeds to allow them to eventually germinate.  After task 1, go through PowerPoint for seed dispersal. Did your group think of any of these ways?  After task 2, allow each group to walk round and see if they agree with another groups choice for the sorting activity. If they don't – go over any misconceptions etc.	Task 1: Group task - How do you think a plant may disperse its seeds? Mind map ideas.  Task 2: Group task - Science dispersal sorting activity (Twinkl)  Task 3: Independent – Seed dispersal sheet explaining under each picture how it is dispersed. Expected and exceeding: Why do plants disperse their seeds? Explain the reason. (to prevent overcrowding etc)	Why do plants disperse their seeds? Explain the reason. (to prevent overcrowding etc)  Children can talk about a number of seed dispersal ways	Seed dispersal Sorting activity  Seed dispersal activity
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4 (May)	To explore the conditions needed for germination.	We are going to carry out an investigation to find out the ideal conditions for germinating a seed. Germination is the first stage where the seed swells, splits and roots and shoots begin to emerge.  What do you think will be required for this to happen? Discuss. At the very least it must contain light, water and temperature.  As a class plan a fair experiment to investigate the	Children to set up their experiment in groups (about 6).  Complete an experiment plan and prediction independent. (Emerging to complete as a group)  Use questions on the bottom of page 140 from 100 science lessons to help them think about how to record and	What do seeds require to germinate and begin to grow?	Bean seeds Clear cups Soil Labels

		germination of seeds with different amounts of light, heat and water.  How many different combinations are there to make it fair? Where are you going to keep them? How will you ensure it is fair?	observe their experiment. <i>Spend 10mins each day observing and recording changes.</i>		
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5 (May)	To know and understand the conditions needed for seed germination.	Recap: What is germination? What is needed for germination to take place?  We are going to be concluding our experiment today about germination and sharing our findings.	Children to write the class findings up and write an explanation about what is needed for germination.	Children to write their findings up.  Assessment: Explain what is needed for germination to take place.	
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6 (May)	To investigate the way in which water is transported within plants	We will be looking closely at the role of the roots and stem for the next couple of weeks.  Looking back at the first couple of sessions on plants – what are the roles of the roots and stem? Discuss.  How could we investigate how the roots and stem help transport water around a plant?	Set up 2 experiments within the class. One focusing on the importance of the roots and the other looking at the stem.  Experiment 1: put a weed with roots on into a beaker of water – mark on where the water line is (for more able make sure you have a beaker with scale on to measure ml of water)  Experiment 2: white carnation into red water.  <i>Spend 10mins each day observing and recording changes.</i>	Discuss ways of keeping the experiment fair.  How can we record our observations?	Pg 137 from 100 science lessons year 3 – to collect results in  Carnation Food dye Beaker Weed Elastic band Clingfilm Water
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7 (May)	To know and understand how	Collect both experiments together and look at the results that have been observed throughout the week.	Children to write conclusions for both of the experiments. Emerging – write as a	What role does the stem play?	Photographs

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	water is transported around the plant	What do you notice about the results? What does this tell you about the roots and stem of a plant?	group (shared write)  Experiment 1: draw a bar graph showing decrease in water in the beaker. Experiment 2: use the photographs to explain what has happened.	What roles do the roots play?	
8 (June)	To know and understand the requirements of plants for life and growth	What do plants need in order to grow?  We have looked at a number of different elements a plant requires to grow. Go through PowerPoint about what plants require to refresh memory of previous learning.  Share a letter written to the children asking for their help about why her plants aren't growing.  What could we do to help Vera? Encourage children to look back at everything they have learnt and think about the important things a plant requires. Why aren't Vera's plants growing? What are they lacking?	Independent – cross curricular extended writing opportunity: Write a letter advising Vera Wild on why her plants aren't growing very well and what she could do to help them.	What do plants require to grow? If some are taken away – what will happen?	Letter from Vera Wild
9 (June)	To understand life cycle of flowering plants	Look back at the plant study in their folder. We have followed the life cycle of a plant throughout the seasons.	Part 1: Complete the 'L' part of their KWL grid from session 1 with a different coloured pencil.  Part 2: Complete a diagram and explanation for the life cycle of a plant.  Emerging to label their diagram.	Assessment: All children to be able to draw the life cycle of a plant and most are able to describe the processes.	100 Science lessons year 3 page 141

Food from plants – in spring plant some seeds in the garden. Food sources.