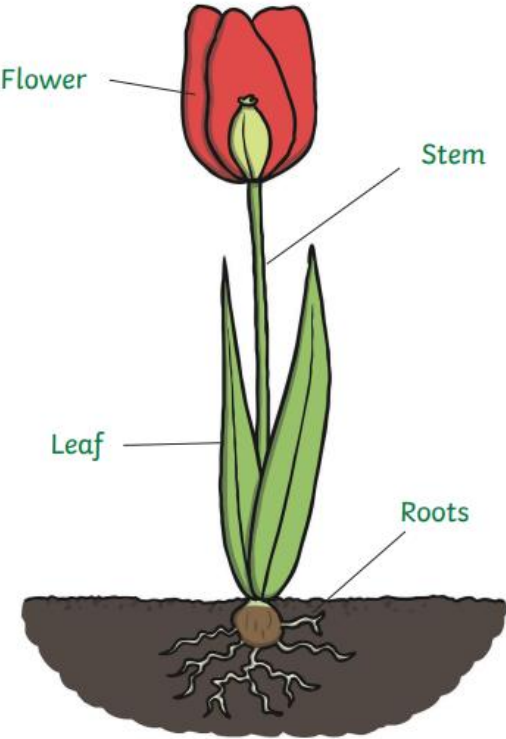




**Children's prior learning in this area**      **Cultural Capital Opportunities**      **Key vocabulary and glossary**

identify and describe the basic structure of a variety of common flowering plants, including trees

identify and name a variety of common wild and garden plants, including deciduous and evergreen trees




The diagram shows a tulip plant with a red flower, a green stem, two green leaves, and a bulb with roots in the soil. Labels with lines pointing to each part are: Flower, Stem, Leaf, and Roots.












Opportunities to grow plants first-hand.

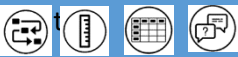









Learn the importance of caring for plants to support their growth.

Online talk with Stem Ambaassador, plant scientist, Dr Eleftheria Stavridou



- plant
- seed
- bulb
- seed coat
- food store
- shoot
- stem
- leaves
- flower
- fruit
- light
- shade
- water
- grow
- healthy
- germinate
- germination
- temperature
- suitable

<p><b>Enquiry Question</b> What are seeds and bulbs and how do they compare?</p>	<p><b>Enquiry Question</b> What do plants need to begin life?</p>	<p><b>Enquiry Question</b> Can we ask scientific questions? Can we suggest ways of answering a scientific question?</p>
<p><b>Working scientifically</b> Observe closely; Gather and record results </p> <p><b>Enquiry type:</b> identifying and classifying </p>	<p><b>Working scientifically</b> Plan, set up and perform an enquiry; take measurements; interpret results </p> <p><b>Enquiry type:</b> Comparative and fair testing </p>	<p><b>Working scientifically</b> ask scientific questions; plan an enquiry </p>
<p><b>Children will know:</b> flowering plants make seeds to reproduce and make more plants. Flowering plants grow from seeds or bulbs. A seed contains the beginnings of a new plant and a food store. Some plants grow first from a seed, and then develop a bulb that helps them to grow back year after year. A bulb is a grown-up plant that rests underground over the winter when it is too cold, then grows back later in the year when it is warmer. Not all plants develop bulbs. Some plants die off once they have made seeds and some live for generations.</p> <p><b>(Retrieval) Children will know how to:</b> observe closely using a magnifying glass. First, hold the magnifying glass close to your eye. Then move slowly towards the object until it is in focus.</p> <p><b>Children will know how to:</b> label a diagram by pointing the arrow towards the section of the diagram being identified and writing the name of the part in the space on the other side of the arrow rather than along the arrow.</p> <p><b>Check:</b> Quiz - seed or bulb? Use photos of familiar looking seeds and bulbs and also images of seeds and bulbs that we eat, e.g. peas and onions.</p> <p><b>Practise:</b> Use magnifying glass to closely observe the inside of a seed and a bulb. Draw a diagram of each and label the simple parts. Stick pre-cut out arrows rather than drawing if scaffolding is needed.</p> <p><b>Apply:</b> Compare the similarities and differences between a seed and a bulb, using scaffolding as appropriate.</p> <p><b>Deepen:</b> Look at the outer coverings of a seed and bulb. What do they feel like? How might these coverings provide protection? What might they protect the seed/bulb from?</p> 	<p><b>Children will know:</b> When a seed begins to grow, we call this germination. They will know that seeds need certain conditions to germinate.</p> <p><b>Children will know how to:</b> plan and carry out a simple practical enquiry with support and modelling from teacher in class discussion. With support and modelling, children will know that they need to identify some variables that need to be kept the same.</p> <p><i>Set up an experiment using cress seeds to investigate factors for germination. Measure length of time taken to germinate/length of shoot/stem.</i></p> <p>Following the investigation, <b>children will know:</b> all seeds need water to germinate. Most seeds do not need light to germinate. In nature, some seeds germinate when they receive warmth in the Spring after the cold Winter. Many seeds need some warmth to germinate but seeds of tomatoes and peppers like extra heat to germinate.</p> <p><b>Practise:</b> Measuring to nearest cm.</p> <p><b>Apply:</b> Be involved in observing the seeds in class investigation and recording own measurements and observations.</p> <p><b>Deepen:</b> Following class discussion, write sentences (using scaffolds) that interpret the data and answer the enquiry question.</p> 	<p><b>Children will know:</b> scientists are inquisitive/curious about world. They want to know what is in our world is there, how or why things work/happen etc. They will know scientists ask questions and then investigate them.</p> <p><b>Children will know how to:</b> create scientific questions based on their wonderings about a stimulus (a tray of a variety of different seeds). They will know how to use the I see/I know/I wonder process to generate thoughts about a stimulus and then turn the wonderings into questions. Scaffolds given e.g. I wonder if/I wonder why/I wonder how/I wonder when.</p> <p><b>Practise:</b> Turn teacher's wonderings about bulbs into questions.</p> <p><b>Apply:</b> Turn own or other pupil's wonderings about seeds into questions. These could go on post-its to be stuck in Big Book.</p> <p><b>Deepen:</b> With support and modelling in class discussion, suggest ways of answering wondering/question posed by teacher - Do bigger seeds grow faster? Or any other suitable questions posed by children. (Scribe suggested ways by children into Big Book).</p> 

<p><b>Enquiry Question</b> Do bigger seeds germinate and grow faster?</p>	<p><b>Enquiry Question</b> How do our plants grow?</p>	<p><b>Enquiry Question</b> What do plants need to grow and stay healthy?</p>
<p><b>Working scientifically</b> plan, set up and perform an enquiry; take measurements; gather and record results; interpret</p>  <p><b>Enquiry type:</b> pattern seeking</p> 	<p><b>Working scientifically</b> observe closely; take measurements; gather and record results; present and report findings</p> <p><b>Enquiry type:</b> Observing over time</p>     	<p><b>Enquiry type:</b> Observing over time</p> 
<p><b>Children will know how to:</b> (through modelling and scaffolded class discussion), plan a pattern-seeking enquiry by identifying what they need to measure/observe to establish whether or not there is a pattern.</p> <p><b>Children will know how to:</b> take measurements by counting days until germination and recording this data on a prepared table/chart/unifix tower. They will be able to measure shoots on final day by measuring to the nearest cm.</p> <p><b>Children will know how to:</b> interpret results – answer the question by discussing what they have noticed and making connections between amount of days and size of seed. They will be able to use appropriate scientific language to communicate the answer.</p> <p><i>Order the seeds by size from smallest to largest along window sill and then as they germinate it will be easy to establish a pattern as to whether or not bigger seeds germinate and grow faster.</i></p> <p><b>Practise:</b> Order different objects by size. Order time periods by length e.g. 3 days/5 days/2 days and understand which would relate to something growing/happening faster. Measuring to nearest cm.</p> <p><b>Apply:</b> Be involved in observing the seeds in class investigation and recording own data.</p> <p><b>Deepen:</b> Following class discussion, write sentences (using scaffolds) that interpret the data and answer the enquiry question.</p> 	<p><a href="#">What is the life cycle of a plant? - BBC Bitesize.</a></p> <p><b>Children will know:</b> A seed is planted. The seed germinates when a sprout bursts through the seed coat. Roots grow down and a shoot grows up. Then leaves will grow and a stem. Many plants will then grow flowers that turn into fruits which contain seeds. The seeds will spread so that new plants can grow. Some adult plants can continue to grow and live for further generations but some will die once the seeds have spread. Some will drop their flowers and die off above ground but rest underground as a bulb during the winter.</p> <p><b>Children will know how to:</b> observe closely and take measurements to the nearest cm; gather and record observations using descriptive, scientific language and they will know how to record observations in a labelled diagram with arrows pointing the the part being identified and the label to the side of the arrow.</p> <p><b>Practise:</b> Sequence sentences describing the growth of a flowering plant.</p> <p><b>Apply (ongoing over year):</b> Plant bulbs, e.g. crocus/daffodil and sow some seeds – broad beans or radish and wildflower mix. Begin a plant diary for one of the plants that has been planted – e.g. radish or broad beans. Continue diary as different stages of plant grow, describing observations and drawing and labelling. <b>Assessment of observing closely and gathering and recording of observations through labelled diagrams to be carried out mid-way. Targeted support/extension to be provided at other stages in diary. (Photos and description of anything else planted can be oral and scribed into Big Book).</b></p> <p><b>Deepen:</b> At end of year, when life cycles have been observed, review observations in Big Book. Present findings - Complete a table/ sentences comparing similarities and differences between how the plants grew.</p> 	<p>Plants need light, water and a suitable temperature to grow and stay healthy. (Even though light is usually not needed for seeds to germinate).</p> <p><b>Practise:</b> True/false about requirements for a plant to grow and stay healthy.</p> <p><b>Apply (ongoing over year):</b> Plant bulbs and sow seeds and over time, look after them. Set up a gardener rota for children to tend to plants as appropriate. (Gardening Club can also check on them).</p> <p><b>Deepen:</b> Look at images of unhealthy plants and reason about why they are unhealthy and why they think that. E.g. Brown/droopy – lack of water.</p> 