

Year 2

Plants

Background Knowledge

This will be an outdoor learning opportunity. Provide opportunities to explore the outdoor area during science lessons using the vocabulary from year 1.

Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at different types of the year and they will grow and germinate at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.

Common misconceptions

- Plants are not alive as they can't move.
- Seeds are not alive.
- All plants start out a seeds.
- Seeds and bulbs need sunlight to germinate.

Additional resources and ideas <https://www.hamilton-trust.org.uk/browse/science/y2/year-2-summer-1-plants-ready-steady-grow/117189>

Needs of a plant song - You Tube <https://www.youtube.com/watch?v=dUBIQ1fTRzI>

What children already know / can do

From Year 1:

- I can name a variety of common, wild and garden plants.
- I can name the petals, stem, leaf and root of a plant.
- I can name the roots, trunk, branches and leaves of a tree
- I can make simple observations using appropriate language to describe them.
- I can compare living things.
- I can sort and group objects according to their simple properties.

National Curriculum Objectives	Children's objectives
observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	I can describe how seeds and bulbs grow into plants. I can describe what plants need in order to grow and stay healthy (light, water and suitable temperature.)
<u>Scientific enquiry skills</u> observing closely, using simple equipment performing simple tests gathering, interpreting and recording data to help in answering questions	I can use simple equipment to make observations. I can make simple measurements using non-standard units. I can carry out simple tests independently. I can draw a simple table to record my results. I can record my results in simple bar charts, tally charts and pictograms. I can use simple data to answer a question

Assessment

- Can you name the parts of a plant?
- Can you say how seeds and bulbs are different?
- Can you say what a seed needs to grow?
- Can you make simple measurements?
- Can you display your results in a bar chart?
- Can you describe the stages of a seed growing?

Working towards	Expected	exceeding
<p>Remember the main parts of a plant</p> <p>I know what a plant needs to grow</p> <p>I can carry out a simple investigation with help</p> <p>Know that some plants grow from seeds and others from bulbs.</p> <p>Compare simple features of different seeds</p> <p>Can suggest the basic needs of a plant for water and light</p>	<p>Can name the parts of a flowering plant and tree.</p> <p>Can predict and investigate what a seed needs to grow.</p> <p>Can observe the changes over time.</p> <p>Can say what a plant needs to grow.</p> <p>Can make observations as to how seeds and plants grow into mature plants and in simple terms, how they produce seeds/fruit</p> <p>To be able to investigate and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<ul style="list-style-type: none"> • can describe the changes that occur as a plant grows. C • Can say what a plant needs to grow and give reasons why. • Can describe the changes observed using scientific vocabulary. • Recognise that not all bulbs or seeds are the same as those from different species of plant • Can begin to explain that plants in different places have different features that help them to survive in low light or dry conditions(eg cacti have reduced leaves to deal with hot dry conditions, Bromeliads store water in leaves etc)

Key Vocabulary	
<p>Bulb - the part of the plant which is resting before growing into a new plant</p> <p>Dormant - when a seed is not yet growing</p> <p>Germination - when a seed or plant begins to show signs of growth</p> <p>Leaf - usually green growing off the stem</p> <p>Plant - a living thing that grows</p> <p>Root - grows underground on a plant</p> <p>Stem - keeps the plant upright</p> <p>Seed - the part of a plant which moves away from the parent plant and can grow into a new plant</p> <p>Temperature - a measure of how hot or cold it is</p> <p>Names of plants in school grounds and woodlands</p> <p>Names of common garden plants</p>	<p>Observe - to look at something closely</p> <p>Predict - to say what you think might happen</p> <p>Measure - to see how big something is</p> <p>Bar chart - a way of displaying information</p> <p>Investigation - to find something out</p> <p>Result - to say what we have found out</p>

Character opportunities	Possible STEM careers linked to unit
<p>Curiosity and critical thinking - asking questions about the world around them</p> <p>Ambition and self motivation - consideration of STEM careers</p> <p>Collaboration and Community - taking care of the environment and taking a responsibility for looking after it</p>	<p>Farmer (grows crops and raises animals for food)</p> <p>Arborist (cares for and manages trees)</p> <p>Horticulturist (an expert in garden cultivation and management)</p>

NB: start off an example of the onion potato and pineapple growth as well as some flowering bulbs (see shaded box below) aprox 3 weeks before needed and keep to one side

Lesson Objectives	Working Scientifically	Activities	Thinking skills / metacognition opportunities and creative suggestions
<ul style="list-style-type: none"> • Begin by creating a whole class mind map of what children know about plants. As the topic progresses, get children to add to mind map • Complete Plant Quiz (Scholastic Y2 science p103) 			
<ul style="list-style-type: none"> • Revise names of parts of the plants including flower, stem and root • To begin to understand how plants grow and change 	<ul style="list-style-type: none"> • Identifying and classifying • Observing closely • Learn to identify different plants 	<ul style="list-style-type: none"> • Using pictures and practical examples, in class and in the school grounds, draw and label the parts on different types of plants 	<ul style="list-style-type: none"> • Use photographs or magazine pictures to create a jigsaw made up from different flowering plants • (See scholastic Y2 science p 102)
<ul style="list-style-type: none"> • To know what the parts of flowers look like • To name the basic reproductive parts - stamens, petals, pollen and stigma and the role they play in pollination 	<ul style="list-style-type: none"> • Identifying and classifying • Observing closely • Gathering and recording data 	<ul style="list-style-type: none"> • Take apart a daffodil or other flower (lillies - beware of staining pollen!!) and investigate the parts using hand lenses where necessary. Children draw an 'exploded diagram' showing the different parts of flower next to a photo of the complete flower • Discuss the role of insects in pollination 	<ul style="list-style-type: none"> • Look at examples of botanical diagrams - links to art
<ul style="list-style-type: none"> • To know that seeds are different depending on the type of flower they grow into 	<ul style="list-style-type: none"> • Observe closely • Identify and classify • Gathering and recording data 	<ul style="list-style-type: none"> • Using the book 'The little Gardner' by Emily Hughes, (available on You tube, but very American) • Close observation activity. Encourage the children to note down 3 things about each type of seed, then note down one more thing that they hadn't noticed before to encourage effective observation skills. Take close up photos of seeds 	<ul style="list-style-type: none"> • Create a display of children's sketches of the seeds with the pictures of the flowers. • Plant some mixed wild flower seeds in the garden.

		<ul style="list-style-type: none"> • Look at the different types of flower seeds (eg sunflower, nasturtium, marigold, sweet pea, aquilegia, Californian poppy etc etc), What do children think they will grow into? Discuss how the seeds are alive, they are just dormant. What do the children think that the seeds will need to 'wake them up'? • Get children to plant the seeds in small pots. Keep a photographic record of their growth and add to display • Introduce children to language 'dormant' and 'germination' • See here for close up views of other seeds 	Plan a rota for watering etc
<ul style="list-style-type: none"> • To know that seeds need the correct conditions in order to grow 	<ul style="list-style-type: none"> • Observe closely • Gathering and recording data + find answers • Performing simple tests • Using their observations to suggest answers to simple questions 	<ul style="list-style-type: none"> • You have been asked by Heighly Gate to investigate the best conditions for growing cress for them to use in their restaurant. Set up research investigation teams to investigate the effect of growing in a cold/warm environment (temperature), (place in fridge and in a warm place, perhaps under a cloche on the windowsill to represent greenhouse) Dry or moist soil, light or no light. Children should make predictions as to what might happen before starting the test. <ul style="list-style-type: none"> • Write a report using appropriate format to 'send' to Heighly Gate depending on ability. Report should contain: <ul style="list-style-type: none"> • What they were trying to find out • What their group did • What they found out • What they would recommend HG do about growing cress 	Class could video their presentation as a follow up
<ul style="list-style-type: none"> • To observe and record the growth of a plant carefully 	<ul style="list-style-type: none"> • Observe closely • Gathering and recording data + find answers • Performing simple investigations 	<ul style="list-style-type: none"> • Plant broad bean seeds in a transparent container(eg plastic cup) with dampened cotton wool to press the seed against the side of the container so that it can be clearly observed. Keep a booklet record of it's germination and growth using diagrams as it produces roots, shoots etc. Encourage children to also keep a record of the day number that the observation was taken on • Plant several 'spare' beans. Experiment by placing cup on its side, upside down etc etc. The roots will always grow downwards and the shoots will 	<ul style="list-style-type: none"> • Design a garden <p>Research plants that:</p> <ul style="list-style-type: none"> • Grow fastest • Grow slowest • Grow in the coldest areas

	<ul style="list-style-type: none"> Using their observations to suggest answers to simple questions 	<p>always grow up (this is known as geotropism, and is a response to gravity) Roots/shoots will change direction in order to grow in the correct direction</p> <ul style="list-style-type: none"> Plant will grow towards light (- this is known as phototropism) 	<ul style="list-style-type: none"> Grow in the hottest areas Grow in the wettest areas Grow in the driest <p>Make a collage of different plants from magazines, seed catalogues etc</p>
To understand that plants are a source of food and that we eat different parts of plants	<p>Gathering and recording data</p> <ul style="list-style-type: none"> Using their observations to suggest answers to simple questions 	<ul style="list-style-type: none"> <i>Food from plants sheet - scholastic Y2 Science 106</i> <i>Investigate which types of seeds birds like best</i> 	
<ul style="list-style-type: none"> To observe and record the growth of a plant carefully 	<ul style="list-style-type: none"> Observe closely Gathering and recording data + find answers Performing simple tests Using their observations to suggest answers to simple questions 	<ul style="list-style-type: none"> Using the top of a pineapple placed in shallow water (will need topping up) New plant from part of a plant, a potato, which is a tuber (place in a shady part of the classroom, needs no water) and an onion which is a bulb (place in a jam jar so that the root area is just in the water. Observe the growth of these over time (takes approx 3 weeks) Grow some flowering bulbs (appropriate for the season) 	<ul style="list-style-type: none"> Investigate flower paintings (Van Gogh) <ul style="list-style-type: none"> Flower crafts <p>https://buggyandbuddy.com/flower-crafts-roundup/</p>
<ul style="list-style-type: none"> To know that there is a variety of leaf shapes 	<ul style="list-style-type: none"> Use observation to suggest answers to questions Identify and classify 	<ul style="list-style-type: none"> Sorting and classifying a variety of leaves according to chosen criteria Look closely at different leaves using hand lenses - google 'close up of leaves' for stock images Leaf rubbings, collages etc 	<ul style="list-style-type: none"> Leaf printed air drying clay decorations etc Miniature close ups of leaves paintings/pastels