

KS3 Biology – Why are plants important?

Students will be able to identify, name and classify different plants. Students will learn the parts of a plant and the parts of a flower, they will be able to label and explain their function. Students will explore the life cycle of a plant and explain what happens at each stage. Students will investigate what a plant needs to grow and have the opportunity to grow their own plants to observe and understand how they germinate.

Students will 'work scientifically' to achieve these goals, learning the key features of scientific enquiry; observing over time, pattern seeking, identifying, classifying, investigating (fair tests) and researching.

RRS Articles:

This unit of work is linked to Articles of the UN Convention on the Rights of the Child.

Article 13 (freedom of expression)

Article 29 (goals of education)

	<u>OU P 5-6</u>	<u>OU P 7-8</u>	<u>OU Step 1</u>	<u>OU Step 2</u>	<u>OU Step 3</u>
<u>Subject specific knowledge</u>	<p>Knows that plants and trees change during the year.</p> <p>Knows that plants have different parts.</p> <p>Knows that plants grow from a seed.</p> <p>Knows the difference between plants and flowers.</p> <p>Knows that leaves can be different shapes.</p> <p>Knows that plants need water to stay alive and grow.</p>	<p>Knows that plants and trees change during the year.</p> <p>Can name the parts of a plant (stem, flower, leaf, root.)</p> <p>Knows the different stages of a plant's life cycle.</p> <p>Knows plants/flowers have different names.</p> <p>Knows that plants need different things to grow.</p>	<p>Can name the parts of a plant (stem, flower, leaf, root) and knows that each part has a different function. e.g. roots take in water.</p> <p>Knows that a flower has different parts.</p> <p>Knows the different stages of a plant's life cycle.</p> <p>Knows plants/flowers have different names and features.</p> <p>Knows that a plant needs light, water,</p>	<p>Knows that a flower has different parts.</p> <p>Knows that a plant needs pollen from another plant to make seeds.</p> <p>Knows that pollen can be spread by insects and the wind.</p> <p>Knows that plants make their own food.</p> <p>Knows the different stages of a plant's life cycle.</p>	<p>Knows that a flower has different parts.</p> <p>Knows that a plant needs pollen from another plant to make seeds is called pollination.</p> <p>Knows that pollination is the process of getting pollen to the stigma.</p> <p>Knows that pollen can be spread by insects and the wind.</p> <p>Knows that seeds can be dispersed in</p>

			warmth and nutrition (food) to grow.	Knows that plants make food from sunlight.	different ways (wind, animal, explosions, drop and roll). Knows that plants make food from sunlight and this is called photosynthesis. Knows the key components of photosynthesis (e.g. sunlight, chlorophyll, water and carbon dioxide).
<u>Subject specific skills</u>	<p>Is able to identify 1 change in plants and trees during the year through observation.</p> <p>Is able to point to or match different parts of a plant when given the name.</p> <p>Is able to explore properties of seeds e.g. texture, size, dry/moist, hard/soft.</p> <p>Is able to help to plant a seed.</p> <p>Is able to sort plants and flowers.</p>	<p>Is able to independently describe a leaf or flower.</p> <p>Is able to label the parts of a plant (leaf, flower, stem, root)</p> <p>Is able to find named parts of plants e.g. leaf, flower, stem, root</p> <p>Is able to sequence the life cycle of a plant.</p> <p>Is able to independently plant a seed after a 1:1 modelling.</p> <p>Is able to name some plants e.g. sunflower, tree, dandelion.</p>	<p>Is able to label the parts of a plant (leaf, flower, stem, root) and explain their functions.</p> <p>Is able to verbally name the parts of a flower using a diagram.</p> <p>Is able to classify plants using simple keys.</p> <p>Is able to sequence the life cycle of a plant.</p> <p>Is able to explain that a plant needs light, water, warmth and nutrition (food) to grow.</p>	<p>Is able to label the parts of a flower.</p> <p>Is able to dissect a flower with support.</p> <p>Is able to identify that plants make their own food using sunlight, water and air (carbon dioxide)</p> <p>Is able to explain the different stages of a plants life cycle using key scientific vocabulary e.g. germination.</p> <p>Is able to successfully grow a plant from a seed.</p>	<p>Is able to dissect and label the parts of a flower.</p> <p>Is able to explain the functions of each part of the flower.</p> <p>Is able to investigate how seeds are dispersed.</p> <p>Is able to explain the process of photosynthesis.</p> <p>Follows a written set of instructions to carry out a simple investigation.</p>

	<p>Is able to water a plant.</p> <p>Follow a set of demonstrations to carry out a simple investigation.</p>	<p>Is able to demonstrate how and when to water a plant or seed.</p> <p>Follows a picture method to carry out a simple investigation.</p>	<p>Is able to successfully grow a plant from seed.</p> <p>Follows a word and picture method to carry out a simple investigation.</p>	<p>Is able to record growing a plant from seed using a photographic diary.</p> <p>Follows a written set of instructions to carry out a simple investigation.</p> <p>Records results in a suitable table.</p>	<p>Records results in a suitable table.</p> <p>Is able to draw conclusions from their results.</p>
<p><u>Personal development</u></p>	<p><u>Problem solving</u> Investigations and matching exercises</p> <p><u>Communication skills</u> Working as pairs in investigations, asking and answering questions</p> <p><u>Self-belief</u> Learning new skills, practising them and demonstrating them.</p> <p><u>Self-management</u> Working with new equipment</p> <p><u>Teamwork</u> Working as groups to solve problems or find out new information</p>				
<p><u>Suggested activities</u></p>	<ul style="list-style-type: none"> • Experience plants or plant parts using the senses - touch, smell, taste, look, hear e.g. dry corn stalks. • Explore different kinds of leaves brought into class - for shape, prickly/not prickly, hairy, shiny, thickness, colour etc. • Find different kinds of leaves in local environment. • Find leaves in local environment to match to given leaves. • Compare fresh leaves with same types of leaf collected a week ago. • Leaf rubbings - to look at shapes, textures, veins etc. • Repeat all the above for flowers, stems, roots. • "Make the Plant" game - assemble parts (root, stem, leaf, flower of more than one type of plant) named by adult to complete plant e.g. on Velcro board or Bingo game. • Labelling the parts of a plant (root, stem, leaf, flower). • Labelling the parts of a flower (petal, pollen, anther, stigma, style, filament, ovary, ovule, sepal, stem). • Compare real plant with real animal, e.g. different body parts - plants don't have eyes, feet etc; different needs - food, water. • Explore different seeds e.g. coconuts, conkers, poppy seeds, wheat. • Make collection of plants/plant parts that humans eat. 				

	<ul style="list-style-type: none"> • Visit farm or garden to see food plants growing. • Grow food plants in school. • Grow new plants from cuttings of parent plant. • Germinate readily visible seeds, e.g. bean sprouts. • Grow pips and seeds of edible plants. • What do seeds need to germinate? dry/wet light/dark (both samples need to be moist), warm/cold (put one sample in fridge, one in dark, warm cupboard) • What do plants need to grow? Water/no water. <ul style="list-style-type: none"> • Does the depth of planting a seed affect its growth rate? • Observe germination and growth of seedlings in soil in clear Perspex observation chamber. • Observe and record a plant as it grows using a digital camera to record growth and help pupils compare different stages.
<p><u>Possible Investigations</u></p>	<ul style="list-style-type: none"> • What do seeds need to germinate? dry/wet light/dark (both samples need to be moist), warm/cold (put one sample in fridge, one in dark, warm cupboard) • What do plants need to grow? Water/no water. • Does the depth of planting a seed affect its growth rate? • Observe germination and growth of seedlings in soil in clear Perspex observation chamber. • Observe and record a plant as it grows using a digital camera to record growth and help pupils compare different stages.
<p><u>Key Words</u></p>	<p>Leaf, stem, flower, root, seed, grow, water, light, rain, sun, plant, petal, stigma, style, ovary, ovule, anther, filament, stamen, pollination, photosynthesis, carbon dioxide</p>
<p><u>Online resources</u> Twinkl CLEAPPS for risk assessments BBC bitesize for video resources.</p>	
<p><u>Evidencing Work</u> All work / evidence sheets need to be printed off, annotated by staff, self-assessed by pupils and stored in student folders.</p>	