Year 3 – Plants



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| National Curriculum Outcomes: Knowledge   * 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 | | | | | | National Curriculum Outcomes: Working Scientifically   * Asking simple questions and recognising that they can be answered in different ways * Observing closely, using simple equipment * Performing simple tests * Identifying and classifying * Using their observations and ideas to suggest answers to questions * Gathering and recording data to help in answering questions | |
| Children might work scientifically by:  Comparing the effect of different factors on plants growth, for example, the amount of liger, the amount of fertiliser. Discovering how seeds are formed by observing the different stages of plant life cycles over a period of time. Looking for patterns in the structure of fruits that relate to how seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers. *(Taken from the National Curriculum)* | | | | | |
| Links to prior learning  **Year 1:** identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.  **Year 2:** 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. | | | | Links to future learning  **Year 5:** Describe the life processes of reproduction in some plants and animals  **Year 6:** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution | | | |
| Key Vocabulary  Root, stem, trunk, leaf, leaves, flower, grow, growth, air, light, water, nutrients, soil, seeds, seed formation, seed dispersal, pollination | | Common Misconceptions   * Because they may have seen their families ‘feed’ their plants at home with plant food, children may thing that plants ‘eat’ food in a similar way to animals, rather than them making their own food in their leaves. * Children may think that plants without flowers are not plants, in particular trees and grass | | | | | |
| Important Scientists  **Joseph Banks** – English botanist  **Ahmed Mumin Warfa** – Somali scientist specialising in botany | | STEM Career Links  **Agricultural engineer** (studies agricultural production and processing)  **Arborist** (cares for and manages trees)  **Botanist** (studies plants)  **Conservationist** (works for the protection and preservation of living things and the environment)  **Farmer** (grows crops and raises animals for food)  **Gardner** (creates and maintains gardens and green spaces) | | | | Links to real life   * What if all the bees became extinct? * Which of our foods are grown in the ground? * Which kind of flower is your favourite? | |
| Key knowledge/facts that the children need to know  The main parts of most plants are roots, stem/trunk, leaves and flowers.  Roots anchor the plant into the ground, without roots it would fall over. Roots also take in water and nutrients from the soil.  Stems support the plant and keep it upright. Water and nutrients are transported up through the stem.  Leaves make food for the plants, they catch the sunlight that plants need to make food - this is photosynthesis (note, children do not need to learn the term ‘photosynthesis’ or how this works to have met the expected standard, only that leaves make food for the plant).  Plants need air, light, water and nutrients from soil and room to grow well. Different plants need different amounts of these depending on their usual habitat, for example plants that usually grow in the desert like cacti will need less water to survive.  Water is transported within plants (in through the roots and up through the stem).  Flowers play in the are part of the reproduction of plants, involved in pollination and seed dispersal.  Insects are needed for pollination - flowers are bright and colourful to attract the insects. | | | | | | | |
| Suggested Enquiry Activities | | | | | | | |
| Identifying and Classifying   * Do all plants have flowers? * Can you use a classification key to identify a plant? * Classify flowers based on the children’s own criteria. * How many different ways can you group our seed collection? | Comparative and Fair Testing   * How does fertiliser affect plant growth? * What is the best amount of water to give a plant? * How will plants grow differently if they are given different liquids? * Which conditions help seeds germinate faster? | | Observation over Time   * Do all seeds grow at the same speed? * Observe celery or white carnations in coloured water * Gather seeds and photographic evidence of blossoms/flowers and berries on a particular trail throughout the year | | Pattern Seeking   * Do plants grow quicker in warmer temperatures? * Do smaller seeds germinate more quickly? * Investigate what happens when conditions are changed e.g. more/less light/water, change in temperature, nutrients * What colour flowers do pollinating insects prefer? | | Research using Secondary Sources   * What do the different parts of a plant do? * How does a plant disperse seeds? * How does pollination happen? |

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| Wow Factor Experiences   * Engage with the Farmertime scheme to find out how farmers use knowledge of plant growth to cultivate healthy crops (see weblinks below) * Carry out the STEMterprise cross-curricular ‘business’ project (see weblinks below) * Visit a local farm, park or other natural space to investigate the different kinds of plants there * Borrow a Linnaen Society Plants Discovery Kit and use the time lapse camera to record plant growth (see weblinks below) | | |
| Maths Links  Survey the school grounds to investigate how many and which types of plants there are.  A range of measuring skills can be practised when investigating plant growth, including measuring the length/size of plants, the amount of water given to them and the weight of any fruit yielded | Literacy Links  Try an ‘apprentice’ style drama activity – in groups, children each take on the role of a part of a plant with one being Lord Sugar, then each part has to argue against being fired by explaining what it’s role as part of the whole plant is and how vitally important it is | Broader Curriculum Links  **Geography:** Compare the differences in common plant life between Pudsey and the area you are currently studying.  **Design Technology:** Carry out a cross-curricular ‘business project’ using the STEMterprise resources (see weblinks below) |
| Story Links  The Tiny Seed – Eric Carle  The Night Flower – Lara Thorne  A Seed is Sleepy – Dianna Aston & Sylvia Long  Bloom – Nicola Skinner  Under the Canopy - IrisVolant | | |
| Helpful Weblinks  Assessment exemplification (could also be useful with planning ideas) – <https://www.planassessment.com/product-page/examples-of-work-plants-y3-jr>  BBC Class Clips (useful videos) – <https://www.bbc.co.uk/bitesize/topics/zy66fg8/resources/1>  Online CPD for this unit (free) – <https://www.reachoutcpd.com/courses/upper-primary/plants-and-growth/>  STEM Learning’s online resource library for Plants in Year 3 - <https://www.stem.org.uk/resources/community/collection/12535/year-3-plants>  STEMterprise cross-curricular plants project – <https://education.nfuonline.com/stemterprise>  Linnaen Society Discovery Kit Loans – <https://www.linnean.org/learning/teaching/primary/discovery-kits> | | |

NB: It would be helpful to teach this unit after the unit on Animals Including Humans as then children will already be familiar with the idea of nutrition. However, you might want to consider beginning to plant some fruit or vegetables during the Animals Including Humans unit, as this will allow children to observe plants growing over time and link with their learning about healthy eating. Also, if this unit it taught after the work on rocks & soils and children have made their own composter or wormery, then the compos or fertiliser made in these could be used when growing plants in this unit.