# Plant Growth

## KS 1

*Need to risk assess any contact with animals, use the CLEAPs folder to check on the health and safety recommendations for the activities.*

**Pupils identify, in simple terms, how the conditions in a habitat affect the plants that grow there.**
**Pupils identify and name a variety of common wild and garden plants in the local environment, including deciduous and evergreen trees.**

Use local environment (school grounds/community areas/ forest school) to carry out a simple survey of plants/trees growing in different places within it. They explore a wide variety of common wild and garden plants in their habitats, including some deciduous and evergreen trees.
Compare the plants growing in the different habitats and notice and discuss, in simple terms, the conditions (light/dark, damp/dry) that the plants are growing in within each habitat. They are introduced to the idea that the conditions a habitat determine the type of plants that grow there.
Through their work, become familiar with names of some common flowers and deciduous and evergreen trees and begin to identify them.

**Pupils identify and describe the basic structure of a variety of common flowering plants, including trees. (roots, stem/trunk, leaves and flowers)**
**Pupils compare plants, identifying similarities and differences between them, and group them in their own ways.**

While outside, discuss in simple terms, basic parts of variety of garden and wild plants, identifying flower, petals, stem, leaves, roots, and when applicable, bulb and seed. They identify basic parts of trees, such as trunk, roots, branches, leaves, flowers (blossom) and when applicable, fruit.
Observe closely and draw diagrams of the different plants, showing the parts, in classroom and outside. They use equipment such as magnifiers and root windows to observe different parts of the plants/trees. They might use the digital microscope to observe the plants in more detail. Compare a variety of different flowering plants in the classroom, identifying similarities and differences between them.
Group plants in their own ways eg by comparing the pattern or shape of leaves and explain their ideas.

**Pupils find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.**

**Pupils observe and describe how seeds and bulbs grow into mature plants**
Explore plant growth.
Investigate their own ideas about what a **seed** needs in order to make it grow (germinate), such as water, light, warmth (suitable temperature). They discuss their findings. Use this discussion to establish that seeds need water and warmth to make them germinate.
Make observations of and draw different seeds as they germinate and grow into seedlings.
Investigate their ideas about what a **plant** needs in order to grow healthily. They are encouraged to try their own ideas. Discuss their findings and through this, establish that plants need water, light and warmth in order to grow healthily.
Observe and record with some accuracy the growth, over time, of bulbs and carrot tops as well as seeds that they have planted. Note: Seeds and bulbs need water to grow but do not need light; seeds and bulbs have a store of food inside them

**Pupils explore the simple life-cycle of plants.**

Use the local environment (school grounds/community areas/forest school) at different times throughout the year, to explore how plants grow.

## Lower KS2

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**Pupils explore and identify plants found in different habitats in the local environment and link these to the conditions found in each habitat.**
**Pupils observe and explore a range of plants from different habitats and the conditions they need in order to grow.**

Explore plants/trees in habitats in different habitats in the local environment, note conditions and plants found there. Pupils also identify plants/trees.
Visit a different type of plant habitat eg Botanical Garden (such as in Birmingham) & observe wide variety of plants from different habitats.
Take photographs, make observations & note conditions plants are growing in.
Compare/contrast different plants and discuss conditions each needs to grow.
Establish that the plants growing in a particular habitat depend on the conditions within that habitat.

**Pupils explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how these vary from plant to plant.**

Explore effect of different growing medium and room to grow on the growth of plants eg comparing different growing media eg cotton wool, polystyrene, soil, compost (with different levels of nutrients) or effect of the size of the pot (room to grow). Pupils discuss, compare and pool their results to find optimum growth conditions.

**Pupils identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.**

**N.B. Using seeds planted earlier, pupils introduced to the relationship between structure and function in the plant: the idea that every part of the plant has a job to do.**

**Pupils:**

Explore and ask questions about role of the **root** and **stem** in a plant/tree.
Make observational drawings of different plants/ trees.

Dig up and make observations of different plant roots, such as tap root, fibrous root.
Explore the internal structure of roots & discuss their ideas about role of the root in the plant. Use to establish that the root anchors the plant and transports water and nutrients from the soil to the rest of the plant.
Explore how water is transported in plants eg by cutting up and examining the structure of stems in different plants, to explore how the stem might move water upwards to from the ground to the rest of the plant.
Explore cut, white carnations put into coloured water, observe how water travels up the stem to the flowers. Could compare with the action of straws or a kitchen tissue soaking up a liquid.

**Pupils explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**

Search local environment for seeds that have fallen or been dispersed. They examine seeds. NB If few seeds are available naturally, add to the collection.
Pupils
Explore collection of different seeds and give own ideas about how seeds might have been dispersed, explaining reasons. Discuss ideas and reasons for them.
Through discussion to establish that seeds can be dispersed in several different ways eg by wind, such as sycamore and dandelion, by birds, by animals, by their

## Upper KS2

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**Exploring plants in the local environment**

Study local environment throughout year and observe the changes in a variety of plants. Pupils keep a detailed log of changes in plants/trees over the year,

Pupils grow plants and flowers from seed for a garden area during spring and summer and follow their progress during the year. They include flowering plants of different colours. They might also carry out a study of the changes in the plants in a wildlife area or woodland.

Find out about how a naturalist, such as David Attenborough, carries out his work.

**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.**

Explore the effect on plant growth of varying the amount of light and amount of water. They compare and discuss their results and pool their findings to identify the optimum conditions for growth.
Explore the effect of air (oxygen) on a plant's health by covering a plant with a polythene bag from which the air has been squeezed. They compare the health of this plant with a control. Through discussion, establish that air is essential for a plant to produce its own food.

Explore growing new plants from different parts of the parent plant, for example, stem and root cuttings, tubers.

**Pupils identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.**

Continue to explore the relationship between structure and function in a plant: the idea that every part has a job to do. They explore questions that focus on the role of **leaves** for nutrition and flowers for reproduction.

Explore how depriving a plant's leaves of light (eg placing the plant in a dark place or covering the leaves) affects the health of the plant compared to a plant left in the light. Discuss the outcome and use to establish that plants can make their own food and that leaves enable the plant to do this but that light is needed for this to happen. Note that at this stage they do not need to understand how this happens ie they do not need to know about details of the photosynthesis process.

**Pupils identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.**

**Pupils explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**

**Describe the life process of reproduction in some plants.**

Explore the flower heads of a variety of flowering plants, taking the flower heads apart and exploring the different parts. They identify the parts in one flower and compare with those in another.
Discuss what they think the different parts of the flower are used for. Through this discussion, establish how pollen produced by the male parts of the flower is transferred by insects to another flower where it pollinates the flower by contact with the female parts, which leads to the formation of a seed, enabling the plant to

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| They explore a variety of common plants and some deciduous and evergreen trees, making observations as the plants flower, produce and shed seeds and die back. They keep records of how plants change over time eg leaves falling off trees in autumn, buds opening in spring.<br>Collect seeds (and bulbs) from plants/trees in the environment and explore planting them to try to produce new plants. They make observations of the growth of these plants. Use these experiences to establish that plants produce seeds to enable the plant to reproduce.<br>Observe and make recordings of different stages in growth of a variety of plants. Use their learning to draw **simple** life cycles of different plants/trees.<br><br>**Pupils explore and compare the differences between things that are living, dead, and things that have never been alive.**<br><br>Sort and group a large variety of things, including those that are living, dead and those that were never alive, according to own ideas. Pupils describe how they decided where to place things, exploring questions such as: 'Is a flame alive? Is a deciduous tree dead in winter?' Pupils also raise their own questions and try to answer them. Through discussion of their ideas, establish, in simple terms, that living things have certain characteristics, such as that they eat and have babies (reproduce). | shape and by propulsion, and that the method of dispersal depends on the nature of the seed.<br>Relate the different seeds to the various methods of seed dispersal.<br><br>**Pupils explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**<br><br>Explore variety of seeds eg vegetables, sunflowers, broad & runner beans & seeds collected from local environment. They make predictions of what mature plants might look like.<br><br>Explore some mature plants alongside their seeds.<br><br>Focus on specific plants/trees in local environment and observe them throughout year. They use their observations to construct simple life cycles of plants.<br><br>**Pupils explore the characteristics that make something a living thing.**<br><br>Collect variety of objects, including living things, from the local environment and group them as to whether they think they are living, non-living or once-lived (dead), giving reasons. Add to collection things such as moving toy (cars), plastic flowers, fossils, rocks, an apple. Discuss their ideas. Use discussion to establish that living things can be identified by their characteristics, such as that they grow, reproduce, feed. | reproduce. (sexual reproduction) This discussion might also be supported by watching related TV or video clips.<br>Visit a local nursery, flower producer or Wildflower Centre to collect information about the process of pollination and seed collection.<br>Explore practically the process of pollination by studying insects pollinating plants in the local environment.<br>Explore the effect that the colour/features of the flower have on attracting pollinating insects and on the process of pollination.<br>Collect seeds later in the year, from the pollinated plants. They use their experiences over time to discuss and review the process of sexual reproduction in plants.<br>Compare sexual reproduction with that in other plants where asexual reproduction takes place.<br><br>**Pupils explore the life processes that make something a living thing.**<br><br>Revisit Early KS2 learning about living and non-living things. Pupils identify some things that they think belong to the groups living, non-living, and once-lived (dead).Discuss their ideas and identify the life processes of living things, such as that they feed, breathe, (respire in plants), reproduce, excrete, and move (in animals). Initially, focus on life processes of both animals and plants, and then refine the criteria to just plants. (MRSGREN) |