



The Whinless Down Academy Progression in knowledge of Biology (plants, living things and their habitats)

Level Expected at the End of EYFS - We have selected the Early Learning Goals that link most closely to the Science National Curriculum.

Early Learning Goals - Explore the natural world around them, making observations and drawing pictures of animals and plants;
Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Knowledge - Plants grow. For plants to grow they need water and light. Cress grows from seeds. The seed splits open and the shoots and roots start to grow. Cress can grow in soil, on sand and on paper, but it grows best on soil. Some plants are food for us. We eat different parts of vegetable plants e.g. carrots, cauliflower, lettuce, potatoes. We eat many fruits that contain seeds. Some plants can make us ill if we eat them (including certain types of berries) Farms grow food for us to eat

Vocabulary - branch, cress, crop, leaf, leaves, flower, plant, roots, seed, shoots, stem/stalk, tree, trunk, vegetable

Possible misconceptions - We only eat leaves of plants. All berries are safe to eat.

	National Curriculum	Knowledge	Vocabulary
Year 1	Plants Children can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Children can identify and describe the basic structure of a variety of common flowering plants, including trees.	Some plants live in gardens. People may grow plants in their gardens and care for them. They may grow flowering plants which are beautiful to look at or beans and seeds to grow plants for food. When plants are grown for food, this may be called a herb garden or vegetable patch. Not all of the beans grow at the same rate. Some plants live in the wild. A wild plant will grow by itself. It does not need to be cared for. If it grows somewhere unwanted, it may be a weed. Name some common plants e.g. daisy, rose, bluebell, daffodil, sunflower. Some trees have leaves that change colour and they lose their leaves before winter. These are called deciduous . Their leaves are generally broad, flat and have veins running through them. Some trees have leaves which are green all year round. These are called evergreen . Their leaves are generally thick, waxy and narrow like needles. Trees are a special type of plant. Their stems are called trunks . All plants have leaves, stems and roots .	Trees Evergreen – holly, pine Deciduous – beech, birch, horse chestnut, oak, sycamore, willow, Wild flowering plants Daisy, dandelion, buttercup Garden plants Crocus, daffodil, bluebell, snowdrop Parts of plants Leaves, stem/stalk, roots, trunk, branch, stalk, flower, blossom, petal, seed, bulb, twig Habitat Allotment, vegetable patch, herb garden Bean, grow

Possible Misconceptions:

Trees leaves turn brown and they lose their leaves because they are dying.
That plants are not alive.
Plants are flowering plants grown in pots with coloured petals and leaves and a stem.
Trees are not plants.
All leaves are green.
All stems are green.
A trunk is not a stem.
Blossom is not a flower.



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Year 2	Plants Children can observe and describe how seeds and bulbs grow into mature plants. Children can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Children can identify and name a variety of plants in their habitats, including microhabitats.	Scientists who study plants are called botanists. Light affects how plants grow. Plants require: water, a sustainable temperature, nutrients from soil and light to grow and stay healthy. Plants will die if ... - o They do not have enough water - o They have too much water - o They are kept in the dark/do not have enough light - o If they are pulled up out of the soil or cut (e.g. flowers) The roots stop the plant from falling over and they suck up water from the soil. When a plant grows it is called germination. Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a food store inside of them. Plants can: move, grow, sense (react to their surroundings), absorb nutrients, reproduce. The flower is part of a plant.	Botanist, common, mature Parts of plants seeds, bud, bulb, crop, shoot Needs of plants water, heat, light, growing conditions, healthy, temperature, Processes germination
Possible misconceptions: A plant is called a flower. Plants are not alive as they cannot be seen to move. Seeds are not alive. All plants start out as seeds. Seeds and bulbs need sunlight to germinate.			
Year 3	Plants Children can identify and describe the functions of different parts of flowering plants: roots, stem, trunk, leaves and flowers. Children can 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. Children can investigate the way in which water is transported within plants. Children can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	The different parts of a plant have different functions. A function is like a job. Flowers reproduce new plants. This happens through pollination. Most plants need pollen or spores to make new plants. Pollination is the process of moving pollen onto the female part of the plant. Pollinators, such as honey bees, move pollen from one flower to another. Fertilisation is when pollen combines with the egg inside of the female part of the plant to make a seed. Seeds can be dispersed in various ways (by: wind, animals including humans, water, bursting) Roots collect water and nutrients from the ground. Stems transport water from the roots to all other parts of the plant. Leaves convert energy from the sun into sugars the plant uses for nutrition. Plants need carbon dioxide from the air. Plants need light for nutrition. Plants need water to survive but the amount changes between plants. Plants need nutrients from the soil. Plants need room to grow. Plants require: water, a sustainable temperature, nutrients from soil and light to grow and stay healthy Plant growth will be affected by the conditions in which it is placed	Parts of plants Root, branch, trunk, stalk/stem, leaf, flower, petal, seeds, seedling, bulbs, twigs, vegetation Parts of a flower Petal, stamen, carpel Processes fertilisation, germination, nutrition, pollination, reproduction, seed dispersal, transportation
Possible Misconceptions: Plants eat food. Food comes from the soil via the roots.			



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Flowers are merely decorative rather than a vital part of the life cycle in reproduction.

Plants only need sunlight to keep them warm.

Roots suck in water which is then sucked up the stem.

Fertilisers are plant food.

Year 4	Living things and their habitats Children can recognise that living things can be grouped in different ways. Children can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Children can recognise that environments can change and that this can sometimes pose dangers to living things. Children can construct and interpret a variety of food chains, identifying producers, predators and prey.	A classification key is a tool that is used to group living things to help us identify them. Plants can be classified according to their similarities and differences. Plants' habitats are affected by humans in both positive and negative ways. Positive effects: nature reserves, ecological parks. Habitats can change throughout the year and this can have an effect on the plants that live there. All living things, which can also be called organisms, have to do certain things to stay alive. These are the life 7 processes: - o movement - o respiration - o sensitivity - o growth - o reproduction - o excretion - o nutrition A food chain shows how plants and animals get their energy. It always starts with a producer. This is an organism that makes its own food. Most food chains start with a green plant because plants can make their food by photosynthesis.	Classification key, Venn diagram, Carroll diagram Processes movement, respiration, sensitivity, growth, reproduction, excretion, nutrition Food chain – producer, consumer, predator, prey, energy, organism
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Possible misconceptions:

The death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain.

Plants can adapt to their habitats, however they change,

All changes to habitats are negative.

Year 5	Living things and their habitats Children can describe the life process of reproduction in some plants.	Plants are able to reproduce. They can do this in two ways: sexually and asexually. Sexual reproduction: - o requires two parents with male and female cells - o will produce offspring that is similar to but not identical to the parent Asexual reproduction: - o will produce offspring that is identical to the parent - o requires only one parent The flower is the reproductive organ of a plant. The male part of a plant is called the stamen: made of the filament and the anther. The female part of a plant is called the carpel: made of the stigma, style and ovary. The petals of a flower attract insects to help pollination. The sepals of a flower protect it Sexual reproduction involves pollination where pollen from the male part of a plant (anther) is transferred to the female part of a plant (stigma) by bees and other insects.	Parts of a flower Male part: stamen (filament and anther) female part: carpel (stigma, style, ovary and ovule) sepal, Processes sexual reproduction, asexual reproduction dissect
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		The pollen then travels down and meets the ovules. When this happens, seeds are formed. This is called fertilisation. Seeds are then dispersed so that germination can begin again. Some plants such as daffodils and potatoes, can also produce offspring using asexual reproduction	
Possible misconceptions: All plants start out as seeds. All plants have flowers. Plants that grow from bulbs do not have seeds.			
Year 6	Living things and their habitats Children can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences. Children can give reasons for classifying plants based on specific characteristics.	Plants can be classified according to common observable characteristics. Key features to distinguish between plants: - o Flowering or Non-Flowering - o Grass/cereal/garden shrub/deciduous/algae/coniferous /fern - o Colour - o Height - o Number of flowers - o Fruit bearing or not - o Distinguishing features - o Usual location People have been classifying plants since the Ancient Greeks. Nowadays, we use the classification system designed by Carl Linnaeus. Scientists sort and group living things according to their similarities and differences. This is called classification. Scientists who classify living things are called taxonomists. Some plants have adapted to their environment. Plants which have not adapted have not survived. Fossilised plants show us what plants used to be like millions of years ago.	adaptation fossilised observable characteristics, kingdom taxonomist flowering plant, non-flowering plant algae, mosses, ferns
Possible misconceptions: Mushrooms are plants.			

Previously taught – Remains Key Vocabulary, Revisit

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