

Progression in Substantive Knowledge

BIOLOGY Plants

Substantive Knowledge year R	Substantive Knowledge year 1	Substantive Knowledge year 2	Substantive Knowledge year 3
<u>Plants</u> • Welly walks – look for similarities/differences – different seasons; out in all weathers – spotting changes – woodland walks • Photographs over time to make comparisons (include children in photographs) • Sorting – simple classification – leaf collection – stick collection • Comparing size, colour, shape of leaves, bark and trees • Looking at different plants, e.g. cactus, sunflower • Cut open fruits and vegetables to look for seeds • Planting seeds – do bigger seeds make bigger plants? • Hands-on gardening – flowers, vegetables and fruit • Mystery seed plant	<u>Plants</u> Knowledge Block 1- Where do plants come from • A seed contains a miniature plant that can develop into a fully grown plant. • A bulb has underground vertical shoots which already has modified leaves • Seeds and bulbs need water to grow but most do not need light (germination) • Seeds and bulbs have food stores inside them to help the plant start to grow. Knowledge Block 2- Plant survival • To survive plants, need to get water, light, and avoid being eaten Knowledge Block 3- How plants get what they need to survive • A seed produces roots to allow water to get into the plant. • A seed produces shoots to produce leaves to collect the sunlight. A basic plant structure can include leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem	<u>New Plants</u> Knowledge Block 1- What flowers are for • All flowering plants make seeds (reproduction) that can grow (germinate) into new plants • Plants need water, light and a suitable temperature to grow and stay healthy Knowledge Block 2- What happens after a plant has produced seeds Some plants die after it has produced its seed and sometimes the plant lives for many generations producing seeds each year	<u>Plants and their food production</u> Knowledge Block 1- Plants don't go to McDonalds • Plants do not eat food so have to make their own. • This food provides them with energy, and materials to grow • To make the food (sugar) plants need water from the ground, carbon dioxide from the air and light from the sun. ◦ The water is taken up through the roots from the soil ◦ The carbon dioxide is taken in through the leaves As well as food, plants also make oxygen which is given out back into the air through the leaves

Progression in vocabulary

BIOLOGY Plants

Year R Vocabulary	Year 1 Vocabulary	Year 2 Vocabulary	Year 3 Vocabulary
<u>Plants</u> Similar, same, different, grow, growth, compare, die, decay, living, new, old, hot, cold, dry, wet, tall, short, rough, smooth, seasons – winter, spring, summer, autumn. Names of plants and trees that grow in the school grounds, roots, stem, leaves, flower, petals, trunk, branch, bark, deciduous, evergreen, fruit, vegetable	<u>Plants</u> seed The small, hard part of a plant from which a new plant grows. bulb A root shaped like an onion that grows into a flower or plant. leaves Usually, flat green parts that grow from a plant stem. germination The growth of a seed into a young plant or seedling. roots The part of a plant that grows downward, holds the plant in place and takes in water from the soil. shoots A plant that comes up above the ground when it is just beginning to grow	<u>New Plants</u> flowering Can produce flowers. Reproduction (reproduce from 'Animal life cycles' yr 2) To produce another living thing of the same kind. germinate (germination from 'Plants' yr1) A seed beginning to grow into a young plant or seedling. generations The period of time between the birth of parents and the birth of their children.	<u>Plant Food Production</u> Carbon Dioxide A colourless odourless gas found in the <u>air</u>(0.04%) made up of carbon and oxygen, Oxygen A colourless and odourless gas found in the <u>air</u>(21%) Roots An organ of a plant that provide anchorage and absorb water and nutrients from the soil. Soil A mixture of minerals and organic matter. Leaves An organ of a plant that are green in colour and absorb carbon dioxide from the air as well as sunlight.