

Progression in Substantive Knowledge

BIOLOGY Variation and Evolution

Substantive Knowledge year R	Substantive Knowledge year 1	Substantive Knowledge year 2	Substantive Knowledge year 4
<u>Habitats</u> • Welly walk –look for similarities/differences – different seasons; out in all weathers –spotting changes –woodland walks • Cloud watching –children lie down and look at the sky • Photographs over time to make comparisons (include children in photographs) • Watching caterpillars change • Sorting –simple classification –leaf collection – stick collection • Making mini-environments –what might choose to live there? • Looking for the same mini-beasts at different times of year • How do mini-beasts react to different environments, e.g. ants and sugar; what conditions do worms (or woodlice) prefer? • Looking at tadpoles and frogs –do they need the same habitats? • Pond dipping • Comparing size, colour, shape of leaves, bark and trees • Looking at different plants, e.g. cactus, sunflower • Planting seeds –do bigger seeds make bigger plants? • Plants in different conditions • Planting the right flowers to keep butterflies in the school grounds • Comparing long grass and short grass • Sensory garden • Hands-on gardening • Visits –farm, zoo, insects, reptiles • Parents' challenges (parks, beaches, etc.)	<u>Year 1- Seasons</u> Knowledge Block 1- Surviving the changing seasons • Animals and plants have adapted ways of surviving the changing seasons • These include hibernating, storing food, fattening up, migration, loss of leaves • Trees can be either evergreen or deciduous. • Evergreen trees keep their green leaves all year round. Deciduous trees lose their leaves every autumn.	<u>Habitats</u> Knowledge Block 1- Adapted to survive • There is variation in all living things • Animals and plants live in a variety of different places called habitats • Animals and plants have adapted to survive in different habitats • Wild plants such as ferns, daisies, nettles and dandelions grow randomly. • Garden plants such as roses, tulips, poppies, daffodils are planted intentionally. Knowledge Block 2- Plants adaptations for survival • Plants have specific adaptations for survival • To survive they need to get water, light, and avoid being eaten	<u>Living things</u> Knowledge Block 1- Classifying living things • Living things can be divided into groups based upon their characteristics • Classification keys help group, identify and name living things • Animals can be classified as vertebrates (having a spine) or invertebrates (lacking a spine) • In any habitat there are food chains and webs where nutrients are passed from one organism to another when it is eaten • If the population of one organism in the chain or web is affected, it has a knock-on effect to all the others Knowledge Block 2- Life cycles • Mammals, amphibians, insects and birds have different life cycles. • Lifecycles vary in time depending on the species of animal- it can be as short as just a few weeks for insects, to up to 200 years for sea urchins. Larger animals often have longer life cycles but not always. • All animal life cycles begin with growth and development followed by reproduction. • Some animals undergo a complete metamorphosis as they grow. Metamorphosis is a process where animals undergo an abrupt and obvious change in the structure of their body and their behaviour. • Some animals are eusocial. This means they live in colonies (groups) with one animal or group producing young and the others working to care for them. Knowledge Block 2- Environmental change • Environmental change affects different habitats differently • Human activity significantly affects the environment Different organisms are affected differently by environmental change

Progression in vocabulary

BIOLOGY Variation and Evolution

Year R Vocabulary	Year 1 Vocabulary	Year 2 Vocabulary	Year 4 Vocabulary
<u>Habitats</u> Similar, same, different, grow, growth, compare, die, decay, living, new, old, hot, cold, dry, wet, seasons –winter, spring, summer, autumn. Names of animals and plants that live in the school grounds, habitat, survive, living, non-living, safe, warm, cold, similar, different, food, nutrients, change (adapt). Names of different environments: light, dark, habitat, moist, dry, wet, humid, hot.	<u>Seasons</u> spring The season when young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer summer The season where the trees are full of green leaves and the weather is at its warmest. autumn The season when the leaves fall off the trees and the amount of time we have in the day becomes less. winter The season which has the shortest amount of time during the day and the weather is at its coldest. hibernating When animals spend the winter in a type of long, deep sleep. migration The journey an animal takes to a new home. evergreen Trees that keep their green leaves all year round.	<u>Habitats</u> variation The differences between living things or habitats. habitat The place in which an animal or plant lives. adapted Changes to an animal or plant to help it survive. survive To live in spite of danger or difficulty. avoid Keep away from something or try to stop something happening. wild plant Plants that live or grow randomly and are not looked after by people. garden plant Plants that are planted on purpose.	<u>Habitats</u> classification The grouping of animals, plants or fungi based upon their physical features. Classification key A series of questions to identify animals or plants based upon their physical features. vertebrates A group of animals that have an internal backbone, e.g. humans, elephants, dolphins. invertebrates A group of animals that do not have a backbone, e.g. Lobsters, woodlice, worms, beetle or snail. food chain Describes the order in which living things depend on each other for food. nutrients A substance that provides the essential material needed by the body to live. organism A living thing, e.g. animal, plant, fungi mammal An organism that is warm blooded, have fur, feeds their young milk and give birth to live young. amphibian A cold-blooded animal that starts life living underwater with gills but as an adult, lives on land using lungs. insect A small animal that has six legs and often one or two pairs of wings. bird A warm-blooded animal that has feathers, wings, and a beak. environmental change A change or disturbance of an environment- can be caused by natural or man-made reasons