

Progression in Substantive Knowledge

BIOLOGY Animals (including humans)

Substantive Knowledge year R	Substantive Knowledge year 1	Substantive Knowledge year 2	Substantive Knowledge year 3
<u>Animals (including humans)</u> - welly walks –look for similarities/difference's different seasons; out in all weathers spotting changes woodland walks - 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 - 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>Animal Survival</u> Knowledge Block 1- Feeding for survival - Animals are groups of organisms that need to consume food to survive. - Food provides energy and the building blocks of growth. - There are many different groups of animals including fish, amphibians, reptiles, birds and mammals. They have different structures, and they eat different types of foods. - The structure of a variety of common animals varies Mammals have hair/fur and give birth to live young, fish can breathe underwater using gills, birds have feathers, beaks and wings. Females lay eggs. Most birds can fly, reptiles are air breathing and have scaly skin and lays eggs, and amphibians have smooth slimy skin and live on land and in water. - Some eat other animals (carnivores), and others only eat vegetables (herbivores), and some like to eat both plants and meat (omnivores) - Common animals that are carnivores include lions, cats, sharks and snakes - Common animals that are herbivores include cows, horses, sheep, elephants and deer - Common animals that are omnivores include humans, bears, monkeys and seagulls Knowledge Block 2- Moving for survival - Animals must move to get their food - They will move in different ways to get their food - Animals that eat other animals are called predators - Animals that are eaten by other animals are called prey - Animals feeding relationships can be illustrated in a food chain Knowledge Block 3- Sensing for survival - The five sense organs are the eyes (for seeing), nose (for smelling), ears (for hearing), tongue (for tasting), and skin (for touching or feeling). - Animals have senses to help them survive Animals have developed a range of ways to find prey or avoid being eaten	<u>Animal Life Cycles</u> Knowledge Block 1- Animal timelines - Things that are living, move, feed, grow, reproduce and use their senses - Animals grow until they reach maturity and then don't grow any larger - Animals reproduce when they reach maturity (adulthood) - All animals eventually, die - Different animals live to different ages - Different animals reach different sizes before they are able to reproduce - Different animals reproduce at different ages - Animals, including humans, have offspring which grow into adults - Exercise, eating the right amounts of different types of food and hygiene are important to maintain good health and wellbeing Knowledge Block 2- How animals get their food Habitats are places where animals and plants live (from Year 1) - Animals live in habitats in which they are suited. - Different kinds of animals and plants depend on each other within habitat. - Animals get their food from plants and other animals. This can be shown in a food chain. - A food chain begins with a producer. This is often a green plant because plants can make their own food. - A living thing that eats other plants is called a consumer.	<u>Animals, skeletons and movement</u> Knowledge Block 1- Skeletons protect vital organs - All vertebrates have internal skeletons that protect vital organs. Invertebrates have exoskeletons that protect vital organs. Knowledge Block 2- Skeletons support weight - Skeletons support the weight of land animals. - Stronger bones can support a greater mass. Knowledge Block 3- Skeletons support movement - Bones are connected (but can move relative to each other) at joints. Muscles connect to bones and move them when they contract. - Stronger bones can anchor stronger muscles.

Progression in vocabulary

BIOLOGY

Animals including Humans

Year R Vocabulary	Year 1 Vocabulary	Year 2 Vocabulary	Year 3 Vocabulary
<u>Animals</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>Animal survival</u> organisms A living thing. growth An increase in size. energy The ability to do work or to make something move or change in some way. fish An animal that can breathe underwater using gills and has a tail and fins. amphibians Animals that have smooth slimy skin and live on land and in water. mammals Animals that have hair or fur, give birth to live young and feed their young with milk. birds An animal with feathers, beaks and wings. Females lay eggs. Most birds can fly. reptiles An animal that is air breathing, has scaly skin and lays eggs. herbivore An animal that only eats plants. omnivore An animal that eats both plants and meat. carnivore An animal that eats meat. predator An animal that hunts, kills and eats other animals. prey An animal that is hunted and killed by another for food. senses The ability to see, hear, smell, touch and taste.	<u>Animal life cycles</u> maturity Being fully grown or adult. reproduce To produce another living thing of the same kind. die To stop living offspring The child or young of a particular human, animal, or plant life cycle The stages a living thing goes through during its life food Describes the order in which living things depend on each other for food. chain producer Something that has the ability to make its own food, usually a plant. consumer An organism that must get its energy from eating a plant or animal.	<u>Animal, skeletons and movement</u> vertebrates A group of animals that have a backbone, e.g., humans, elephants, dolphins. invertebrates A group of animals that do not have a backbone, e.g., lobsters, woodlice, worms. skeleton An internal or external framework of bone supporting/containing the body of an animal. exoskeleton A skeleton that is visible on the outside of the body. vital organs An organ that is essential for life. support To hold up or bear the weight of an organism. mass A quantity of matter measured in kg. muscles A band/bundle of fibrous tissue that can contract, producing movement. connect To bring together or into contact so a link is established. contract To become shorter and tighter in order to effect movement of part of the body.