Science Progression Document 2023-2024

Biology – Animals and Humans / Variation and Habitats.

Year group	Substantive Knowledge	Disciplinary Knowledge	Vocabulary
Year R	**Autumn 1 – The human body** • Identify and naming the parts of a human body. • Humans are animals. • We have to look after ourselves to survive (basic needs)→ healthy foods, exercise, hygiene, sleep, washing our hands. **Spring 2 – Animals** • Animals have to eat food to survive. • Different groups of animals, not all are the same – simple classification looking at similarities and differences.		

Year 1	**Autumn 1&2 – Feeding for survival - knowledge block 1:** ● 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 **Spring 1 – Moving for survival - knowledge block 2:** ● 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** **Sensing for survival Knowledge block 3:** ● 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 **Summer 2: Variation and Habitats – 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.		
Year 2	**Autumn 2 – Animal timelines - knowledge block 1:** ● 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 **Spring 1 – How animals get their food - knowledge block 2:** ● **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 this that eats other plants is called a **consumer**.		

Biology – Plants

Year group	Substantive Knowledge	Disciplinary Knowledge	Vocabulary
Year R	**Summer 1 – glorious gardens** • A plant grows from a seed/bulb. Growing a seed together. • Plant survival – how to care for a plant. A plant needs water and sun to grow.		
Year 1	**Summer 1 –** **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		
Year 2	**Spring 2 – retrieval from year 1** (send home a seed here too for children to care for and grow over Easter) – • To survive plants, need to get water, light, and avoid being eaten • A basic plant structure can include leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem **Summer 1 –** **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		

Chemistry - Materials

Year group	Substantive Knowledge	Disciplinary Knowledge	Vocabulary
Year R	**Spring 1 – real life superheroes** • Different materials exist. • Materials have different observable properties → link to firefighters/police outfits, talk about the reflective parts of the clothing, and how these help us to be seen. **Spring 2 – down on the farm day** • Three little pigs – different materials are better for different things. Link to the houses, what was best and why? Bricks are stronger, straw is weak.		
Year 1	**Spring 2 – Describing materials: Knowledge block 1 – the big idea about materials:** • There are many different materials that have different observable **properties** • Materials that have similar properties are grouped into **metals, rocks, fabrics, wood, plastic and ceramics** (including glass).		

Year 2	**Autumn 1 and ½ Spring 2 – Comparing materials: Knowledge block 1 – how materials can change:** **Knowledge Block 1- How materials can change** ● The properties of a material determine whether they are **suitable** for a **purpose**. ● Materials can be **changed** by **physical force** (twisting, bending, squashing and stretching). (The purpose of the activities within this learning journey is for children to understand why we choose certain materials to do certain jobs. Children will plan how to test materials (wood, metal, plastic, glass, brick, paper, rock, cardboard))		

Physics – Pushes and pulls

Year group	Substantive Knowledge	Disciplinary Knowledge	Vocabulary
Year R	**Cars and ramps** **Pushes and pulls.**		
Year 1			

Year 2	**Spring 1 –** **Knowledge Block 1** • Objects can move (be in **Motion**) in various ways-roll, slide and bounce **Knowledge Block 2** • The **pushing** or **pulling** of an object can affect its motion. • Pushing or pulling can do three things, **slow down, speed up or change the direction** of an object. **Knowledge Block 3** • The larger the push/pull the bigger the effect on motion		