Science Progression Document

Early Years Foundation Stage

Early Learning Goal ELG: The Natural World Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants; 15 - 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.		
Autumn	**Spring**	**Summer**
• Explore local area • Observation of the daily weather • Explore the incidental moments • Environment presentations around Autumn and the changes • Explicit stories that explore seasonal change • Introduction to the Year R outdoor environment • Bug hunt within the school grounds • Curiosity cube ideas: decaying fruits, Autumn fruits, Autumn display	• Explore the differences in the school grounds • Explore local environment to observe signs of spring • Observation of the daily weather • Explore the incidental moments • Environment presentations around Spring and the changes • Explicit stories about new life • Exploring animal life cycles • Pond dipping • Bug habitats • Observational drawings • Gardening club	• Explore the differences in the school grounds • Farm trip/visit • Explicit observation of the daily weather – data collection • Environment presentations • Non-fiction books to support life cycles • Pond dipping • Animal project • Child led curiosity cube • Gardening club

Key Stage 1 – Working Scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Animals Including Humans	
Year 1	**Year 2**
Animal Survival **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**	**Animal Life Cycles** **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 this that eats other plants is called a **consumer**.

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	

Plants	
Year 1	**Year 2**
Plants **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	**New Plants** **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

Variation and Evolution	
Year 1	**Year 2**
<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 **Seasons** **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.	

Materials	
Year 1	**Year 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).	**Changing Materials** **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).

Forces	
Year 1	**Year 2**
	Pushes and pulls **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