St John's C of E (Aided) Primary School

Year 1 Science Long Term Overview

Biology	Chemistry	Physics

Term	Knowledge (Objectives)
Autumn 1	**Describing materials - 6 sessions** **Knowledge Block 1: The big ideas about materials** Substantive Knowledge: - There are many different **material**s that have different observable **properties**. - Materials that have similar properties are grouped into **metals, rocks, fabrics, wood, plastic and ceramics (including glass).** Disciplinary Knowledge (Working Scientifically): - Observing closely. - Gathering and recording data to help in answering questions. - Identifying and classifying.
Autumn 2	**Animal Survival – 7 sessions** **Knowledge Block 1: Feeding for survival** Substantive Knowledge: - 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 f**ish, 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 Substantive Knowledge - 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** Substantive Knowledge: - 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. Disciplinary Knowledge (Working Scientifically): - Identifying and classifying. - Observing closely, using simple equipment. - Gathering and recording data to help in answering questions. - Performing simple tests.
Spring 1/2	**Habitats – 7 sessions** **Knowledge Block 1 – Adapted to survive** Substantive Knowledge - 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 – Plant adaptions for survival** Substantive Knowledge: - Plants have specific adaptations for survival. - To survive they need to get water, light, and avoid being eaten. Disciplinary Knowledge (Working Scientifically): - Observing closely, using simple equipment. - Gathering and recording data to help in answering questions. - Asking simple questions and recognising that they can be answered in different ways.
Spring 2/ Summer 1	**Seasons – 7 sessions** **Knowledge Block 1 – Surviving the changing seasons** Substantive Knowledge: - There are four **seasons, spring, summer, autumn and winter.** - Each season is about three months long. - In Spring, young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer. - In autumn, the leaves fall off the trees and the amount of time we have in the day becomes less. - Winter has the shortest amount of time during the day and the weather is at its coldest.

	- In summer the trees are full of green leaves and the weather is at its warmest. - 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. Disciplinary Knowledge (Working Scientifically): - Observing closely
Summer 1/2	**Plants – 8 sessions** **Knowledge Block 1 – Where do plants come from?** Substantive Knowledge: - 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** Substantive Knowledge: - To survive plants, need to get water, light, and avoid being eaten. **Knowledge Block 3 – How plants get what they need to survive** Substantive Knowledge: - 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. Disciplinary Knowledge (Working Scientifically): - Observing closely, using simple equipment. - Using their observations and ideas to suggest answers to questions. - Gathering and recording data to help in answering questions. - Identifying and classifying. - Performing simple tests – Identify what should be changed.

Disciplinary Knowledge (Working Scientifically)				
Years	Types of enquiry that must be introduced in phase	All children should learn to	Recording and teaching that supports key learning	Statutory requirements NC
1 and 2	• Comparing differences and changes. • Describing in order to classify. • Surveys to identify patterns and support classification. • Describing the effect of changing things. • Using secondary sources, including the internet and *experts.* • Pupils begin to look for relationships between variables (patterns)	• Gather evidence to describe the differences and similarities between different organisms, habitats and objects. • Gather evidence to describe how things change over time or as a result of something happening (e.g. how some things spring back when bent and others do not, or plants will wilt when they are not watered). • Begin to gather evidence to describe the relationship between variables and patterns (cause and effect) by identifying and seeking to quantify what must be changed and what measured (*what change and what measure).*	Venn diagrams, bar charts. Timelines and tables showing how one and more than one thing changes over time, bar charts, tally charts. Results tables with the independent variable increasing in one column and the dependent variable in the other.	• 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.