THE RADSTONE
Primary School

SCIENCE LONG TERM PLANNING
Key Stage 1

At The Radstone Primary School our science education provides children with strong foundations to understand the world they live in through aspects of biology, chemistry and physics. From years 1 – 6 pupils will be taught essential aspects of the knowledge, methods, processes and uses of science. Each year contains a variety of topics where children will build up a body of key foundational knowledge and concepts, they will be encouraged to explain their findings and develop a sense of excitement and curiosity about natural phenomena. In lessons, the pupils will also be encouraged to understand how science can be used to explain what is happening in our everyday lives, predict how things may behave and analyse data.

Science in the Early Years

In Reception children will being to develop their historical understanding through a variety of planned and independent play based tasks. The EYFS aims for the children to develop the following:

- know about similarities and differences in relation to places, objects, materials and living things.
- talk about the features of their own immediate environment and how environments might vary from one to another.
- make observations of animals and plants and explain why some things occur, and talk about changes.

Aims of the Science National Curriculum

The National Curriculum for Science aims to ensure that all pupils:

- Develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics.
- Develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them.
- Are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Scientific knowledge and conceptual understanding

The programmes of study shown below, that are taught here at The Radstone, provide a sequence of knowledge and concepts designed to help children not only make progress but develop a secure understanding of each stage before moving on. This removes insecure understandings and the build-up of misconceptions to allow genuine progression.

From this curriculum, pupils should be able to describe scientific processes and key characteristics, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build on their scientific vocabulary at all stages and apply their mathematical knowledge through the tasks of presenting and analysing data.

An understanding of the nature, processes and methods of science

Children will achieve this through 'working scientifically' an area of the Science curriculum which is not taught as a separate strand but embedded within the content of biology, chemistry and physics so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry will be included in the curriculum at The Radstone and will consist of observations over time, pattern seeking, identifying, classifying and grouping, comparative and fair testing and researching using secondary resources.

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A scientific language

At The Radstone we understand the importance of spoken language in science lessons as well as the rest of the curriculum in pupils' development cognitively, socially and linguistically. To develop their scientific vocabulary and help children to articulate scientific concepts it is important that the pupils hear and speak a variety of quality scientific language. We ensure the occurrence of this in our science lessons by providing opportunities for discussion so that thinking is clear, misconceptions are addressed and secure foundations are built.

EYFS Overview

In the EYFS the children will explore scientific understanding through everyday exposure to a variety of different tasks, resources and direct teaching, for example, checking the daily weather, exploring sand and water, weekly STEM tasks and attending Forest School. This will be accompanied by specific topics coverage which includes; 'Seasons' the children will spend a week focussing on each of the 4 seasons at the correct time, talking about changes and observing these, 'Growing' where children learn the key parts of plants and how they grow, 'Light and Dark' where we use a story base to talk this and explore the dark den/torches.

	Autumn Term		Spring Term		Summer Term	
Year 1	Seasonal Changes (Autumn/Winter) Everyday Materials		Seasonal Changes (Winter/Spring) Animals including humans		Plants Seasonal Changes (Spring/Summer)	
Year 2	Everyday Materials	The Environment	Scientists and Inventors	Plants	Animals including humans	Living things and their habitats

Working Scientifically

During years 1 and 2, pupils will 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.

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Year 1

These are the outcomes expected for each topic in year 1:

Everyday Materials

- Distinguish between object and the material from which it is made,
- Identify and name a variety of everyday materials (wood, plastic, glass, metal, water and rock)
- Describe and compare a range of properties of a variety of materials
- Classify a variety of materials into groups based on physical appearance and properties.

Animals including humans

- Name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- Identify and group a range of familiar animals that are carnivores, herbivores and omnivores.
- Identify key features of a range of common animals, comparing the difference in structure.
- Identify, name, label and draw the basic parts of the human body and say which part of the body is associated with each sense.

Plants

- Identify and name a variety of common wild and garden plants including deciduous and evergreen trees.
- Identify and describe the basic structure of a variety of common flowering plants, noticing some similarities in the structure of plants.

Year 2

These are the outcomes expected for each topic in year 2:

Living things and their habitats

- Explore and compare the differences between things that are living, things that are dead and things they have never been alive.
- Identify that most living things get what it needs from its habitat and other living things that are there, depending on each other.
- Identify a range of living things in habitats of various sizes, suggesting why they might be found in that habitat.
- Construct a simple food chain and identify what is eating what. Describing how animals obtain their food from plants and other animals.

Plants

- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Identify the effects of a shortage of each of the things that plants need to grow.
- Observe and describe how seeds and bulbs grow into mature plants.

Animals including humans

- Recognise and understand that animals including humans have offspring which grow into adults. Describe the relationship between adult animals and their off spring.
- Identify humans' basic needs for survival.
- Describe the importance for humans to exercise, eat healthily and hygiene.

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Seasonal Changes - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies. Relating weather patterns and day length to particular seasons.	**Uses of everyday materials** - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses. - Investigate and find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.