Curriculum Overview: Science

Intent – Within Science lessons, we intend to provide children with the knowledge, skills and understanding that will be their foundations in understanding the world around them through the disciplines of biology, chemistry and physics. We aim to give all children a secure understanding of the world around them by channelling their natural curiosity and excitement for learning. The children acquire specific skills and knowledge to help them to gain an understanding of scientific processes, foster an appreciation of science and understand the role it has played in our history and the potential it has to influence our futures.

Scientific skills are embedded into each topic. These topics are revisited and developed over their time in school. This allows children to build upon their prior knowledge and further develop and embed their knowledge, skills and vocabulary into their long-term memory. We endeavour to teach them the importance of careful analysis, prediction and rational explanations of what we have discovered. All children are given the opportunity to observe, plan and carry out investigations. These skills will not only ensure they are ready for future study but will also ready them for enquiry and independent research skills for life. Subject specific vocabulary for topics is taught and built up from EYFS onwards with children being exposed to correct terminology in all topics from the start.

Our pupil's are naturally inquisitive and passionate about the world around them; as such, our curriculum has been designed to exceed that expected of them in the National Curriculum. We aspire to encourage children to ask questions and challenge each other's thinking. We aim for our children to have the resilience and confidence to explore and learn our science curriculum in an engaging and exciting way.

Implementation:	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**Chemistry, Biology and Physics** Show enjoyment playing with small world models.	**Biology, Chemistry and Physics** Notice detailed features of objects in their environment. Begin to use all of their senses in hands-on exploration of natural materials.	**Chemistry and Biology** Comment and ask questions about aspects of their familiar world. Begin to explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary.	**Biology** Develop and understanding of growth, decay and changes in the environment. Begin to understand the key features of the life cycle of a plant and animal.	**Chemistry and Physics** Talk about the differences between materials and changes they notice. Explore and talk about different forces they can feel.	**Biology** Begin to understand the need to respect and care for the natural environment and all living things. Plant seeds and care for growing plants.
Reception	**Biology, Chemistry and Physics** Ask questions about the natural environment. Respect and care for the natural environment.	**Physics** Know about and recognise the basic signs of seasons. Know about features of the world and Earth	**Physics and Chemistry** Know about and recognise the signs of the different seasons. Understand some important processes such as changing state of matter e.g. water to ice	**Biology** Know about features of their own immediate environment and how they might vary from another. Take part in processes such as planting.	**Biology** Observe processes such as the growth of seeds and talk about changes. Know how to care for plants and animals. Learn about lifecycles of plants and animals. Know that animals live in different environments.	**Biology and Chemistry** Sort animals into different categories e.g. nocturnal and farm animals. Know that some things in the world are man-made and some things are natural. Talk about where our food comes from. Know

						some names of animals and their young.
Year 1	**Chemistry** Materials and properties: Distinguish between objects and their materials; properties of materials; sorting materials & investigations on materials.	**Physics** Seasonal change (Autumn and Winter): Four seasons and weather; weather in autumn and winter; compare both seasons	**Biology** Animals including humans: Living and non-living; human and animal structures; senses; habitats	**Biology** Animals including humans continued: Classification – sorting and reasoning. Herbivore, carnivore, omnivore Baby animals	**Biology** Plants: Investigation and observations outside; common and wild plants; evergreen and deciduous trees; planting beans; labelling parts of plants and trees	**Physics** Seasonal change (Spring and Summer): Four seasons and weather; weather in spring and summer; compare both seasons
Year 2	**Chemistry** Uses of Everyday Materials: Identifying uses; uses of materials; comparing suitability; changing shape; Charles Macintosh; John Dunlop	**Biology** Animals including Humans: How animals grow; growing and changing; basic needs; healthy eating; exercise; hygiene	**Biology** Living Things and their Habitats: Living, dead and never alive; local observation; British habitats; microhabitats; world habitats; food chains	**Biology, Chemistry and Physics** The Environment: Climate change; reduce, reuse, recycle; energy experts; water wise; endangered animals	**Biology** Plants: What do plants need- investigation; life cycle of a plant; dissect a plant; draw and label a plant; seeds and bulbs.	**Biology** Living Things and their Habitats/Plants: Understand how a seed and bulb germinate; plant habitats; plants in microhabitats; protecting microhabitats, plants are grown as crops to eat.
Year 3	**Biology** Animals including Humans: Nutrition, Bones and Muscles	**Chemistry** Rocks and Soil	**Physics** Sound	**Physics** Light: Light sources; shadows; Identifying opaque, transparent and translucent materials.	**Biology** Plants	**Physics** Forces, including magnets
Year 4	**Biology** Animals including humans: Digestive system; teeth	**Biology** Living things and their habitats: Grouping/classifying living things; identifying the effects of changing habitats	**Chemistry** States of Matter: Identifying solids, liquids and gases; observe changes of state due to heat; the water cycle.	**Chemistry** States of Matter: Dissolving to form solutions; separating mixtures; reversible and irreversible changes	**Physics** Electricity: Simple circuits; create and use a switch; recognise electrical insulators and conductors.	**Physics** Forces: Gravity; air resistance and water resistance; mechanisms including levers, pulleys and gears

Year 5	**Physics** Earth and Space	**Biology** Living Things and their Habitats: Classifying living things including microorganisms	**Chemistry** States of matter: comparing and grouping materials based on the properties; Choosing materials for roles based on these properties	**Physics** Light: Reflections, how the eye works, shadows changing size	**Physics** Electricity: Investigating the effects of changing voltage in a circuit; use recognised symbols when representing a diagram; series and parallel circuits	**Biology** Animals including humans / Living things and their habitats: Describe the changes as humans develop to old age (Puberty); life cycles and reproduction of animals and plants.
Year 6	**Biology** Animals including Humans: Circulatory system	**Biology** Evolution and Inheritance	Assessments Catch up on gap units	**Biology** Revision / Investigations Secondary Transition	**Chemistry** Revision / Investigations Secondary Transition	**Physics** Revision / Investigations Secondary Transition

Intended Impact –

By the end of EYFS

We measure the impact and attainment of children through their meeting the Early Learning Goal.

The Natural World (Understanding the World)

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- 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.

By the end of KS1 children will –

Our Science curriculum is high quality, well thought out and planned to demonstrate progression in skills, knowledge and vocabulary. If the children are keeping up with the curriculum, then they are deemed to be making good or better progress.

In Reception, children's attainment is assessed using the 'Early Learning Goal' (Understanding the World component of the curriculum).

In Key Stage 1 attainment of knowledge and skills is assessed using an attainment grid (completed termly).

We measure the impact of our curriculum through the following methods:

- Monitoring of standards against planned outcomes.
- Discussions with pupils about their learning and teacher observations when carrying out practical tasks

Science is monitored throughout all year groups using a variety of strategies such as book trawls, learning walks and pupil discussions. Whole school moderation is completed termly following and monitoring the progress of identified children.