Whittingham Primary Academy
The best in everyone™
Part of United Learning

Science Overview 2024-25

Curriculum Intent

When teaching Science at Whittingham, our aim is to inspire a curiosity about natural phenomena and give all our children an understanding of the world around them. Our curriculum aims to support our children to acquire specific skills and knowledge to help them to think scientifically, gain an understanding of scientific processes and an understanding of the **uses and implications** of science, today and for the future, for the three disciplines of science: physics, biology and chemistry.

Our science curriculum embeds core disciplinary knowledge, and the ability to systematically approach challenging, scientifically valid questions through:

- **Scientific Attitudes & Planning** - asking scientifically relevant scientific questions and designing controlled investigations.
- **Measuring & Observing** - learning how to use scientific apparatus like rulers and thermometers and making systematic observations.
- **Recording & Presenting** - setting up data collection tables and presenting this data in a variety of charts and graphs.
- **Analysing & Evaluating** - interpreting and analysing findings; drawing conclusions and evaluating the reliability of investigations.

How do you ensure consistent delivery across all key stages?

At Whittingham, we teach the national curriculum whilst using the united learning curriculum to support our planning, throughout we embed the use of Rosenshine's principles of learning. Teachers are provided with CPD to ensure that all year groups are consistent with learning and understand the skills that they will be building on. As a result, all pupils will receive access to opportunities and exposure to high quality teaching. Consistent delivery is also ensured as each lesson builds on skills that have been taught in the years preceding.

How does the curriculum cater for disadvantaged, SEND and minority group students?

Our science curriculum aims to be inclusive of all pupils. Teachers adapt planning to suit the needs of their own classes, personalising teaching to suit the needs of each child. Along with quality first teaching, we aim to encourage SEND children to participate in ways that are tailored to their needs to encourage a natural curiosity in the world around them and a love for science. Inquiry-based learning approaches provide hands-on support, while culturally relevant examples make the content more relatable. Teacher training further enhances the ability to deliver a science curriculum that is accessible, ensuring every student can thrive regardless of their background or abilities. Pupils work with their peers during investigations, ask questions and we aim to provide examples of scientist who belong to minority groups to induce a feeling of belonging.

How does the curriculum embed prior knowledge and aid long term retention of knowledge?

Our science curriculum emphasises sequencing, where new lessons are built on previous topics, within and across years, helping students see how ideas relate. Pre-learning activities activate existing knowledge, while spaced retrieval is utilised to revisit content over time, reinforcing learning. Techniques such as recall exercises and working walls—visual displays of key ideas—help students continually engage with prior knowledge. Practical, hands-on experiences and regular assessments further ensure that concepts are reinforced and retained over time.

Long Term Plan

Year	Autumn 1		Spring		Summer	
	Half term 1	**Half term 2**	**Half term 1**	**Half term 2**	**Half term 1**	**Half term 2**
Nursery	In Nursery, children begin to ask and understand why questions, they discuss healthy choices and begin to explore using a hands-on, explorative approach. They discuss different materials, forces and how to care for animals and plants. Pupils' natural curiosity is nurtured, and they begin to talk about different scientific concepts.					
Reception	In Reception, pupils continue to have a hands-on explorative approach to scientific concepts. They start to learn new vocabulary, make observations, ask questions and explore the natural world around them. They begin to understand differences in the world and describe what they can see, hear and feel. They further explore different materials and explore whether objects sink or float.					
1	**BIOLOGY: Plants** Identifying and naming common plants and describing basic structures	**BIOLOGY / PHYSICS: Seasonal changes** Observing changes across four seasons and describing associated weather	**CHEMISTRY: Everyday materials** Distinguishing objects from their material, and describing simple properties (spread across the spring term to allow for investigations to be written up and carried out by the children)		**BIOLOGY: Animals** Naming reptiles, fish, amphibians, birds and mammals; carnivores, herbivores, omnivores	**BIOLOGY: Humans** Human body parts and senses
2	**BIOLOGY** **Plant growth** Plants grow from seeds, and require water, light and a suitable temperature	**BIOLOGY** **Needs of animals** Animals need water, food and air to survive and to have offspring	**CHEMISTRY: Uses of materials** Comparisons of an object's material with its use; impact of bending, twisting on solid objects	**BIOLOGY: Living things & habitats** Introduction to habitats, micro-habitats, and simple food chains	**CHEMISTRY** **Solids, liquids and gases** How the same substances can exist as solids, liquids and gases (spread across the summer term to allow for investigations to be written up and carried out by the children)	
3	**CHEMISTRY: Rocks** Comparisons of types of rocks and how fossils are formed	**PHYSICS: Light** Relationship between light and how we see; the formation of shadows	**BIOLOGY: Organisms** The role of muscles and skeletons; the	**BIOLOGY: Plants** Features of flowering plants and what they need to survive	**PHYSICS: Forces & motion** Introducing pushes and pulls; opposing forces, and balanced forces	**PHYSICS: Magnetism** Contact and non-contact forces, including friction and magnetism

			importance of nutrients			
4	**BIOLOGY: Classifying organisms** Introduction to classifying animals and their environment	**BIOLOGY: Food and digestion** The human digestive system and food relationships in ecosystems	**CHEMISTRY: Particle model and states of matter** States of matter in relation to particle arrangement	**PHYSICS: Sounds** Relationship between strength of vibrations and volume of sound	**PHYSICS: Electricity** Simple series circuits	**CHEMISTRY: Properties of materials** Considering physical and chemical properties
5	**CHEMISTRY: Separating mixtures** Identifying and separating mixtures; reversible and non-reversible changes	**BIO/CHEM/PHYSICS: Energy** Introducing the concept of energy stores and energy transfers; relate this to prior knowledge	**BIOLOGY: Life cycles** Life cycles of a mammal, amphibian, insect, bird and some reproduction processes	**BIOLOGY: Human development** Human development to old age	**PHYSICS: Forces** Gravity, air and water resistance and friction; introduction to pulleys	**PHYSICS: Earth and Space** Movement of planets and the Moon, and relationship to day and night
6	**PHYSICS: Electricity** Investigating variations in series and parallel circuits and how electricity is generated	**BIOLOGY: Evolution** Fossils: introduction to the idea that adaptation may lead to evolution	**PHYSICS: Light** How light travels and is reflected and how this allows us to see	**BIOLOGY: Further classification** Further classification of organisms based on characteristics	**BIOLOGY: Functions of the human body** Human circulatory system; transport of nutrients within the body	