



SCIENCE

INTENT

At the Queenswell Federation, we believe that a high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. We aim to provide the children with the essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils are encouraged to recognise the importance of rational explanation and develop a sense of excitement and curiosity about natural phenomena. Additionally, the children are encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying their learnt skills. Staff ensure that all children are exposed to high quality teaching and learning experiences thus developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aids their knowledge and understanding not only of the topic they are studying, but of the world around them.

IMPLEMENTATION

At the Queenswell Federation we ensure high standards of teaching and learning in Science, we implement a curriculum that is progressive throughout the whole school. Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of 'The National Curriculum programmes of study for Science 2014' and 'Understanding of the World' in the Early Years Foundation Stage. Science teaching at The Queenswell Federation, involves adapting and extending the curriculum to match all pupils' needs. A variety of resources are used to support teachers in their planning and implementation of the science curriculum for their year group. Teachers plan so that they engage their children's interests, use support staff effectively and to their strengths and include current events where appropriate. Science is taught as discrete units and lessons where needed to ensure coverage.

LINKS TO EYFS

Understanding the World

Intent

It is important to us that all children have the opportunity to make sense of the world around them through first hand experiences. This includes their physical world as well as their community. Children begin to gain an understanding of the past, and present by exploring the lives of themselves and those around them. We are a culturally diverse school and we aim to educate children about and celebrate what is important to the children and families that we serve. Our physical environment at Queenswell allows children to connect with nature through our Environmental Education and Forest School approach. These first-hand experiences help to enrich and widen the children's vocabulary, supporting communication and Language; and later reading comprehension as well.

Implementation

We provide a *culturally, socially, technologically and ecologically* diverse environment. This includes:

- providing a broad selection of stories, non-fiction, rhymes and poems
- globes and maps in every class
- Forest School approach to learning across the curriculum
- Our onsite environmental features including pond, meadow and wooded areas.
- A range of off-site visits such as parks, museums and places of worship
- Celebrating a range of religious and cultural practices throughout the year.
- Planned visitors from important members of society such as Fire fighters, police officers, dentist, nurses.
- Continuous provision that makes the most of the weather as a learning resource and using this to support learning around seasons.
- Continuous provision that reflects that cultural diversity of the children
- Continuous provision that includes use of technological toys or devices



SCIENCE Overview and Learning Questions

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
EYFS	<ul style="list-style-type: none"> ● Use all their senses in hands-on exploration of natural materials and the world around them. ● Explore how things work. ● Plant seeds and care for growing plants. ● Explore and talk about different forces they can feel. ● Understand the key features of the life cycle of a plant and an animal. ● Make healthy choices about food, drink, activity and toothbrushing. ● Recognise some environments that are different to the one in which they live. ● Understand the effects of changing seasons on the natural world around them. 					
Year 1	ANIMALS INCLUDING HUMANS What are the parts of my body called?	EVERYDAY MATERIALS What are our toys made from and why?		ANIMALS INCLUDING HUMANS What's the difference between a reptile and an amphibian? Is a T Rex an Omnivore or Carnivore? How do you know?	TREES & PLANTS What are the names of plants and trees around our school environment?	
	SEASONAL CHANGES					
	Can I label parts of the body on pictures and diagrams?	Can I identify what an object is and what it's made from?	Can I observe and describe weather associated with the seasons and how day length varies??	Can I name a range of animals which includes animals from each of the vertebrate groups? Can I describe what a range of animals eat?	Can I name the trees and plants in my garden and local area?	Can I describe and compare the structure of a variety of common animals?
Year 2	ANIMALS INCLUDING HUMANS What would a human need to survive in a spaceship? How do humans grow and change?	LIVING THINGS & THEIR HABITATS What are living, dead and never lived? how do animals obtain their food?	MATERIALS How do solid shapes bend?	LIVING THINGS & THEIR HABITATS Why do different animals live in different habitats?		REVISIT-LIVING THINGS & THEIR HABITATS Why do different animals live in different habitats?
	PLANTS how do bulbs grow into plants over time? Is a bulb living? Plant growth and observation					
	Can I describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages? I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Can I describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food?	Can I name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use? Can I recognise that a material may come in different forms which have different properties?	Can I identify that most living things live in habitats to which they are suited?		
Year 3	ROCKS What is a rock? What is a fossil? What is soil?	LIGHT (DT) How does light make shadows and reflections?	FORCES & MAGNETS What is a magnetic field? How can I make something move using magnets?		PLANTS How is water transported in plants?	MUSCLES & SKELETON Why is nutrition so important to animals and humans?

	Can I identify different rocks and where they are found?-What happens when a volcano erupts? volcano earthquakes				Can I identify the parts of a plant? Can I explore what a plant needs to grow?	
Year 4		SOUND How does sound travel to the ear?	ELECTRICITY How does a light bulb light up?	DIGESTION & TEETH What happens to our food when we eat? What is a food chain?	STATES OF MATTER & THE WATER CYCLE Where does rain come from? Where do puddles go?	LIVING THINGS AND HABITATS Is human impact good for our environment?
		Can I recognise that vibrations from sounds travel through a medium to the ear?		Can I describe the simple functions of the basic parts of the digestive system and teeth in humans?	Can I group materials together, according to whether they are solids, liquids or gases?	
Year 5	EARTH & SPACE How does the Earth, and other planets move in relation to the Sun in the solar system? How does our day change from day to night?	PROPERTIES AND CHANGES OF MATERIALS share my understanding of materials by exploring and comparing the properties of a broad range of materials and different uses?			LIVING THINGS AND HABITATS What are the differences in the life cycles of a mammal, an amphibian, an insect and a bird? What is the life process of reproduction in some plants and animals? ANIMALS AND HUMANS How do humans change as they age?	FORCES-GRAVITY, RESISTANCE, FRICTION & MECHANISMS Why does an apple fall from a tree? How do mechanisms allow a force to have a greater effect?
		Can I explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible?			Can I give reasons for classifying plants and animals based on specific characteristics?	Can I explore that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object?
Year 6	LIVING THINGS AND HABITATS How and why do we classify plants and animals?		(2023)Revision of Forces and electrical circuits.	EVOLUTION & INHERITANCE How have animals and plants adapted and evolved to suit their environment?	(2023 only)PROPERTIES AND CHANGES OF MATERIALS Which materials can dissolve and be recovered from solution? Which changes are irreversible and what new substances can be created when certain materials are changed?	
	Can I recognise that light appears to travel in straight lines? Can I give reasons for classifying plants and animals based on specific characteristics?			How have living things changed over time? Why do offspring look like their parents?In what ways are animals suited to their environment?	Can I compare materials on the basis of their properties? Can I separate materials through filtering, sieving and evaporating?	