



SCIENCE CURRICULUM



Our Science Curriculum includes broad scientific concepts that are embedded throughout the curriculum so that each one can be encountered multiple times. It also has a clear focus on disciplinary concepts so that pupils learn how to undertake scientific enquiry.

SCIENTIFIC CONCEPTS-GENERATIVE KNOWLEDGE			
PARTICLES	ENERGY TRANSFER	FORCES	KINGDOMS
Materials and the particles they are made up of e.g. the arrangements of particles within solids, liquids and gases and how they behave. Effects of heating and cooling on particles. Separating mixtures and solutions.	Energy in different forms (light energy, sound energy, electrical energy and chemical energy from food) that can be measured and transferred from one place to another.	Identifying different forces, describing their direction and size and explaining their effects.	Identifying characteristics of living things. Making connections and understanding life processes. Learning about habitats, adaption and evolution.

DISCIPLINARY KNOWLEDGE AND SCIENTIFIC ENQUIRY: How we 'work' and 'think' like a Scientist.				
EXPLAINING SCIENCE	CLASSIFICATION	DESIGNING EXPERIMENTS	DATA, TABLES AND GRAPHS	MAKING CONCLUSIONS
Using knowledge and understanding of science, and appropriate vocabulary, to describe and explain what, where, why and how.	Sorting things into groups based upon common properties, features or behaviours. Objects may need to be identified by keys.	Investigating through predicting, changing and measuring. Observing and measuring over short and long periods of time.	Recording and analysing data within tables and charts. Constructing tables and graphs.	Recognising and describing patterns, trends and relationships. Using data to draw conclusions and evaluate.

Science Curriculum Topics of Study and Substantive Concepts

	SCIENTIFIC CONCEPTS			
	PARTICLES	ENERGY TRANSFER	FORCES	KINGDOMS
YEAR 1: Seasonal Changes		✓		✓
YEAR 1: Everyday Materials	✓			
YEAR 1: Animals including Humans				✓
YEAR 1: Plants				✓
YEAR 2: Uses of Everyday Materials	✓			
YEAR 2: Living Things and Habitats				✓
YEAR 2: Plants				✓
YEAR 2: Animals including Humans				✓
YEAR 3: Light		✓		
YEAR 3: Rocks	✓			✓
YEAR 3: Animals including Humans				✓
YEAR 3: Forces and Magnets	✓		✓	
YEAR 3: Plants				✓
YEAR 4: States of Matter	✓			
YEAR 4: Sound	✓	✓		
YEAR 4: Animals including Humans		✓		✓
YEAR 4: Living Things & Habitats				✓
YEAR 4: Electricity		✓		
YEAR 5: Earth & Space		✓		✓
YEAR 5: Animals including Humans				✓
YEAR 5: Living Things & Habitats				✓
YEAR 5: Properties & Material Changes	✓			
YEAR 5: Forces	✓		✓	
YEAR 6: Animals including Humans				✓
YEAR 6: Living Things & Habitats				✓
YEAR 6: Evolution & Inheritance				✓
YEAR 6: Light		✓		
YEAR 6: Electricity		✓		



RECEPTION

FOUNDATIONS FOR

SCIENCE

SEASONS AND WEATHER

By the end of EYFS children should:

- ⇒ Understand changes in the natural world such as day and night and different seasons.
- ⇒ Know that there are four seasons within a year.
- ⇒ Describe changes that take place during these seasons within the natural world e.g. weather, plants and trees, animal hibernation.
- ⇒ Know and describe different weather conditions.
- ⇒ Know which types of weather are linked to different seasons.
- ⇒ Know the symbols used to represent common weather conditions.

MATERIALS

By the end of EYFS children should:

- ⇒ Know the names of some common materials in their immediate environment.
- ⇒ Know and use the vocabulary used to describe basic properties of some common materials.
- ⇒ Know that some materials can change through heating and cooling.
- ⇒ Understand that some materials are better for making objects than others.

ANIMALS, INCLUDING HUMANS

By the end of EYFS children should:

- ⇒ Know the names of a variety of animals and their basic physical features.
- ⇒ Know that different types of animals eat different food.
- ⇒ Know and identify the names of their own body parts.
- ⇒ Know and use some of the vocabulary linked to senses.
- ⇒ Describe some lifecycles such as chick and/or frog.
- ⇒ Know how to provide basic care to domestic animals.

PLANTS

By the end of EYFS children should:

- ⇒ Know that plants are living things that grow in the earth.
- ⇒ Know that most plants have stems, leaves and roots and that some have flowers.
- ⇒ Know that plants grow from seeds.
- ⇒ Know that plants need water to grow and stay healthy.
- ⇒ Know how to provide basic care to plants.
- ⇒ Observe and describe plants within their local environment.

FORCES AND MAGNETS

By the end of EYFS children should:

- ⇒ Know that objects can be moved by pushing or pulling.
- ⇒ Know that some objects can move down a ramp without being pushed or pulled.
- ⇒ Know that if an object is pushed or pulled harder, it will move further.
- ⇒ Know that heavier objects need more push or pull to move.
- ⇒ Know that lighter objects need less push or pull to move.
- ⇒ Know what magnets are and explore and observe the behaviour of magnets on some materials in their immediate environment.

LIGHT AND ELECTRICITY

By the end of EYFS children should:

- ⇒ Know that light comes from the sun.
- ⇒ Know that light is needed to see things.
- ⇒ Know that darkness is the absence of light.
- ⇒ Know some other light sources such as torch, lamp etc.
- ⇒ Know that electricity makes things work.
- ⇒ Know that some objects need electricity to work.
- ⇒ Know that some objects use batteries to make them work.
- ⇒ Know some of the risks linked to electricity and the sun.

APPLY IT: PURPOSEFUL LEARNING OPPORTUNITIES

ALL FOUNDATIONS FOR SCIENCE SKILLS AND KNOWLEDGE SHOULD BE ENHANCED THROUGH THE PROVISION OF CAREFULLY PLANNED ACTIVITIES, ENABLING ENVIRONMENTS IN CONTINUOUS PROVISION AND INTERACTIONS WITH SKILLED PRACTITIONERS.

OPPORTUNITIES TO MAXIMISE FOUNDATIONS FOR SCIENCE IN THE EARLY YEARS SETTING

Daily Routines & Classroom Organisation

Daily calendar and weather.



Observing and caring for plants/animals in the classroom e.g. bulbs, chicks, caterpillars.



Observing and dressing up for weather, coats, boots, sun cream etc.

Model the use of everyday scientific equipment e.g. thermometer, torch, light box, magnifying glasses, magnets.



Introduce scientific vocabulary and knowledge in snack time and story e.g. pips in apples, pouring and filling liquid water and milk.



Areas in Continuous Provision

OUTDOOR

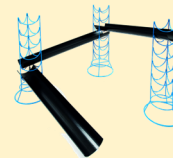


Observe and discuss plants and animals in the immediate environment including growth and change.



Note weather conditions and explore their effect e.g. melting snow, observing frost patterns, collect rain and explore shadows.

Explore the effect of forces in outdoor play with vehicles, balls and ramps.



INDOOR



Set up specific investigation and observation areas linked to themes or topics e.g. melting chocolate to make cakes.



Have free access to maths and science equipment so that children and supporting adults can quickly pursue their own questions and ideas.

Access to different materials in construction, model making, woodwork and loose parts.



Quality Texts—Develop children's understanding of scientific language and concepts through the sharing of quality texts. Below are some examples of texts that **could** be used.

