

Below outlines the learning focus for each term

Key stage 1 programme of study – years 3 and 4

Working scientifically

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings

Plants

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- investigate the way in which water is transported within plants
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Animals, including humans

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Rocks

- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter.

Light

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- Find patterns in the way that the size of shadows changes.

Forces and Magnets

- compare how things move on different surfaces
- notice that some forces need contact between two objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- describe magnets as having two poles
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Term	Learning Focus		Cross Curricular Links
	Knowledge	Skills	
Autumn 1	Forces and Magnets <ul style="list-style-type: none"> I know what forces are and notice that some forces need contact between two objects I know that some forces need contact between two objects, but magnetic forces can act at a distance I know that there are different magnets and can name them; bar, ring, button and horseshoe I know how magnets are useful in everyday items I know that a magnet has two 'poles' I know what 'repel' and 'attract' means I know that some materials are magnetic and others are not 	<ul style="list-style-type: none"> I can ask relevant questions about how objects move on different surfaces and use different types of scientific enquiries to answer them I can use straightforward scientific evidence to answer questions about the way magnets behave in relation to each other I can set up a simple practical enquiry that is fair test to compare the strength of different magnets I can gather, record, classify and present data in a variety of ways I can make a prediction based on scientific knowledge. 	Math – data handling
Autumn 2	Rocks <ul style="list-style-type: none"> I know that there are different types of rock I know rocks can be grouped based on their appearance and simple physical properties I know some physical properties of different types of rocks; permeability, hardness etc I know that rocks are formed in 3 different ways. I know and can use scientific vocabulary associated with rock; Erosion, Permeability, Sedimentary, Igneous and metamorphic rocks I know that and can describe how rocks might have changed over time I know that different rocks are used for particular purposes I know, in simple terms, how fossils are formed when things that have lived are trapped within rock I know that soils are made from rocks and organic matter 	<ul style="list-style-type: none"> I can gather, record, classify and present data in a variety of ways to help in answering questions about rocks I can set up a simple practical and fair enquiry. I can make careful observations and record my these using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions I can ask relevant questions and using different types of scientific enquiries to answer them 	Math – data handling English – information texts Geography – physical features History – how rocks formed
Spring Term	Animals including Humans <ul style="list-style-type: none"> I know that animals, including humans, need the right types and amount of nutrition I know that animals, including humans, cannot make their own food; they get nutrition from what they eat I know and can explain the terms herbivore, carnivore, omnivore, predator, prey I know and can explain the importance of nutrition 	<ul style="list-style-type: none"> I can use straightforward scientific evidence to answer questions the diets of different animals I can use my findings to draw simple conclusions, suggest improvements and raise further questions I can gather, record, classify and present data in a variety of ways to help answer questions I can identify differences and similarities based on 	Math – data handling PE – healthy lifestyles

	<ul style="list-style-type: none"> • I know that a skeleton is needed for support, protection and movement • I know that humans and some other animals have skeletons and muscles for support, protection and movement • I know that not all animals have an internal skeleton and that the presence of this is an important feature in classifying them • I know what a vertebrate and invertebrate is • I know what muscles are and how skeletal muscles help us to move • I know the main body parts associated with the skeleton and muscles • I know that muscles work in pairs to allow movement and maintain posture. 	features of animals	
Summer 1	<p>Plants</p> <ul style="list-style-type: none"> • I know and can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • I know which parts of a plant we eat. • I know the functions of leaves in flowering plants • I know that seeds germinate and that they contain a small store of food that the plant uses to start growing • I know the different stages in the life cycle of a plant • I know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • I know the way in which water is transported within plants • I know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal • I know some of the ways in which flowering plants disperse their seeds 	<ul style="list-style-type: none"> • I can gather, record, classify and present data in a variety of ways to help answer questions. • I can make careful observations and record my these using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • I can compare the effect of different factors on plant growth • I can ask relevant questions and using different types of scientific enquiries to answer them. • I can set up simple practical enquiries and comparative and fair tests. • I can report on findings from enquiries, including oral and written explanations. • I can use my findings to draw simple conclusions, suggest improvements and raise further questions 	<p>English - explanation text.</p> <p>Math – data handling</p>
Summer 2	<p>Light</p> <ul style="list-style-type: none"> • I know that we need light in order to see things • I know that dark is the absence of light • I know that light from the sun can be dangerous and that there are ways to protect their eyes • I know that light is reflected from surfaces • I know that reflected light is light that has bounced off objects. • I know that when light hits a rough surface, it is scattered in all directions but when light hits a smooth and shiny surface, light beams are reflected in the same direction, giving a clear reflected image. 	<ul style="list-style-type: none"> • I can ask relevant questions and use different types of scientific enquiries to answer them. • I can make systematic and careful observations • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • I can gather, record, classify and present data in a variety of ways to help answer questions. • I can make careful observations and record my these 	<p>English – explanation writing</p>

- I know that shadows are formed when the light from a light source is blocked by an opaque object
- I know and can explain what might cause the shadows to change

using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

- I can use straightforward scientific evidence to answer questions or to support their findings
- I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment

Intent

At Camrose we recognise the importance of Science in every aspect of daily life and want our children to be naturally curious about the world around them. Our curriculum has been developed by staff to ensure full coverage of the National Curriculum; key skills are also mapped for each year group and are progressive throughout the school.

Throughout our school children are encouraged to develop and use a range of working scientifically skills including questioning, researching and observing for ourselves. The curriculum is designed to ensure that children are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently. Scientific language is to be taught and built upon as topics are revisited in different year groups and across key stages. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability with a broad and balanced science curriculum.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following:

- Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up.
- We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

Impact

We ensure our children not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

All children will have:

- A wider variety of skills linked to scientific knowledge and understanding, and scientific enquiry/investigative skills.
- A richer vocabulary which will enable to articulate their understanding of taught concepts.
- High aspirations, which will see them through to further study, work and a successful adult life.