

Below outlines the learning focus for each term

Key stage 1 programme of study – years 5 and 6

Working scientifically

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

Living things and their habitats

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics

Animals, including humans

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans.

Evolution and Inheritance

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light

- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Electricity

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram.

Term	Learning Focus		Cross Curricular Links
	Knowledge	Skills	
Autumn 1	<p>Living things and their habitats</p> <ul style="list-style-type: none"> • I know the key groups that animals are classified into (invertebrates and vertebrates). • I know commonly found animals that are classified as invertebrates and vertebrates. • I know and can explain reasons for classifying plants and animals based on specific characteristics • I know reasons why living things are placed in one group and not another • I know about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification • I know how animals can be sub-divided into groups based on similarities and differences. • I know how to read a classification key • I know what micro-organisms are and how they can be grouped 	<ul style="list-style-type: none"> • I can identify scientific evidence that has been used to support or refute ideas or arguments • I can group / classify organisms based on their characteristics • I can use classification systems and keys to identify some animals and plants in the immediate environment. • I can devise and develop a classification key • I can recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	<p>Math – data handling</p> <p>History – significant people</p> <p>English - chronological report</p>
Autumn 2	<p>Electricity</p> <ul style="list-style-type: none"> • I know how to construct simple series circuits • I know what happens when I try different components, for example, switches, bulbs, buzzers and motors • I know that the brightness of a lamp or the volume of a buzzer is associated with the number and voltage of cells used in the circuit • I know the symbols used when representing a simple circuit in a diagram. • I know that variation in the wire of a circuit can affect how the components works 	<ul style="list-style-type: none"> • I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • I can use test results to make predictions to set up further comparative and fair tests • I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations 	<p>DT – designing / making working traffic lights</p>
Spring 1	<p>Animals including Humans</p> <ul style="list-style-type: none"> • I know the different food groups • I know that a variety of foods is important for a healthy diet • I know the names of the main parts of the human circulatory system. • I know the functions of the heart, lungs and blood vessels • I know and can describe the ways in which nutrients and water are transported within animals, including humans • I know what happens to the heart when we exercise and why 	<ul style="list-style-type: none"> • I can identify scientific evidence that has been used to support or refute ideas or arguments • I can recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	

	<ul style="list-style-type: none"> • I know how to keep my body healthy and how my body might be damaged • I know about the effects of tobacco, alcohol and other drugs on the body • I know how muscles move the skeleton • I know that muscle activity requires increased blood flow 		
Spring 2	<p>Light</p> <ul style="list-style-type: none"> • I know that light appears to travel in straight lines • I know how shadows are formed • I know why shadows have the same shape as the objects that cast them • I know that objects are seen because they give out or reflect light into the eye • I know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • I know what refraction is • I know how refraction changes the direction in which light travels. • I know that light can be bent when it is slowed down • I know that white light can be split into 7 rainbow colours 	<ul style="list-style-type: none"> • I can identify scientific evidence that has been used to support or refute ideas or arguments • I can recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	<p>DT - designing / making a periscope</p>
Summer 2	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> • I know that living things produce offspring of the same kind • I know that characteristics are passed from parents to their offspring • I know that normally offspring vary and are not identical to their parents • I know how animals and plants are adapted to suit their environment in different ways • I know what evolution is • I know that adaptation of plants and animals to suit their environment may lead to evolution. • I know that living things have changed over time • I know that fossils provide information about living things that inhabited the Earth millions of years ago • I know that living things have changed over time and that a number of factors can affect a species' evolution • I know that the work of scientists has helped develop our understanding of the process of evolution (Mary Anning and Charles Wallace) • I know how humans have evolved over time 	<ul style="list-style-type: none"> • I can analyse the advantages and disadvantages of specific adaptations • I can identify scientific evidence that has been used to support or refute ideas or arguments 	

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.