Curriculum Map: **Science** **Year 4**

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

Living things and their habitats

- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- recognise that environments can change and that this can sometimes pose dangers to living things.

Animals, including humans

- describe the simple functions of the basic parts of the digestive system in humans
- identify the different types of teeth in humans and their simple functions
- construct and interpret a variety of food chains, identifying producers, predators and prey.

States of matter

- compare and group materials together, according to whether they are solids, liquids or gases
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

Sound

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

Electricity

- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors.

Term	Learning Focus		Cross Curricular Links
	Knowledge	**Skills**	
Autumn 1	**Animals including humans - Eating and Digestion** • I know and can classify carnivores, herbivores and omnivores • I know how animals obtain their food from plants and other animals, using the idea of a simple food chain • I know the different types of teeth in humans and their simple functions. • I know what damages teeth and how to look after them • I know what the main body parts associated with the digestive system are: mouth, tongue, teeth, oesophagus, stomach and small and large intestine • I know the simple functions of the basic parts of the digestive system in humans	• I can ask relevant questions and use different types of scientific enquiries to answer them • I can construct and interpret a variety of food chains, identifying producers, predators and prey. • I can identify differences / similarities between the teeth of carnivores and herbivores and can suggest reasons for differences • I can use results to draw simple conclusions, suggest improvements and raise further questions • I can use scientific vocabulary when explaining findings of enquiries • I can use straightforward scientific evidence to answer questions or to support their findings	**Computing – videoed news report**
Autumn 2	**States of Matter** • I know the three basic states of matter; solid, liquid, gas • I know the properties of a solid, liquid and a gas • I know and can name some solids, liquids and gases • I know that some materials change state when they are heated or cooled • I know what changes happen to water when it is heated or cooled • I know what evaporation is • I know that the rate of evaporation differs based on the temperature • I know what condensation is • I know the part played by evaporation and condensation in the water cycle	• I can identify differences, similarities or changes related to simple scientific ideas • I can ask relevant questions and use different types of scientific enquiries to answer them • I can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers • I can set up simple practical enquiries, comparative and fair tests • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	**Computing – create, edit and upload a video**
Spring Term	**Sound** • I know how sound is made; associating some of them with something vibrating • I know that vibrations from sounds travel through a medium to the ear • I know that sounds get fainter as the distance from the sound source	• I can make systematic and careful observations • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • I can ask relevant questions and use different types of	**Music – changing volume, pitch**

	increases • I know how the pitch and volume of sounds can be changed; eg - the length, thickness and tightness of a string affects its pitch • I know that sounds can be made by air vibrating • I know that some materials are effective in preventing vibrations from sound sources reaching the ear	scientific enquiries to answer them • I can set up simple practical enquiries, comparative and fair tests • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	**DT – properties of materials**
Summer 1	**Electricity** • I know some common appliances that run on electricity • I know differences between mains and battery powered circuits • I know what a circuit is • I know that electricity needs a circuit to work and that the circuit needs a power source • I know how to construct a circuit including one with components in it • I know what a an electrical component is and can name some • I know the meaning of a conductor and an insulator • I know that some materials and good conductors / insulators • I know the purposes of conducting and insulating materials • I know that a switch opens and closes a circuit	• I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • I can set up simple practical enquiries, comparative and fair tests • I can ask relevant questions and use different types of scientific enquiries to answer them • I can reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	**DT – circuits / properties of materials**
Summer 2	**Living things and their habitats** • I know and can explain what a living thing is. • I know why organisms live in different habitats • I know that living things can be grouped in a variety of ways: animals group, appearance, key features , habitat • I know what a classification key is • I know how to group, identify and name a variety of living things using a classification key • I know how habitats change throughout the year • I know that environments can change and that this can sometimes pose dangers to living things • I know about human impacts (both positive and negative) on environments	• I can ask relevant questions and use different types of scientific enquiries to answer them • I can answer questions based on my observations of animals and what I have found out about animals that I have researched • I can identify differences, similarities or changes related to simple scientific ideas and processes • I can raise and answer questions that help me to identify and study plants and animals in their habitat. • I can reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	**Computing – presenting** **English – writing**

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.