

BISHOP CREIGHTON ACADEMY - SCIENCE LONG TERM PLAN - YEAR 4

Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Programme of study <i>(statutory requirements)</i>	Electricity <ul style="list-style-type: none"> • 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 	States of matter <ul style="list-style-type: none"> • 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 	Living things and their habitats <ul style="list-style-type: none"> • 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 <p><i>Use the local environment throughout the year</i></p>		Animals including humans <ul style="list-style-type: none"> • 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 	Sound <ul style="list-style-type: none"> • 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
Working scientifically <i>(statutory requirements)</i>	<ul style="list-style-type: none"> • 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 and dataloggers. • recording findings using simple scientific language, drawings, labelled diagrams • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • 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 dataloggers. • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • 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 • observing changes over periods of time, noticing 	<ul style="list-style-type: none"> • 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 • identifying differences, similarities or changes related to simple scientific ideas and processes • noticing patterns, grouping and classifying things, and finding things out using secondary sources 		<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 and data loggers • 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

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		<p>patterns, grouping and classifying things, carrying out simple comparative and fair tests</p>			
<p>Possible enquiry or starting points (<i>non statutory guidance</i>)</p>	<ul style="list-style-type: none"> pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6. <p>Note: pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity.</p> <p>Work scientifically by:</p> <ul style="list-style-type: none"> observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit. 	<ul style="list-style-type: none"> pupils should explore a variety of everyday materials & develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. <p>Note: teachers should avoid using materials where heating is associated with chemical change, e.g., through baking or burning.</p> <p>Work scientifically by:</p> <ul style="list-style-type: none"> grouping and classifying a variety of different materials exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line investigate the effect of temperature on washing drying or snowmen melting. 	<ul style="list-style-type: none"> pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. they should identify how the habitat changes throughout the year. pupils should explore possible ways of grouping a wide selection of living things that include animals, flowering plants and non-flowering plants. pupils could begin to put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation. <p>Note: plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, for example ferns and mosses.</p> <p>Work scientifically by:</p> <ul style="list-style-type: none"> using and making simple guides or keys to explore and identify local plants and animals making a guide to local living things raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched. 	<ul style="list-style-type: none"> pupils should be introduced to the main body parts associated with the digestive system, for example: mouth, tongue, teeth, oesophagus, stomach, and small and large intestine, and explore questions that help them to understand their special functions. <p>Work scientifically by:</p> <ul style="list-style-type: none"> comparing the teeth of carnivores and herbivores and suggesting reasons for differences finding out what damages teeth and how to look after them. they might draw and discuss their ideas about the digestive system and compare them with models or images. 	<ul style="list-style-type: none"> pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world find out how the pitch and volume of sounds can be changed in a variety of ways. <p>Work scientifically by:</p> <ul style="list-style-type: none"> finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. they might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. they could make and play their own instruments by using what they have found out about pitch and volume.

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Ongoing learning

Working scientifically - use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.