Christopher Reeves Science overview

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
To work scientific ally	LAU - Make comments about what they have heard and ask questions to clarify their understanding. Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.	Ask simple questions. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions.	Ask simple questions. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions.	• Ask relevant questions. • Set up simple practical enquiries and comparative and fair tests. • Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. • Identify differences, similarities or changes related to simple, scientific ideas and processes. • Use straightforward, scientific evidence to answer questions or to support their findings.	Ask relevant questions. • Set up simple practical enquiries and comparative and fair tests. • Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. • Identify differences, similarities or changes related to simple, scientific ideas and processes. • Use straightforward, scientific evidence to answer questions or to support their findings.	Plan enquiries, including recognising and controlling variables where necessary. • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. • Present findings in written form, displays and other presentations. • Use test results to make predictions to set up further comparative and fair tests. • Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.	Plan enquiries, including recognising and controlling variables where necessary. • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. • Present findings in written form, displays and other presentations. • Use test results to make predictions to set up further comparative and fair tests. • Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.
To understa nd plants	UTW - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.	Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Identify and describe the functions of different parts of flowering plants: roots, stem, 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.			

	natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter			Investigate the way in which water is transported within plants. Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			
To understand animals and humans	UTW - Explore the natural world around them, making observations and drawing pictures of animals and plants.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	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.	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.	Describe the changes as humans develop to old age.	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.
To investigate living things	UTW - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter		Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.		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.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.
To understand evolution and inheritance							Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Describe how adaptation leads to evolution.

							Recognise how and why the human skeleton has changed over time, since we separated from other primates.
To investigate materials and states of matter	EAD - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. UTW - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Compare and group together different kinds of rocks on the basis of their simple, physical properties. Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. Recognise that soils are made from rocks and organic 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 the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics. • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	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.	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
To understand movement, forces and magnets				Compare how things move on different surfaces. Notice that some forces need contact between two objects and some forces 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		Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	

				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		Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. Describe, in terms of drag forces, why moving objects that are not driven tend to slow down. Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.	
To understand light and seeing	CL - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate.			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 Associate shadows with a light source being blocked by something; find patterns that determine the size of shadows.			Understand 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 eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.
To investigate sound and hearing	CL - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate.				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.		
To understand electrical circuits					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		Identify and name the basic parts of a simple electrical circuit, including cells, wires, bulbs, switches and buzzers. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.

					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.		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.
To understand the Earth's movement in space		Notice and describe how things move, using simple comparisons such as faster and slower. Compare how different things move. Observe the apparent movement of the Sun during the day. Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.				Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night.	

Sticky Knowledge

	EYFS	Milestone 1	Milestone 2	Milestone 3
Plants	• Know and name some common wild and garden plants • know that plants need water and light to grow. • know and name root, stem, leaves and petal of a flower	• Know and name a variety of common wild and garden plants • Know and name the petals, stem, leaves and root of a plant • Know and name the roots, trunk, branches and leaves of a tree • Plants grow from seeds/bulbs • Flowers make seeds to make more plants • Plants need water, warmth and light to grow and survive.	• Know the function of different parts of flowering plants and trees • Know how water is transported within plants • Know the plant life cycle, especially the importance of flowers • Seeds need the right conditions to germinate and grow.	
To understand animals and humans	• Know and name a variety animals • To classify a range of animals by reptile, mammal, fish and bird • Identify and name parts of an animal • know the names of parts of the body that can be seen	• Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds • Know and classify animals by what they eat (carnivore, herbivore and omnivore) • Know how to sort by living and non living things • Know the name of parts of the human body that can be seen • Know the basic stages in a life cycle for animals, (including humans) • Know why exercise, a balanced diet and good hygiene are important for humans	• Know about the importance of a nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans • Know about the skeletal and muscular system of a human • Identify and name the parts of the human digestive system • Know the functions of the organs in the human digestive system • Identify and know the different types of human teeth • Know the functions of different human teeth	• · Identify and name the main parts of the human circulatory system • · Know the function of the heart, blood vessels and blood • · Know the impact of diet, exercise, drugs and lifestyle on health • · Know the ways in which nutrients and water are transported in animals, including humans
Living things and their habitats	• Identify and name some animal habitats • Match living things to their habitat	• Classify things by living, dead or never lived • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals	• Use and construct food chains to identify producers, predators and prey • Use classification keys to group, identify and name living things • Know how changes to an environment could endanger living things	• Know the life cycle of different living things e.g. mammal, amphibian, insect and bird • Know the differences between different life cycles • Know the process of reproduction in plants • Know the process of reproduction in animals • Create a timeline to indicate stages of growth in humans • Classify living things into broad groups according to observable characteristics and based on similarities and differences

				• Know how living things have been classified • Give reasons for classifying plants and animals in a specific way • Know how the Earth and living things have changed over time
Evolution				• Know how fossils can be used to find out about the past • Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) • Know how animals and plants are adapted to suit their environment • Link adaptation over time to evolution • Know about evolution and can explain what it is
Materials	• Know the name of materials plastic, glass, metal	• Know the name of the materials an object is made from • Know about the properties of everyday materials • Know how materials can be changed by squashing, bending, twisting and stretching • Know why a material might or might not be used for a specific job	• Know the temperature at which materials change state • Know about and explore how some materials can change state • Know the part played by evaporation and condensation in the water cycle · • Compare and group rocks based on their appearance and physical properties, giving reasons • Know how soil is made and how fossils are formed • Know about and explain the difference between sedimentary, metamorphic and igneous rock	• Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets • Know and explain how a material dissolves to form a solution • Know and show how to recover a substance from a solution • Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) • Know and demonstrate that some changes are reversible and some are not • Know how some changes result in the formation of a new material and that this is usually irreversible
To understand movement, forces and magnets			• Know about and describe how objects move on different surfaces. • Know how some forces require contact and some do not, giving examples • Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason	
To understand light and seeing	• To know we use our eyes to see • • To know the words light and dark and use them to describe day and night.		• Know that dark is the absence of light • Know that light is needed in order to see and is reflected from a surface • Know and demonstrate how a shadow is formed and explain how a shadow changes shape • Know about the danger of direct sunlight and describe how to keep protected	
To investigate sound and hearing	• To know we use our ears to hear sounds		• Know how sound travels from a source to our ears • Know the correlation between pitch and the object producing a sound • Know the correlation between the volume of a sound and the strength of the vibrations that produced it • Know what happens to a sound as it travels away from its source	• Know how light travels • Know and demonstrate how we see objects • Know why shadows have the same shape as the object that casts them • Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.
Electricity			• Identify and name appliances that require electricity to function • Construct a series circuit • Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) • Predict and test whether a lamp will light within a circuit • Know the function of a switch • Know the difference between a conductor and an insulator; giving examples of each	• Compare and give reasons for why components work and do not work in a circuit • Draw circuit diagrams using correct symbols • Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer

Earth and Space		• Name the seasons and know about the type of weather in each season		• Know about and explain the movement of the Earth and other planets relative to the Sun • Know about and explain the movement of the Moon relative to the Earth • Know and demonstrate how night and day are created • Describe the Sun, Earth and Moon (using the term spherical) • Know what gravity is and its impact on our lives • Identify and know the effect of air and water resistance • Identify and know the effect of friction • Explain how levers, pulleys and gears allow a smaller force to have a greater effect