Science coverage – Overview

	Biology				Chemistry				Physics					
	Plants	**Animals including humans**	**Living things and habitats**	**Evolution and inheritance**	**Rocks**	**Everyday materials**	**Properties and changes of materials**	**States of matter**	**Light**	**Sound**	**Forces and magnets**	**Seasonal changes**	**Earth and space**	**Electricity**
Nurs	X	X	X			X	X	X	X		X	X		X
Rec	X	X	X			X	X	X				X		
Y1	X	X				X						X		
Y2	X	X	X			X								
Y3	X	X			X				X		X			
Y4		X	X					X		X				X
Y5		X	X				X				X		X	
Y6		X	X	X					X					X

Plants	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Yes	Yes	Yes	Yes	Yes			

Nursery	• Explore and name natural materials indoors and outside to include conkers and acorns, leaves, grass hedge, common fruits and vegetables. • Use their senses in hands on exploration of natural materials including twigs, sticks, mud, dirt and contrasting leaf/plant shapes and textures • Plant seeds and care for growing plants. Ask and answer questions about how plants grow from seeds.
Reception	• Name and investigate using senses increasing range of plants that give us food. • Understand that vegetables grow, fruit comes from trees and flour comes from wheat. • Name an increasing range of plants (flowers) in the natural world around them (daffodils, snowdrops, dandelions, daisies, buttercups). • Explain that seeds grow into plants, observe beans sprouting roots, find examples of roots and stems outside.
Year 1	• 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
Year 2	• 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
Year 3	• 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	**Nursery**	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Nursery	• Listen to and talk about stories and pictures involving themselves and familiar animals/pets (cat, dog, rabbit, hamster, fish, mice, rodents) • Through stories, pictures and video widen their knowledge of common domestic animals (farm animals) and compare with familiar (zoo) animals • Notice the simple features of animals as they grow from babies to adults in familiar animals (chick to hen, lamb to sheep, kitten to cat) and relate to human growth. • Talk about caring for animals and explain how parents care for babies. • Find and name a range of common minibeasts, noticing where they live.
Reception	• Through stories, pictures and videos identify and name common Native/woodland/countryside creatures, noticing where they live and what they might eat. Learn that some are active at night and that some go to sleep in the winter. • Through stories, pictures and first-hand experiences name a wider range of animals such as birds, reptiles and animals from different habitats ie jungles, polar regions. • Name, observe and draw animals with common features ie wings, tails, feathers, scales, claws, fur. • Explain and ask questions so they understand very simple features of the lifestyle of creatures hatching from eggs (chickens, birds, caterpillars, frogs) • Increase their knowledge of a range of animals to include creatures from a different habitat. • Visit and explore a different habitat (the sea or pond life) noting the features of animals that live in a similar place and suggest possible reasons.

Year 1	• 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
Year 2	• 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
Year 3	• 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
Year 4	• 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
Year 5	• describe the changes as humans develop to old age
Year 6	• 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

Living things and habitats	**Nursery**	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Yes	Yes		Yes		Yes	Yes	Yes

Nursery	• Find and name a range of common minibeasts, noticing where they live. • Notice the simple features of animals as they grow from babies to adults in familiar animals.
Reception	• Through stories, pictures and videos identify and name common Native/woodland/countryside creatures, noticing where they live and what they might eat. Learn that some are active at night and that some go to sleep in the winter. • Increase their knowledge of a range of animals to include creatures from a different habitat. • Visit and explore a different habitat (the sea or pond life) noting the features of animals that live in a similar place and suggest possible reasons.
Year 2	• 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
Year 4	• 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
Year 5	• 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

Year 6	• 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

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evolution and inheritance						Yes

Year 6	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks					Yes			

Year 3	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Everyday materials	Yes	Yes	Yes	Yes				

Nursery	• Explore and name materials (with different properties). Provision to include experiences with dough, water/foam and sand, boxes of junk, jelly/foods, toys (including wooden blocks) and plastic cars. • Explore, name and collect a wider range of materials, with similar and/or different properties including sponges, pine cones, metal objects, bottles, fabrics, wool and string • Use simple words to describe what they see using simple descriptive vocabulary eg soft, hard, see through, bendy, rough, smooth, wet dry • Notice water in the environment – puddles, dew, frost, snow and ice.
Reception	• Children to describe and explore 'properties' of food (runny, wobbly, fizzy, hot, cold, simple tastes – sweet/salty). • Identify materials that do not belong ie litter and know about rubbish and recycling
Year 1	• 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

Year 2	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Properties and changes of materials	Yes	Yes					Yes	

Nursery	• Use simple words to describe what they see using simple descriptive vocabulary eg soft, hard, see through, bendy, rough, smooth, wet dry
Reception	• Children to describe and explore 'properties' of food (runny, wobbly, fizzy, hot, cold, simple tastes – sweet/salty). • Suggest the differences between materials and changes which they notice including melting in the Sun, drying up, squashing and squeezing to change a materials form.
Year 5	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
States of matter						Yes		

Nursery	• Notice water in the environment – puddles, dew, frost, snow and ice.
Reception	• Suggest the difference between materials and changes they notice including melting in the Sun and 'drying up'. • Children notice how some materials/food change when cooked.
Year 4	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light		Yes			Yes			Yes

Reception	• Use their senses outside to explore shadows, light and dark, bright and dull. • Know the danger of looking directly at the Sun.
Year 3	• 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 change
Year 6	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound						Yes		

Year 4	• 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

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces and magnets	Yes				Yes		Yes	

Nursery	• Explore and explain different forces they can feel using toys and equipment and common experiences. • Children to use words push and pull, floating/sinking, dropping, bounce, throwing and flying.
Year 3	• compare how things move on different surfaces • notice that some forces need contact between 2 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 2 poles • predict whether 2 magnets will attract or repel each other, depending on which poles are facing
Year 5	• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal changes	Yes	Yes	Yes					

Nursery	• Children to be aware of seasonal weather – Winter changing into Spring. Notice differences and changes. • Children to notice how Spring changes into Summer and name a variety of different weather and the seasons.
Reception	• Notice the changes in seasons • Through stories and first hand experiences notice the effect of changing seasons on the natural world around them (frosty grass, bare trees, buds, new growth, puddles etc). •
Year 1	• observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and space							Yes	

Year 5	• describe the movement of the Earth and other planets relative to the sun in the solar system • describe the movement of the moon relative to the Earth • describe the sun, Earth and moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity	Yes					Yes		Yes

Nursery	• Explore how things work – switches turning on and off.
Year 4	• 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
Year 6	• 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