Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Working Scientifically	• Explore the natural world. • Make observations and drawings of animals. • Make observations and drawings of plants. • Understand some important processes in the natural world. • Understand some changes in the natural world, including the seasons. • Understand some changes in the natural world, including changes states of matter. • Know some similarities of the natural world around them and contrasting environments. • Know some differences between the natural world around them and contrasting environments.	• Begin to ask simple questions. • Start to recognise questions can be answered in different ways. • Observe, using a magnifying glass. • Begin to perform simple tests. • Identify – describe something so it can be recognised e.g. a bird. • Classify – sort into groups e.g. fish, amphibians and reptiles. • Use observations and ideas to suggest simple answers to questions. • Gather simple data. • Record simple data. • Answer simple questions about data.	• Ask simple questions. • Recognise questions can be answered in different ways. • Observe closely, using a magnifying glass. • Perform simple tests. • Identify – describe something so it can be recognised e.g. habitats. • Classify – sort into groups e.g. different types of food. • Use observations and ideas to suggest answers to questions. • Gather data. • Record data. • Answer questions about data.	• Begin to ask relevant questions. • Start to use different types of scientific enquiries to answer questions. • Begin to set up simple practical enquiries, comparative and fair tests. • Start to make systematic and careful observations. • Take simple accurate measurements using standard units, using a range of equipment, including data loggers • Gather data e.g. length of shadow. • Record data e.g. materials that attract to a magnet. • Classify data e.g. magnetic materials. • Present simple data in a variety of ways. • Answer questions about data. • Record findings using simple scientific language • Record findings using simple drawings. • Record findings using simple labelled diagrams. • Report simple findings. • Present simple results and conclusions. • Use results to draw simple conclusions • Use results to make simple predictions. • Suggest simple improvements to investigations. • Begin to raise further questions. • Identify some differences. • Identify some similarities. • Identify some changes related to simple scientific ideas. • Use some straightforward scientific evidence to answer questions or to support findings.	• Ask relevant questions. • Use different types of scientific enquiries to answer questions. • Set up simple practical enquiries, comparative and fair tests. • Make systematic and careful observations. • Take accurate measurements using standard units, using a range of equipment, including thermometers. • Gather data e.g. temperature of ice turning to a liquid. • Record data e.g. will a bulb light. • Classify data e.g. conductors and insulators. • Present data in a variety of ways. • Answer questions about data. • Record findings using scientific language. • Record findings using keys. • Record findings using bar charts. • Record findings using tables. • Report on findings. • Present results and conclusions. • Use results to draw simple conclusions • Use results to make predictions. • Suggest improvements to investigations. • Raise further questions. • Identify differences. • Identify similarities. • Identify changes related to simple scientific ideas. • Use straightforward scientific evidence to answer questions or to support findings.	• Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take some measurements, using a range of scientific equipment, with increasing accuracy and precision. • Take some repeated readings when appropriate. • Record data and results of increasing complexity using scientific diagrams and labels. • Record data and results of increasing complexity using tables. • Record data and results of increasing complexity using scatter graphs. • Record data and results of increasing complexity using bar graphs. • Begin to use test results to make predictions to set up further comparative and fair tests. • Report and present simple findings from enquiries. • Report simple conclusions. • Identify some causal relationships. • Explain the degree of trust in results, in oral form. • Identify some scientific evidence that has been used to support or refute ideas or arguments.	• Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Take repeat readings when appropriate. • Record data and results of increasing complexity using scientific classification keys. • Record data and results of increasing complexity using line graphs. • Use test results to make predictions to set up further comparative and fair tests. • Report and present findings from enquiries. • Report conclusions. • Identify causal relationships. • Explain the degree of trust in results, in written form. • Identify scientific evidence that has been used to support or refute ideas or arguments.

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Plants		• Identify a variety of common wild and garden plants, including deciduous and evergreen trees. • Name a variety of common wild and garden plants, including deciduous and evergreen trees. • Identify the basic structure of a variety of common flowering plants, including trees. • Describe the basic structure of a variety of common flowering plants, including trees. Vocabulary: leaf, flower, petal, fruit, root, seed, trunk, branch, stem, bark	• Observe how seeds and bulbs grow into mature plants. • Describe how seeds and bulbs grow into mature plants. • Find out how plants need water, light and a suitable temperature to grow and stay healthy. • Describe how plants need water, light and a suitable temperature to grow and stay healthy. Vocabulary: bulb, germinate, seeding, bud, berry	• identify the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • 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. Vocabulary: photosynthesis, pollen, pollination, seed formation, seed dispersal, germination			

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Living things and their habitats			• 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. • Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • Identify a variety of plants and animals in their habitats, including micro-habitats. • Name a variety of plants and animals in their habitats, including micro-habitats. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain. • Identify and name different sources of food. Vocabulary: living, dead, never been alive, habitat, micro-habitat, food chain		• Recognise that living things can be grouped in a variety of ways. • Explore classification keys to help group, identify and name a variety of living things in their local and wider environment. • 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. • Recognise change can sometimes pose dangers to living things. Vocabulary: classification, classification key, environment, migrate, hibernate, vertebrates, invertebrates	• Describe the differences in the life cycles of a mammal. • Describe the differences in the life cycles of an amphibian. • Describe the differences in the life cycles of an insect. • Describe the differences in the life cycles of a bird. • Describe the life process of reproduction in some plants. • Describe the life process of reproduction in some animals. Vocabulary: life cycle, reproduction, sexual reproduction, asexual reproduction, fertilise, metamorphosis, runner, cutting, tuber	• Describe how living things are classified into broad groups according to common observable characteristics. • Describe how living things are classified into broad groups based on similarities and differences, including micro-organisms, plants and animals • Give reasons for classifying plants based on specific characteristics. • Give reasons for classifying animals based on specific characteristics. Vocabulary: fish, amphibian, reptile, bird, mammal

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Animals including humans		• 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. • Identify and name a variety of common animals that are herbivores. • Identify and name a variety of common animals that are 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. • Say which part of the body is associated with each sense. Vocabulary: head, eyes, body, mouth, leg, wing, fin, feathers, beak, hooves, body, ears, teeth, tail, teeth, tail, claw, scales, fur, paws, hair	• 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. • Describe the importance for humans of hygiene. Vocabulary: offspring, reproduction, growth, exercise, breathing, hygiene, germs, disease	• 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. Vocabulary: nutrition, nutrients, carbohydrates, proteins, vitamins and minerals, fibre, skeleton, bones, muscles, joints	• 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. • Identify producers, predators and prey. Vocabulary: digestive system, digestion, herbivore, carnivore, omnivore, producer, consumer, predator, prey, food chain	• Describe the changes as humans develop to old age. Vocabulary: puberty, sexual reproduction, menstruation, sperm, egg, foetus, gestation, life expectancy	• Identify and name the main parts of the human circulatory system. • 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. Vocabulary: heart, pulse, blood, blood vessels, lungs, circulatory system, diet, drugs, lifestyle

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Evolution and inheritance							• Recognise that living things have changed over time. • Recognise 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. • Recognise that adaptation may lead to evolution. Vocabulary: evolution, offspring, inherited, characterised, variation, adapted, environment, species, fossil
Seasonal changes		• Observe changes across the four seasons. • Observe weather associated with the seasons. • Describe weather associated with the seasons. • Describe how day length varies. Vocabulary: season, Autumn, Winter, Spring, Summer, weather, sunrise, sunset					

Science Knowledge, Skills & Vocabulary

Materials		• 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. Vocabulary: hard, stretchy, bendy, waterproof, breaks, rough, shiny, see through, soft, stiff, floppy, absorbent, tears, smooth, dull, not see through	• 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. Vocabulary: transparent, translucent, opaque, flexible, rigid, reflective, non-reflective		• 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. • Measure or research the temperature at which this happens in degrees Celsius (°C). • Identify the part played by evaporation in the water cycle. • Identify the part played by condensation in the water cycle. • Associate the rate of evaporation with temperature. Vocabulary: change of state, melting, freezing, melting point, boiling point, evaporation, condensation, water cycle, temperature	• Compare and group together everyday materials on the basis of their properties, including their hardness. • Compare and group together everyday materials on the basis of their properties, including their solubility. • Compare and group together everyday materials on the basis of their properties, including their, transparency. • Compare and group together everyday materials on the basis of their properties, including their conductivity (electrical and thermal. • Compare and group together everyday materials on the basis of their properties, including their response to magnets. • Know that some materials will dissolve in liquid to form a solution. • 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. • Use knowledge of solids, liquids and gases to decide how mixtures might be	

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
						separated, including through sieving. • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through 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. Vocabulary: thermal insulator, thermal conductor, electrical insulator, electrical conductor, dissolve, solution, soluble, insoluble, sieve, filter, evaporation, reversible change, non-reversible change	

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Rocks				• Compare different kinds of rocks on the basis of their appearance and simple physical properties. • 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. Vocabulary: rock, fossil, soil			

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Light				• Recognise that they need light in order to see things. • Recognise that dark is the absence of light. • Notice that light is reflected from surfaces. • Recognise that light from the sun can be dangerous. • Recognise 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. Vocabulary: light, dark, light source, transparent, translucent, opaque, shadow, reflect, mirror			• 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. Vocabulary: straight lines, light ray, shadow

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Forces				• Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • Observe how magnets attract or repel each other. • Observe how magnets 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. • 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. Vocabulary: force, magnetic force, magnet, attract, repel, poles, contact force, non-contact force		• 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 that act between moving surfaces. • Identify the effects of water resistance that act between moving surfaces. • Identify the effects of friction, that act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Vocabulary: gravity, force meter, Newton (N), air resistance, water resistance, friction, mechanisms, simple machines	

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
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. Vocabulary: sound, sound source, vibrations, pitch, volume, sound insulation		

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Electricity					• Identify common appliances that run on electricity. • Construct a simple series electrical circuit. • identify and name 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. • Associate this switch with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors. • Recognise some common insulators. • Associate metals with being good conductors. Vocabulary: electricity, electrical appliance, mains, electrical circuit, cell and battery, electrical component, switch, conductor, insulator		• 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. • Compare and give reasons for variations in how components function, including the loudness of buzzers. • Compare and give reasons for variations in how components function, including the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram. Vocabulary: circuit, circuit symbol, circuit diagram, voltage

Science Knowledge, Skills & Vocabulary

	Reception	Y1	Y2	Y3	Y4	Y5	Y6
Earth and space						• Describe the movement of the Earth relative to the Sun in the solar system. • Describe the movement of the 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. Vocabulary: Earth, Sun, Moon, planets, solar system, star, rotate, orbit	