Science Long Term Plan

Working scientifically	Term 1	Term 2	Term 3
Reception **Working scientifically** WS1 asking simple questions WS2 observing closely, using simple equipment WS3 performing simple tests WS4 identifying and classifying	Naming body parts and the skeleton How we change as we grow Keeping healthy – exercise and food	Naming different parts of a plant Looking at conditions for plant growth Looking at where different plants grow (desert islands)	Naming different insects Looking at and comparing habitats Comparing how mini beasts travel Comparing wild and domestic animals
Year 1 **Working scientifically** WS1 asking simple questions and recognising that they can be answered in different ways WS2 observing closely, using simple equipment WS3 performing simple tests WS4 identifying and classifying WS5 using their observations and ideas to suggest answers to questions WS6 gathering and recording data to help in answering questions.	**Animals including humans** AIH1 identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals AIH2 identify and name a variety of common animals that are carnivores, herbivores and omnivores AIH3 describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) AIH4 identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Seasonal Changes** SC1 observe changes across the four seasons SC2 observe and describe weather associated with the seasons and how day length varies.	**Everyday Materials** EM1 distinguish between an object and the material from which it is made EM2 identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock EM3 describe the simple physical properties of a variety of everyday materials EM4 compare and group together a variety of everyday materials on the basis of their simple physical properties. **Seasonal Changes** SC1 observe changes across the four seasons SC2 observe and describe weather associated with the seasons and how day length varies.	**Plants** P1 identify and name a variety of common wild and garden plants, including deciduous and evergreen trees P2 identify and describe the basic structure of a variety of common flowering plants, including trees. **Seasonal Changes** SC1 observe changes across the four seasons SC2 observe and describe weather associated with the seasons and how day length varies.

Year 2 **Working scientifically** WS1 asking simple questions and recognising that they can be answered in different ways WS2 observing closely, using simple equipment WS3 performing simple tests WS4 identifying and classifying WS5 using their observations and ideas to suggest answers to questions WS6 gathering and recording data to help in answering questions.	**Animals Including Humans** AIH1 notice that animals, including humans, have offspring which grow into adults AHI2 find out about and describe the basic needs of animals, including humans, for survival (water, food and air) AHI3 describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Use of Everyday Materials** EM1 identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses EM2 find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Use of Everyday Materials cont** EM1 identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses EM2 find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Plants** P1 observe and describe how seeds and bulbs grow into mature plants P2 find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	**Living things and their habitats** LTH1 compare the differences between things that are living, dead, and things that have never been alive LTH2 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 LTH3 identify and name a variety of plants and animals in their habitats, including microhabitats LTH4 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 3 **Working Scientifically** WS1 asking relevant questions and using different types of scientific enquiries to answer them WS2 setting up simple practical enquiries, comparative and fair tests WS3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	**Light** L1 recognise that they need light in order to see things and that dark is the absence of light L2 notice that light is reflected from surfaces L3 recognise that light from the sun can be dangerous and that there are ways to protect their eyes L4 recognise that shadows are formed when the light from a light source is blocked by an opaque object L5 find patterns in the way that the size of shadows change	**Rocks** R1 compare and group together different kinds of rocks on the basis of their appearance and simple physical properties R2 describe in simple terms how fossils are formed when things that have lived are trapped within rock R3 recognise that soils are made from rocks and organic matter **Animals, including humans** AIH1 identify that animals, including humans, need the right types and	**Plants** P1 identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers P2 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 P3 investigate the way in which water is transported within plants P4 explore the part that flowers play in the life cycle of flowering plants,

WS4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions WS5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WS6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions WS7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WS8 identifying differences, similarities or changes related to simple scientific ideas and processes WS9 using straightforward scientific evidence to answer questions or to support their findings	**Forces and magnets** FM1 compare how things move on different surfaces FM2 notice that some forces need contact between 2 objects, but magnetic forces can act at a distance FM3 observe how magnets attract or repel each other and attract some materials and not others FM4 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 FM5 describe magnets as having 2 poles FM6 predict whether 2 magnets will attract or repel each other, depending on which poles are facing	amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat AHI2 identify that humans and some other animals have skeletons and muscles for support, protection and movement	including pollination, seed formation and seed dispersal
Year 4 **Working Scientifically** WS1 asking relevant questions and using different types of scientific enquiries to answer them WS2 setting up simple practical enquiries, comparative and fair tests WS3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WS4 gathering, recording, classifying and presenting data in a	**States of matter** SOM1 compare and group materials together, according to whether they are solids, liquids or gases SOM2 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) SOM3 identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	**Sound** S1 identify how sounds are made, associating some of them with something vibrating S2 recognise that vibrations from sounds travel through a medium to the ear S3 find patterns between the pitch of a sound and features of the object that produced it S4 find patterns between the volume of a sound and the strength of the vibrations that produced it S5 recognise that sounds get fainter as the distance from the sound source increases	**Living things and their habitats** LTH1 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 LTH2 recognise that environments can change and that this can sometimes pose dangers to living things **Animals, including humans** AIH1 describe the simple functions of the basic parts of the digestive system in humans

variety of ways to help in answering questions WS5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WS6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions WS7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WS8 identifying differences, similarities or changes related to simple scientific ideas and processes WS9 using straightforward scientific evidence to answer questions or to support their findings	**Electricity** E1 identify common appliances that run on electricity E2 construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers E3 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 E4 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit E5 recognise some common conductors and insulators, and associate metals with being good conductors		AIH2 identify the different types of teeth in humans and their simple functions AIH3 construct and interpret a variety of food chains, identifying producers, predators and prey
Year 5 **Working Scientifically** WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS4 using test results to make predictions to set up further	**Forces** F1 explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object F2 identify the effects of air resistance, water resistance and friction, that act between moving surfaces F3 recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	**Earth and space** ES1 describe the movement of the Earth and other planets relative to the sun in the solar system ES2 describe the movement of the moon relative to the Earth ES3 describe the sun, Earth and moon as approximately spherical bodies ES4 use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky **Properties and changes of materials** PCM1 compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity	**Living things and their habitats** LTH1 describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird LTH2 describe the life process of reproduction in some plants and animals **Animals, including humans** AH1 describe the changes as humans develop to old age

comparative and fair tests WS5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations WS6 identifying scientific evidence that has been used to support or refute ideas or arguments.		(electrical and thermal), and response to magnets PCM2 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution PCM3 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 PCM4 demonstrate that dissolving, mixing and changes of state are reversible changes PCM5 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	
Year 6 **Working Scientifically** WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS4 using test results to make	**Living things and their habitats** LTH1 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 LTH2 give reasons for classifying plants and animals based on specific characteristics **Evolution and inheritance** EI1 recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	**Electricity** E1 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit E2 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 E3 use recognised symbols when representing a simple circuit in a diagram **Light** L1 recognise that light appears to travel in straight lines L2 use the idea that light travels in straight lines to explain that objects are	**Animals including humans** AIH1 identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood AIH2 recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function AIH3 describe the ways in which nutrients and water are transported within animals, including humans

predictions to set up further comparative and fair tests WS5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations WS6 identifying scientific evidence that has been used to support or refute ideas or arguments.	EI2 recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents EI3 identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	seen because they give out or reflect light into the eye L3 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 L4 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	