In KS1 pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Asking simple questions and recognising that they can be answered in different ways
- Observing closely, using simple equipment
- Performing simple tests
- Identifying and classifying
- Using their observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions.

Year 1

Unit	Content/Teaching Ideas/Objectives.
1. Working Scientifically	Chn should use the following practical skills, methods and scientific processes through the units. - Ask simple questions and recognise they can be asked in different ways - Observing closely, using simple equipment - Performing simple tests - Identifying and classifying - Using their observations and ideas to answer questions - Gather and record data to help answer questions.
2. Plants	Chn should - identify and name a variety of common green and garden plants, including evergreen and deciduous - identify and describe the basic structure of flowering plants, including trees
3. Animals including Humans	Chn should - 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 or omnivores - describe and compare the structure of animals including fish, amphibians, reptiles, birds and mammals - identify, name, draw and label the basic parts of the human body and which part is associated with each sense.

4. Everyday Materials	Chn should - distinguish between the object and the material from which it is made. - Identify and name a variety of everyday materials, including wood, plastic, metal, glass, water and rock - Describe the physical properties of a variety of everyday materials - Compare and group together materials based on simple physical properties
5. Seasonal Changes	Chn should - observe changes across the four seasons - observe and describe the weather associated with each season and how day length varies across the seasons.

Year 2

Unit	Content/Teaching Ideas/Objectives.
1. Working Scientifically	Chn should use the following practical skills, methods and scientific processes through the units. - Ask simple questions and recognise they can be asked in different ways - Observing closely, using simple equipment - Performing simple tests - Identifying and classifying - Using their observations and ideas to answer questions - Gather and record data to help answer questions.
2. Plants	Chn should - 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.
3. Animals including humans	Chn should - 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 to exercise, eating the right amount of different types of food and hygiene.

4. Uses of everyday materials	Chn should - Identify and compare the suitability of a variety of everyday materials, including wood, metal, glass, brick, rock, paper and cardboard for different uses. - Compare how things move on different surfaces. - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
5. Living things and their Habitats	Chn should - 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 the are suited and describe how different habitats provide the basic needs different kinds of animas 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 different sources of food.

In KS2 pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- 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
- Identifying scientific evidence that has been used to support or refute ideas or arguments Year

3

Unit	Content/Teaching Ideas/Objectives.
1. Working Scientifically	Chn should use the following practical skills, methods and scientific processes through the units. - Asking relevant questions and using different types of scientific enquires to answer them - Setting up simple practical enquires, 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 data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering the questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Reporting on findings from enquires, including oral and written explanations, displays or presentation of results and conclusions. - 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. - Using straightforward scientific evidence to answer questions or to support their findings.

2. Plants	Chn should - 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 lifecycle of flowering plants, including pollination, seed formations and dispersal.
3. Animals including Humans	Chn should - identify that animals, including humans, need the right types and amounts of nutrition from what they eat - identify that humans and some other animals have skeletons and muscles for support, protection and movement.
4. Rocks	Chn should - 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
5. Light	Chn should - recognise that they need light 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 sources is blocked by a solid object - find patterns in the way that's the size of the shadow changes
5. Forces and Magnets	Chn should - compare how things move on different surfaces - notice that some forces need contact between 2 objects, but magnetic forces can attract at a distance - observe how magnets attract and 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

Year 4

Unit	Content/Teaching Ideas/Objectives.
1. Working Scientifically	Chn should use the following practical skills, methods and scientific processes through the units. - Asking relevant questions and using different types of scientific enquires to answer them - Setting up simple practical enquires, 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 data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering the questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - Reporting on findings from enquires, including oral and written explanations, displays or presentation of results and conclusions. - 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. - Using straightforward scientific evidence to answer questions or to support their findings.
2. All living things	Chn should - 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.
3. Animals including humans	Chn should - Describe basic functions of simple parts of the digestive systems 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.
4. States of matter	Chn should - 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 - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

5. Electricity	Chn should - identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including batteries, cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light up in a simple series circuit, based on whether or not the lamp is part of a complete loop with the 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 bing good conductors
5. Sound	Chn should - identify how sounds are made, associating some of them with something vibrating - recognise that vibrations from sounds come through a medium to the ear - find patterns between the pitch of a sound and features of the objects that produced it - find patterns between the volume of a sound and the strength of the vibration that produced it - recognise that sounds get fainter as the distance from the sound source increases

Year 5

Unit	Content/Teaching Ideas/Objectives.
1. Working Scientifically	Chn should use the following practical skills, methods and scientific processes through the units. - Planning different types of scientific enquires to answer questions, including recognising and controlling variables where necessary. - Taking measurements using a range of scientific equipment, with increasing accuracy and precision - Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs - Using test results to make predictions to set up further comparative and fair tests - Reporting and presenting finding from enquires, including conclusions, casual relationships and explanations of results, in oral and written forms such as displays or other presentations - Identifying scientific evidence that has ben used to support or refute ideas or arguments.
2. Living things and their habitats	Chn should - Describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird - Describe the life processes of reproduction in some plants and animals
3. Animals including humans	Chn should - Describe the changes as humans develop to old age
4. Properties and changes of materials	Chn should - 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 results in the formation of new materials, and that this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda

5. Earth and Space	Chn should - describe the movement of the Earth, and 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 apparent movement of the Sun across the sky.
5. Forces	Chn should - explain that unsupported objects fall towards 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 moving surfaces - recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Year 6

Unit	Content/Teaching Ideas/Objectives.
1. Working Scientifically	Chn should use the following practical skills, methods and scientific processes through the units. - Planning different types of scientific enquires to answer questions, including recognising and controlling variables where necessary. - Taking measurements using a range of scientific equipment, with increasing accuracy and precision - Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs - Using test results to make predictions to set up further comparative and fair tests - Reporting and presenting finding from enquires, including conclusions, casual relationships and explanations of results, in oral and written forms such as displays or other presentations - Identifying scientific evidence that has ben used to support or refute ideas or arguments.
2. Living things and their habitats	Chn should - 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
3. Animals including humans	Chn should - Identify and name the main parts of the circulatory system, and describe the functions of the heart, blood vessels and blood - Recognise the impact of diet, exercise, drugs and lifestyle on the ay their bodies function - Describe the ways in which nutrients and water are transported within animals, including humans
4. Evolution	Chn should - 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 parent - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
5. Light	Chn should - Recognise that light appear the 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 form light sources to our eyes or from light sources to

	object and then 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.
5. Electricity	Chn should - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells or batteries 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.