

The new curriculum for KS.2 is divided into three sections. The first two can be analysed alongside the aims and objectives of *SC1: Scientific Enquiry* in the old curriculum (see Table 1). The third section - *Programmes of Study* (see Table 2) – can be compared directly with the old PoS.

Notes on Table.1 - SC1: Scientific Enquiry/Working Scientifically

Scientific enquiry is at the heart of both programmes of study and after analysis the changes between the two curriculums in this section have been very minor (see the ‘notes’ column in the SC1 table below).

- In the old curriculum scientific enquiry it is termed ‘scientific investigation’ in the new ‘working scientifically’.

Notes on Table 2 - KS.2 Programmes of Study

- In the new curriculum the different units in the programmes of study are broken up into recommended years of study, these are not compulsory.
- Studying electricity has been moved to KS.2 and there is more demand in Year 6 where children are required to study voltage of cells.
- The study of **Evolution and inheritance** has been added to the new curriculum as a unit of study in Year 6

Substantial changes between the PoS have been highlighted in red on the Word and Pdf documents attached.

Table.1 SC1: Scientific Enquiry/Working Scientifically

Curriculum 2000	New Curriculum	Notes
<p>SC1: Scientific Enquiry</p> <p><u>Ideas and evidence in science</u></p> <p>1. Pupils should be taught:</p> <p>a. that science is about thinking creatively to try to explain how living and non-living things work, and to establish links between causes and effects</p> <p>b. that it is important to test ideas using evidence from observation and measurement.</p> <p><u>Investigative skills</u></p> <p>2. Pupils should be taught to:</p> <p>Planning</p> <p>a. ask questions that can be investigated scientifically and decide how to find answers</p> <p>b. consider what sources of information, including first-hand experience and a range of other sources, they will use to answer questions</p> <p>c. think about what might happen or try things out when deciding</p>	<p><u>Aims & Objectives</u></p> <p>The principal focus of science teaching in lower key stage 2 is to enable pupils to:</p> <ul style="list-style-type: none"> • broaden scientific view of the world around them. • explore, talk about, test and develop ideas about everyday phenomena and the relationships between living things and familiar environments, • begin to develop their ideas about functions, relationships and interactions. • ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them • observe changes over time, noticing patterns, grouping and classifying things, • carry out simple comparative and fair tests 	<p>The new curriculum divides SC.1: Scientific Enquiry into three sections:</p> <ul style="list-style-type: none"> - ‘Aims & objectives’ for lower KS2 (Yrs 3&4) - ‘Aims & objectives’ for upper KS2 (Yrs 5&6) - Working scientifically <p>Once put under the headings of the old curriculum they add up to essentially the same outcomes:</p> <p>Ideas and evidence in science:</p> <ul style="list-style-type: none"> • Developing scientific language • Developing understanding of scientific functions, relationships & interactions • select the most appropriate ways to answer science questions using different types of scientific enquiry • Developing understanding of scientific functions, relationships & interactions <p>Investigative skills:</p>

<p>what to do, what kind of evidence to collect, and what equipment and materials to use</p> <p>d. make a fair test or comparison by changing one factor and observing or measuring the effect while keeping other factors the same</p> <p>Obtaining and presenting evidence</p> <p>a. use simple equipment and materials appropriately and take action to control risks</p> <p>b. make systematic observations and measurements, including the use of ICT for datalogging</p> <p>c. check observations and measurements by repeating them where appropriate</p> <p>d. use a wide range of methods, including diagrams, drawings, tables, bar charts, line graphs and ICT, to communicate data in an appropriate and systematic manner</p> <p>Considering evidence and evaluating</p> <p>a. make comparisons and identify simple patterns or associations in their own observations and measurements or other data</p> <p>b. use observations, measurements or other data to draw conclusions</p> <p>c. decide whether these conclusions agree with any prediction made and/or whether they enable further predictions to be made</p> <p>d. use their scientific knowledge and understanding to explain observations, measurements or other data or conclusions</p> <p>e. review their work and the work of others and describe its significance and limitations.</p>	<ul style="list-style-type: none"> • find things out using secondary sources of information. • draw simple conclusions • use some scientific language, first, to talk about and, later, to write about what they have found out. <p>Yrs 5-6</p> <ul style="list-style-type: none"> • develop a deeper understanding of a wide range of scientific ideas. • explore and talk about their ideas • ask their own questions about scientific phenomena • analyse functions, relationships and interactions more systematically • encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates • begin to recognise that scientific ideas change and develop over time • should select the most appropriate ways to answer science questions using different types of scientific enquiry, including: <ul style="list-style-type: none"> ○ observing changes over different periods of time ○ noticing patterns ○ grouping and classifying things ○ carrying out comparative and fair tests ○ finding things out using a wide range of secondary sources of information. • Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. <p>Working scientifically During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study</p>	<ul style="list-style-type: none"> • Asking questions • Making predictions • Exploring & developing ideas • Planning & conducting simple tests • Recognising fair testing • Drawing conclusions <p>Obtaining and presenting evidence:</p> <ul style="list-style-type: none"> • Observing • Changing variables • Collecting information • Taking measurements • Using scientific equipment • Recording data • Making scientific diagrams, tables and graphs • Using simple models • Reporting their findings <p>Considering evidence and evaluating:</p> <ul style="list-style-type: none"> • Making comparisons & noticing patterns • use observations, measurements or other data to draw conclusions • Explaining observations • Draw conclusions
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	<p>content:</p> <ul style="list-style-type: none"> • 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 • 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 • using simple models to describe scientific ideas • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of 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. 	
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Table 2 KS.2 Programmes of Study

Curriculum 2000	New Curriculum	Notes
<p>Sc2 Life processes and living things <u>Life processes</u> 1. Pupils should be taught: a. that the life processes common to humans and other animals include nutrition, movement, growth and reproduction b. that the life processes common to plants include growth, nutrition and reproduction c. to make links between life processes in familiar animals and plants and the environments in which they are found.</p>	<p>The learning objectives for the Life Processes unit are covered in other units in the new curriculum.</p>	<p>No change</p>
<p><u>Humans and other animals</u> 2. Pupils should be taught: Nutrition</p> <ul style="list-style-type: none"> • about the functions and care of teeth • about the need for food for activity and growth, and about 	<p>Animals, including humans YR.3 Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their 	<ul style="list-style-type: none"> • No change

<p>the importance of an adequate and varied diet for health</p> <p>Circulation</p> <ul style="list-style-type: none"> that the heart acts as a pump to circulate the blood through vessels around the body, including through the lungs about the effect of exercise and rest on pulse rate <p>Movement</p> <ul style="list-style-type: none"> that humans and some other animals have skeletons and muscles to support and protect their bodies and to help them to move <p>Growth and reproduction</p> <ul style="list-style-type: none"> about the main stages of the human life cycle <p>Health</p> <ul style="list-style-type: none"> about the effects on the human body of tobacco, alcohol and other drugs, and how these relate to their personal health about the importance of exercise for good health. 	<p>own food; they get nutrition from what they eat</p> <ul style="list-style-type: none"> identify that humans and some animals have skeletons and muscles for support, protection and movement. <p>Yr.4 Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. <p>YR.5</p> <ul style="list-style-type: none"> describe the changes as humans develop from birth to old age. <p>YR.6</p> <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and explain 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. 	
<p>Green plants</p> <p>3. Pupils should be taught:</p> <p>Growth and nutrition</p> <ul style="list-style-type: none"> the effect of light, air, water and temperature on plant growth the role of the leaf in producing new material for growth that the root anchors the plant, and that water and minerals are taken in through the root and transported through the stem to other parts of the plant <p>Reproduction</p> <ul style="list-style-type: none"> about the parts of the flower [for example, stigma, stamen, petal, sepal] and their role in the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination. 	<p>Yr.3 Plants Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 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. 	<ul style="list-style-type: none"> No change
<p>Variation and classification</p>		<p>This section has been dropped as a</p>

<p>4. Pupils should be taught to:</p> <ul style="list-style-type: none"> • to make and use keys • how locally occurring animals and plants can be identified and assigned to groups • that the variety of plants and animals makes it important to identify them and assign them to groups. 		<p>separate unit, but the learning objectives can be found in the notes & guidance for the new curriculum.</p>
<p><u>Living things in their environment</u></p> <p>5. Pupils should be taught to:</p> <ul style="list-style-type: none"> • about ways in which living things and the environment need protection <p>Adaptation</p> <ul style="list-style-type: none"> • about the different plants and animals found in different habitats • how animals and plants in two different habitats are suited to their environment <p>Feeding relationships</p> <ul style="list-style-type: none"> • to use food chains to show feeding relationships in a habitat • about how nearly all food chains start with a green plant <p>Micro-organisms that micro-organisms are living organisms that are often too small to be seen, and that they may be beneficial</p>	<p>All living things</p> <p>YR.4 Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them to groups • recognise that environments can change and that this can sometimes pose dangers to living things. <p>YR.5 Pupils should be taught to:</p> <ul style="list-style-type: none"> • explain 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. <p>YR.6</p> <ul style="list-style-type: none"> • 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. 	<p>There are small changes in this unit, with some more emphasis on classification.</p>
<p>Sc3 Materials and their properties <u>Grouping and classifying materials</u></p> <p>1. Pupils should be taught:</p> <ul style="list-style-type: none"> • to compare everyday materials and objects on the basis of their material properties, including hardness, strength, flexibility and magnetic behaviour, and to relate these properties to everyday uses of the materials • that some materials are better thermal insulators than others • that some materials are better electrical conductors than 	<p>Yr.3 Rocks Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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. <p>Yr.4 States of matter</p> <ul style="list-style-type: none"> • compare and group materials together, according to whether 	<p>No change</p>

<p>others</p> <ul style="list-style-type: none"> to describe and group rocks and soils on the basis of their characteristics, including appearance, texture and permeability to recognise differences between solids, liquids and gases, in terms of ease of flow and maintenance of shape and volume. <p><u>Changing materials</u> 2. Pupils should be taught:</p> <ul style="list-style-type: none"> to describe changes that occur when materials are mixed [for example, adding salt to water] to describe changes that occur when materials [for example, water, clay, dough] are heated or cooled that temperature is a measure of how hot or cold things are about reversible changes, including dissolving, melting, boiling, condensing, freezing and evaporating the part played by evaporation and condensation in the water cycle that non-reversible changes result in the formation of new materials that may be useful that burning materials [for example, wood, wax, natural gas] results in the formation of new materials and that this change is not usually reversible. <p><u>Separating mixtures of materials</u> Pupils should be taught:</p> <ul style="list-style-type: none"> how to separate solid particles of different sizes by sieving [for example, those in soil] that some solids [for example, salt, sugar] dissolve in water to give solutions but some [for example, sand, chalk] do not how to separate insoluble solids from liquids by filtering how to recover dissolved solids by evaporating the liquid from the solution to use knowledge of solids, liquids and gases to decide how mixtures might be separated. 	<p>they are solids, liquids or gases</p> <ul style="list-style-type: none"> 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. <p>Yr.5 Properties and changes of materials Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets understand 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. 	
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<p>Sc4 Physical processes Electricity 1. Simple circuits</p> <ul style="list-style-type: none"> to construct circuits, incorporating a battery or power supply and a range of switches, to make electrical devices work [for example, buzzers, motors] how changing the number or type of components [for example, batteries, bulbs, wires] in a series circuit can make bulbs brighter or dimmer how to represent series circuits by drawings and conventional symbols, and how to construct series circuits on the basis of drawings and diagrams using conventional symbols. 	<p>Yr.4 Electricity Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. <p>Yr.6 Electricity Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. 	<p>More demands in Yr.6:</p> <ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
<p>Forces and motion 2. Pupils should be taught: Types of force</p> <ul style="list-style-type: none"> about the forces of attraction and repulsion between magnets, and about the forces of attraction between magnets and magnetic materials that objects are pulled downwards because of the gravitational attraction between them and the Earth about friction, including air resistance, as a force that slows moving objects and may prevent objects from starting to move that when objects [for 	<p>Yr.3 Forces and magnets Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 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 two poles 	<p>No change</p>

<p>example, a spring, a table] are pushed or pulled, an opposing pull or push can be felt</p> <ul style="list-style-type: none"> • how to measure forces and identify the direction in which they act. 	<ul style="list-style-type: none"> • predict whether two magnets will attract or repel each other, depending on which poles are facing. <p>Yr.5 Forces Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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 • understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. 	
<p>Light and sound 3. Pupils should be taught: Everyday effects of light</p> <ul style="list-style-type: none"> • that light travels from a source • that light cannot pass through some materials, and how this leads to the formation of shadows • that light is reflected from surfaces [for example, mirrors, polished metals] <p>Seeing</p> <ul style="list-style-type: none"> • that we see things only when light from them enters our eyes <p>Vibration and sound</p> <ul style="list-style-type: none"> • that sounds are made when objects [for example, strings on musical instruments] vibrate but that vibrations are not always directly visible • how to change the pitch and loudness of sounds produced by some vibrating objects [for example, a drum skin, a plucked string] • that vibrations from sound sources require a medium [for example, metal, wood, glass, air] through which to travel to the ear. 	<p>Yr.3 Light Pupils should be taught to:</p> <ul style="list-style-type: none"> • notice that light is reflected from surfaces • find patterns that determine the size of shadows. <p>Yr.6</p> <ul style="list-style-type: none"> • 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 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, and to predict the size of shadows when the position of the light source changes. <p>Sound Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify how sounds are made, associating some of them with something vibrating • 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 	<p>There is some small changes to the demands on the study of light in Yr 6.</p>

	strength of the vibrations that produced it.	
<p><u>The Earth and beyond</u></p> <p>4. Pupils should be taught:</p> <p>The Sun, Earth and Moon</p> <ul style="list-style-type: none"> that the Sun, Earth and Moon are approximately spherical <p>Periodic changes</p> <ul style="list-style-type: none"> how the position of the Sun appears to change during the day, and how shadows change as this happens how day and night are related to the spin of the Earth on its own axis that the Earth orbits the Sun once each year, and that the Moon takes approximately 28 days to orbit the Earth. 	<p>Yr.5</p> <p>Earth and space</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. 	No change
	<p>Evolution and inheritance</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. 	New unit
<p><u>Breadth of study</u></p> <p>1. During the key stage, pupils should be taught the Knowledge, skills and understanding through:</p> <ul style="list-style-type: none"> a range of domestic and environmental contexts that are familiar and of interest to them looking at the part science has played in the development of many useful things using a range of sources of information and data, including ICT-based sources using first-hand and secondary data to carry out a range of scientific investigations, including complete investigations. <p>2.Communication</p> <ul style="list-style-type: none"> use appropriate scientific 		These have now been replaced with the 'notes and guidance (non-statutory)' in the new curriculum.

<p>language and terms, including SI units of measurement [for example, metre, newton] , to communicate ideas and explain the behaviour of living things, materials, phenomena and processes</p> <p>Health and safety</p> <ul style="list-style-type: none">• recognise that there are hazards in living things, materials and physical processes, and assess risks and take action to reduce risks to themselves and others.		
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