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The Sequence of Learning: SCIENCE

Science has changed our lives and is vital to the world's future prosperity. Our Blean Science curriculum endeavours to teach the essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They are encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

SCIENCE: AGE RELATED STATUTORY COVERAGE To be planned using Kent Science Scheme and PLAN Knowledge matrices

Early Learning Goal	KEY STAGE ONE	LOWER KEY STAGE TWO	UPPER KEY STAGE TWO
Understanding the world: **The Natural World:** **Explore the natural world around them, making observations and drawing pictures of animals and plants.** **-Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.** **-Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter**	The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand	The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through explorin talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should 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, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.	The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should

	practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.	They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.	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.

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	Working Scientifically	Biology	Physics/Chemistry
EYFS: Pre-school	Ask questions and answer "I wonder" questions about why things are happening (e.g. Why has this frozen, melted, moved, fallen" using their curiosity. Exploring textures, smells and sounds using their senses. (e.g. feeling the coldness of ice) Developing the awareness of what a magnifying glass, scoop and funnel can be used for, through hands on exploration. Develop the idea of prediction and testing with simple tests such as floating and sinking. Observing changes over time (looking at what happens to their planted seeds). Grouping and sorting objects (linked to maths) Recording and communicating findings verbally or with pictures.	To explore natural objects using their senses (e.g. leaves, pinecones) To notice changes in the environment (e.g. falling leaves) To explore and respond to the natural world, talk about what they see and experience To predict outcomes based on their experience (e.g. "If we water the plant it will grow") To observe the life cycle of a chick/egg and talk about what happens at each stage.	To explain simple changes in nature (e.g. ice melting) To explore how things work and operate mechanical objects, such as wind-up toys, pulleys and cogs To talk about seasonal changes (e.g. "It's cold in winter")

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Foundation for growth EYFS: Year R 	Observing and making links, noticing patterns in their learning and begin to give reasons why changes they observe occur. Developing ideas of grouping, sequences, cause and effect Comment and ask questions Select and use a range of scientific equipment. Make predictions based on what they observe and draw on prior knowledge. To investigate and ask questions about the world around them.	To discuss that certain animals live in woodland/forests and name some common woodland animals: hedgehog, squirrel, rabbit, fox, badger etc. To name some animals and classify them. To recognise and name some common Polar and African animals: polar bear, penguin, artic fox, giraffe, zebra monkey, etc. To understand how certain animals, grow and correctly sequence the growth patterns of a butterfly and frog. To label the key parts of an animal. To begin to understand about camouflage. To know that a plant is a living thing and recognise and name parts of a plant. To understand how certain plants, grow and correctly sequence the growth patterns of a sunflower or bean. To begin to understand what impact humans have had on animals and their environments.	To use all their senses in exploration of natural materials. To explore collections of materials with similar and/or different properties. To talk about the differences between materials and changes they notice and know that certain materials can be hard/ solid/ soft. To explore how and begin to understand why certain materials are better to use for different things. To understand how magnets work and use this to sort what is or isn't metal. To notice and talk about what happens to puddles when it's cold and begin to understand that when water gets cold enough it freezes and becomes ice also begin to understand that when ice warms up it melts and changes back to water. To identify and sort different materials to be recycled.
Seed 1 	Use different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying	**Animals including Humans**: Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.	**Materials** Distinguish between an object and the material from which it is made.

	things, carrying out simple comparative tests, and finding things out using secondary sources of information. Ask simple questions and listen to the answers. Begin to observe closely, using simple equipment. Identify and classify objects. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.	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. **Plants:** 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. **Seasonal Changes:** Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	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.
Sprouting seed 2 	Use different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. Ask simple questions and recognising that they can be answered in different ways. Observe closely, using a variety of simple equipment. Perform simple tests to help with identifying and classifying.	**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 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 micro-habitats 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.	**Materials:** 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.

	Use their observations and ideas to suggest answers to questions and any further questions they may have. Gather and record data to help in answering questions, communicating their findings in a variety of ways.	**Plants:** 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. **Animals including Humans:** 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.	
Sprout 3 	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, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. Gather, record, classify and present data in a variety of ways to help in answering questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings.	**Plants:** 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:**	**Light:** 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. **Forces and Magnets:** Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance.

		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. **Rocks:** 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.	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. Predict whether two magnets will attract or repel each other, depending on which poles are facing.
Sapling 4 	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, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a	**Living things and their habitats:** 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. **Animals including Humans:** 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.	**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. **Electricity:** Identify common appliances that run on electricity.

	range of equipment, including thermometers and data loggers. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.		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. **States of matter:** 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.
Small tree 5 	Select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.	**Living things and their habitats:** 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. **Animals including Humans:** Describe the changes as humans develop to old age.	**Earth and Space:** 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.

	Plan different types of scientific enquiries to answer questions, beginning to recognise and control variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision. Record data and results of increasing complexity. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions in oral and written forms such as displays and other presentations.		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Forces:** 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. **Properties and changes of materials**: 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.
Mature tree with fruit 6 	Select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. 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, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present 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.	**Living things and their habitats**: 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. **Animals including Humans:** 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. **Evolution and Inheritance:** 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.	**Light:** 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. **Electricity:** 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.

	Identify scientific evidence that has been used to support or refute ideas or arguments.	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	

The Blean Values: SCIENCE

Curiosity	**Resourcefulness**	**Responsibility**	**Resilience**	**Collaboration**

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		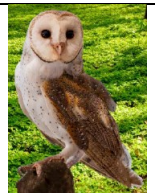		
Questioning: Asking and answering questions. Understanding that questioning never ends.	**Making links:** Using their knowledge to find patterns and similarities. Linking knowledge from previous learning.	**Being Safe**: Using equipment safely and recognising and minimising risk.	**Testing and Trialling:** Setting up their own tests and recording results.	**Teamwork**: working together and collaborating on experiments. Sharing equipment and tasks.
Observing: Looking deeply, noticing changes and patterns.	**Generalisation**: Turning specific findings into patterns and conclusions.	**Looking after the World**: Taking care of the world now and for the future.	**Recognising errors**: Recognising where mistakes have been made or data is insufficient to answer the question.	**Reporting**: Sharing their findings with others and listening to others.

Science Key Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

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explore, observe, observation, notice, change, pattern, same, different, sort, group, compare, question, ask, find out, season, winter, spring, summer, autumn, cold, warm, hot, sunny, rainy, cloudy, windy, snow, snowy, ice, icy, melt, melting, freeze, freezing, day, night, animal, plant, living, non-living, grow, growth, life cycle, egg, caterpillar, butterfly, tadpole, frog, froglet, pet, habitat, home, roots, stem, leaf, leaves, flower, seed, trunk, branch, bark, petals, legs, wings, tail, fur, feathers, scales, material, hard, soft, smooth, rough, stretchy, bendy, solid, liquid, water, ice, metal, wood, plastic, recycle, recycling, push, pull, roll, slide,	**Animals including Humans** Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves • Names of animals experienced first-hand from each vertebrate group Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue **Plants** Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area **Everyday Materials** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-	**Animals including Humans** Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta) **Living Things and their Habitats** Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed • Names of local habitats e.g. pond, woodland etc. • Names of micro-habitats e.g. under logs, in bushes etc. **Plants** As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy **Everyday Materials** Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus	**Animals including Humans** Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints, Contract, shortening, extend, healthy, unhealthy, balance, moderation, energy, function., exoskeleton, endoskeleton **Living Things and their Habitats** Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats, producers, primary consumer, secondary consumer, tertiary consumer **Plants** Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), nutrients, air, light, life cycle, predator, drought **Rocks** Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil,	**Animals including Humans** Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, wisdom teeth, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain, food web **Living Things and their Habitats** Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate **Sound** Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation **Electricity** Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, **States of Matter** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point,	**Animals including Humans** Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, puberty **Living Things and their Habitats** Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings **Properties and Changes of Materials** Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material **Earth and Space** Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets **Forces** Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	**Animals including Humans** Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Respiration Heart, pulse, rate, pumps, transported, lungs, oxygen, carbon dioxide, nutrients, muscles, **Living Things and their Habitats** Classification, Vertebrates, Invertebrates, Micro-organisms, Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, taxonomy, species **Evolution and Inheritance** Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics Offspring, adapted, environment, inherited, fossils **Light** As for Year 3 - Light, plus straight lines, light rays **Electricity** Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage

magnet, magnetic, attract, repel, light, dark, shadow, world, nature, environment, care, look after, earth, rubbish, litter, reduce, reuse	through, opaque, transparent **Seasonal Changes** Weather (sunny, rainy, windy, snowy etc.) • Seasons (winter, summer, spring, autumn) • Sun, sunrise, sunset, day length	reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil, loamy, silt, particles, profile, humus, bedrock, parent substance, subsoil, topsoil, fragment, organic, Metamorphic, igneous, sedimentary, pressure, plates (tectonic). **Forces and Magnets** Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole, gravity, magnetic field, friction, surface, distance, measure, resistance. **Light** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, torch, natural light source, absorbed, reflection.	evaporation, temperature, water cycle, condensation		
	Working Scientifically Question, Answer, Observe, Observing, Equipment, Identify, Classify, Sort, Group, Record, Diagram, Chart, Map, Data, Compare, Contrast, Describe, Biology, Chemistry, Physics		**Working Scientifically** Research, Relevant, Questions, Scientific Enquiry, Comparative and fair test, Systematic, Careful, Observation, Accurate, Measurements, Classify, Present, Record, Drawings, Labelled diagrams, Keys, Bar Charts, Tables, Oral and Written explanations, Equipment, Thermometer, Data		**Working Scientifically** Plan, Variables, Measurements, Accuracy, Precision, Repeat readings, Scientific diagrams, Labels, Classification Keys, Tables, Scatter graph, Line graph, Predictions, Further comparative and fair test, Conclusions, Casual relationships, Explanations, Degree of trust, Support,	

		Logger, Data, Gather, Conclusion, Predictions, Differences, Similarities, Changes, Evidence, Improve, Secondary sources, Guides, Construct, Interpret	Refute ideas, Identify, Classify, Describe, Patterns, Systematic, Quantitative measurements

SMSC in Science	
Spiritual	Social
Providing opportunities to wonder what is special about life, an awe at the scale of living things from the smallest micro organism to the largest tree and the interdependence of all living things and materials on Earth.	Encouraging pupils to work co-operatively and develop team working skills in practical work and to share the results to improve reliability. Developing team working skills and taking responsibility in that team.

Reflection and the emotional drive to know more and to wonder about the world and aesthetically appreciate its wonders including, for example the enormity of space and the beauty of national objects or phenomenon, plants, animals, crystals, rainbows and the Earth from space etc. Promoting teaching styles which: value pupils' questions and give them space for their own thoughts, ideas and concerns; enable pupils to make connections between aspects of their learning; encourage pupils to relate their learning to a wider frame of reference – for example, asking why?, how? And where as well as what? Showing respect for the different opinions expressed by others, for example regarding creation.	Pupils taking responsibility for their own and others' safety. Consideration of the benefits and drawbacks of scientific and technological developments and the social responsibilities.
Moral	Cultural
Encouraging pupils to take responsibility for their actions; for example in respect of property, care of the environment and developing codes of behaviour. Encouraging pupils to become increasingly curious, to develop open mindedness to suggestions of others and to make judgements on evidence not prejudice. Encouraging children to use their understanding of the world in a positive manner. Begin to understand that moral dilemmas are often involved in scientific developments. When considering the environment the use of further natural resources and its effect on future generations is an important moral consideration. Looking into future options for the production of electricity, alternative fuels and methods to reduce pollution with discussions about how these can improve peoples' lives and the environment in general.	Thinking of scientific discoveries as part of our culture as great as music and films with credit given to scientific discoveries made by other cultures. Science is seen as a contemporary activity with developments being made all over the modern world by both men and women in many different cultures (now and in the past). Investigating the historical impact of scientists from around the world linked to famous discoveries.

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British Values
Pupils should learn how citizens can influence decision making for example human impact on the environment or through P4C questions ‘Should we colonise Mars?’. Develop the ability to take full and active part in practical lessons but keeping to the rules to keep safe and others safe. Recognise that some of the most important scientific discoveries have come from other parts of the world eg Spencer Silver, Ruth Benerito Respect the views of others (and freedom of others to hold different beliefs) for example in issues such as genetically modified crops or the impact of pollution

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Working Scientifically