



Wessex Learning Trust



Lympsham Church of England
First School

We Learn Together

Science Curriculum Documents



Intent





Science vision at Lympsham CofE Academy

Intent

- All children to receive quality first teaching and be given examples of working scientifically, irrespective of ability
- All children to have a curiosity about natural phenomena and ask questions as a scientist
- All children draw upon their prior learning and experiences
- All children to recognise that Science is in all other subjects
- All children to be provided with a range of practical real-life experiences and challenges, and use scientific terminology

Implementation

- ✓ The progression of skills and for working scientifically are mapped out over a two-year rolling programme in our science progression ladder and are developed across the year groups.
- ✓ Knowledge organisers including specific and progressive vocabulary will be used in the enquiry books.
- ✓ We will provide a deeper scientific approach and understanding of the world using an inquiry-based curriculum.
- ✓ We will deliver the national curriculum by developing scientific knowledge and the understanding of concepts in biology, physics and chemistry.
- ✓ Choices of equipment will be provided to carry out simple tests and experiments to gather and record data to test hypothesis.
- ✓ CPD and developments of the science curriculum will be gathered using pupil & staff voice, monitoring of work skills and enquiry books and class journey (floor) books, sharing good practice & CPD and self-evaluation.
- ✓ Science experiences will be provided through a broad range of approaches and experiences including trips and visits. (e.g. Mars day, (STEM), VR experience, Science domes, Animal farm, Farm experiences, Wookey Hole, Cheddar Gorge...)
- ✓ Regular events such as Science Week, health and sports week and careers week allow all pupils to come off-timetable, provide broader provision and allow for the acquisition and application of knowledge and skills. These events often involve families and the wider community.



Impact

- The vision statement will be adhered to throughout the school.
- (Each class will have a checklist to date for each core vision)

We are curious to ask questions as scientists	We recognise that Science is in all other subjects	We draw from prior learning experiences	Our learning is sequences to build on what we know	We learn from our teachers how to work scientifically	Our teachers use a wide range of approaches to challenge and provide practical and real-life experiences
Date and eg where/when					

- Progress is measured through a child’s ability to know more, remember more and explain more. This can be measured, and adapted appropriately, using key questions to test conceptual knowledge and skills.
- Opportunities are built into the lesson for ongoing assessment-mini quizzes and an end of unit assessment.
- Children are confident and use and understand appropriate scientific words and phrases. They have a natural curiosity about science and the world around them and want to know more.



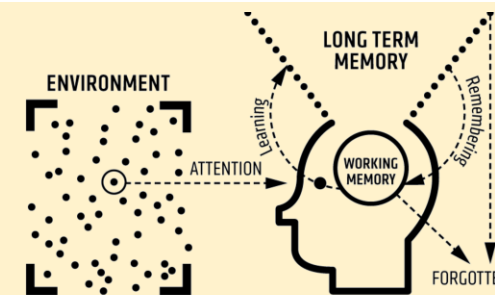
Wessex Learning Trust Principles

Strategic Aims

The Principles codify the shared language that contribute to high-quality, adaptive teaching and inclusion for all. Used routinely to bring the curriculum to life, the pedagogical principles support learning and progress over time. The Wessex Principles are not a linear planning tool, an expectation for every lesson or mandate a formulaic approach to lessons

The principles aim to:

- Reduce cognitive load
- Encourage self regulation
- Provide regular opportunities to identify misconceptions or gaps in learning
- Ensure teaching is adapted to need
- Make learning explicit and transferable across the curriculum, beyond school into the wider community and wider world



Ready To Learn
Routines



Linking Prior +
New Learning



Focused
Instruction '*I Do*'



Practise
Learning '*We Do*'



Learning Check
'*You Do*'



Consolidating
Learning

- ★ Subject pedagogies are key ingredients to adaptive teaching, alongside effective formative and summative feedback to monitor progress.
- ★ Disciplinary and substantive learning is integral to any planned sequence of learning.



Ready To Learn Routines		Ref SLC - Emotional learning environment - physical learning environment	Learning environments are safe, inclusive and welcoming. Relationships are positive and love of learning is promoted. Everyone feels safe to take risks and explore learning without judgement. Praise and rewarding effort is used to motivate and engage. A sense of pace and challenge is established from the start of the lesson.
Linking Prior + New Learning		Ref SLC - Pace of talk, clarity of instruction	Prior learning is checked and revisited to strengthen connections and longer-term memory. Know more, remember more. Planning ensures new learning builds on prior learning. Vocabulary is explicitly taught using the schools agreed pedagogies so that words are understood, contextualized and barriers to learning are reduced. Problem solving and number skills are revisited, retaught and applied in unfamiliar contexts to support deeper learning. Gaps in learning and misconceptions are revisited, including feedback and improvement tasks. Planning is adapted lesson on lesson so that core skills and knowledge are retaught where necessary. Precision learning is explained so that skills and knowledge are well understood, and misconceptions are minimised.
Focused Instruction 'I Do'		Ref SLC - Explicit teaching of vocabulary - Explicit teaching of listening	The steps to new learning are broken down into manageable amounts and reduce cognitive load. High-quality explanations are used to model thinking, decision making, and application of knowledge. Self-regulation is taught through decision making modelled, visible and explicit. Approaches to getting unstuck are taught and accepted as part of learning. Practical skills and strategies are modelled so that there is a clear understanding of how to solve problems solve and minimize misconceptions. Deeper learning is sequenced so that all learners can understand each developing stage. Learners know what excellent learning looks like and have success criteria to support their independent work.
Practise Learning 'We Do'		Ref SLC - Explicit teaching paired, small group talk	Guided practice and worked examples are used to link new learning and decision making with prior learning. Formative assessment, including rich questioning, is used skilfully to check understanding and the impact of planned learning. Peer explanation + modelling scaffolds and prepares for independent practice. Learners use expert thinking and talking to explore deeper learning. Scaffolding and support (including TAs) is in place to develop and build independence.
Learning Check 'You Do'			Skills and knowledge are explored using a variety of contexts. Independent practice and application of learning (including homework) builds confidence, self esteem and motivation. Metacognition and self-regulation are developed over time. Learning is consolidated. Scaffolding and support is reduced and removed over time. Feedback is used to deepen learning and address misconceptions.
Consolidating Learning			Learner's plan, review and evaluate their progress reflecting on what excellent learning looks like and success criteria. Next steps are identified and used to inform teacher planning and develop mastery approaches over time. Learning skills continue. <i>Next lessons, rest of day, community, wider world.</i>



National Curriculum and EYFS Framework

Substantive Knowledge

Learning how to...

What scientists need to know so they can collect, understand and evaluate scientific evidence (Working Scientifically)

- Exploration
- Similarities and Differences
- Asking Questions
- Gather and record data and make observations
- Performing tests to answer questions
- Draw conclusions, make predictions and evaluate their work

Disciplinary Knowledge

Learning about...

The knowledge produced by science, the concepts which underpin the structure of science, such as evolution and the idea of force.

- | | |
|---|--------------------|
| • Plants | • Rocks and Soils |
| • Forces | • Light |
| • Animals including humans | • Electricity |
| • Materials | • States of Matter |
| • Environments/ Habitats / Seasonal changes | • Sound |
| • Evolution and Inheritance | • Earth and Space |



National Curriculum Programmes of Study and EYFS Framework

EYFS	Year 1	Year2	Year 3	Year 4	Year 5	Year 6
<i>Development Matters 4-5 Years:</i> <i>Emphasis on exploration</i> <i>Beginning to describe what they see</i> <i>Beginning to see similarities and differences</i>	<i>consider how they can be answered</i> <i>Starting to gather and record data, making close observations</i> <i>Performing simple tests to answer questions</i> <i>Note: Key Stage 1 are not expected to evaluate findings, draw conclusions or make predictions</i>		<i>Develop practical enquiries with greater complexity to answer own questions</i> <i>Observations and measurements become much more accurate and findings/data are presented in a variety of ways</i> <i>Key Stage 2 pupils will draw conclusions, make predictions and evaluate their work.</i>			

Learning how to...

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plan	•Choose the resources they need for chosen activities - say when they do/don't need help	•ask simple questions and recognise that they can be answered in different ways		•ask relevant questions and use different types of scientific enquiries to answer them •set up simple practical enquiries, comparative and fair tests		•plan different types of scientific enquiries to answer questions, including recognise and control variables where necessary	
Do	•Use senses in hands on exploration •Making observations	•observe closely, using simple equipment •perform simple tests •identify and classify		•make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers		•take measurements, use a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate	
Record	•Talk about what they see, hear and feel •Drawing pictures •Labels and sentence writing	•gather and record data to help in answering questions		•gather, record, classify and present data in a variety of ways to help in answering questions •record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, tables		•record data and results of increasing complexity use scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	
Review	•Know some similarities and differences •Offer explanations for why things might happen	•use their observations and ideas to suggest answers to questions		•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 •identify differences, similarities or changes related to simple scientific ideas and processes •use straightforward scientific evidence to answer questions or to support their findings.		•use test results to make predictions to set up more comparative and fair tests •report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations •identify scientific evidence that has been used to support or refute ideas or arguments	



Disciplinary Knowledge Learning about...							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
*National Curriculum statements in red are from other linked topics Additional Information for EYFS can be found here: EYFS Matrices Additional Information for Y1-Y6 can be found here: Knowledge Matrices Y1-Y6							
Plants	FS1 - Use all their senses in hands-on exploration of natural materials. - Explore collections of materials with similar and/or different properties. - Plant seeds and care for growing plants. - Understand the key features of the life cycle of a plant and an animal. - Begin to understand the need to respect and care for the natural environment and all living things. FS2 - Draw information from a simple map. (Reception – Living things and their habitats) - Explore the natural world around them. (Reception – Living things and their habitats) - Describe what they see, hear and feel whilst outside. (Reception – Living things and their habitats) - Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats) - Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)	- 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.	- 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. - Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)	- 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.	- Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) - Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats) - Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	Describe the life process of reproduction in some plants and animals. (Y5 - 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. (Y6 - Living things and their habitats) - Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)
Tier 3 Vocabulary		Leaf, leaves, flower, fruit, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, vegetable	Seeds, bulbs fully grown, water, light, damp, wet/dry/dark/light, hot/warm/cool/cold, grow/growth, healthy, shoot, seedling, wither/limp, die, dry/crips, soil, earth	Part, role, leaf, flower, blossom, petal, fruit, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, water, light, air, nutrients, soil, fertiliser, comparatives, healthy, transported, life cycle, pollination, seed formation, seed dispersal			



Disciplinary Knowledge

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living thing and their habitats	FS1 - Use all their senses in hands-on exploration of natural materials. - Explore collections of materials with similar and/or different properties. - Begin to understand the need to respect and care for the natural environment and all living things. FS2 - Draw information from a simple map. - Explore the natural world around them. - Describe what they see, hear and feel whilst outside. - Recognise some environments that are different to the one in which they live.	- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) - Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) - Observe changes across the four seasons. (Y1 - Seasonal change)	- 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 microhabitats. - 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. - Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals including humans)	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	- 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. - Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)	- 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.	- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. - Give reasons for classifying plants and animals based on specific characteristics. - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (Y6 - Evolution and inheritance) - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Y6 - Evolution and inheritance)
Vocabulary			Living, dead, never been, alive, move, grow, Feed, have offspring/young/babies, name, local habitats, name, micro-habitats, damp/wet/dry, dark/light, hot/warm/cool/cold, suited/suitable, basic needs, food, food chain, shelter		Classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, human impact	Living things in their habitat, life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets e.g. spider plant, runners e.g. strawberry, plant, mammal, amphibian, insect, bird, fish, reptile, eggs, live young	Organism, microorganism, fungus, mushrooms, classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, arachnid, mollusc, insect, crustacean



Disciplinary Knowledge

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals, including humans	FS1 - Use all their senses in hands-on exploration of natural materials. - Begin to make sense of their own life-story and family's history. - Understand the key features of the life cycle of a plant and an animal. - Begin to understand the need to respect and care for the natural environment and all living things. FS2 - Talk about members of their immediate family and community. - Name and describe people who are familiar to them. - Recognise some environments that are different to the one in which they live.	- 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 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.	- 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. - 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. (Y2 - Living things and their habitats)	- 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.	- 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	- Describe the changes as humans develop to old age. - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) - Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)	- 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. - 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. (Y6 - Living things and their habitats) - Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)
Tier 3 Vocabulary		Wild animals, pets, body, head, neck, arms, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, tongue, feet, tail, wing, claw, fin, scales, feathers, fur, beak, senses	Offspring, babies, young, grow, change, adults, older/younger, baby/toddler/child/teenager, basic needs, water, food, air, breathing, survival, exercise, food types, fruit and vegetables, bread, rice, potato, pasta, milk, dairy, meat, fish, eggs, beans, hygiene, medicine, drugs	Nutrition, nutrients, food types, fruit and vegetable, carbohydrates, protein, vitamins and minerals, fat, fibre, water, balanced diet, skeleton, muscles, support, protection, movement, skull, ribs, spine/vertebra, joints, sockets, bones, tendons.	Digestive system, mouth, teeth, canines, incisor, molar, pre-molar, saliva, tongue, rip, tear, chew, grind, cut, oesophagus, stomach, small intestine, large intestine, rectum, anus, carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain.	Life cycle, reproduction, sexual, asexual, germination, pollination, seed, formation, seed dispersal, pollen, stamen, stigma, plantlets, mammal, amphibian, insect, bird, fish, reptile, eggs, live young.	
Evolution and inheritance	FS1 - Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Living things and their habitats) FS2 - Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)	N/A	- 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. (Y2 - Living things and their habitats) - Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)	- Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)	- 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.
Tier 3 Vocabulary							Evolution, suited/suitable, environment, suited, adapted/adaptable, offspring, character, reproduction, inheritance, fossils



Disciplinary Knowledge							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal changes	FS1 - Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans) FS2 - Explore the natural world around them. - Describe what they see, hear and feel whilst outside. - Understand the effect of changing seasons on the natural world around them	Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies	N/A	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)	N/A	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 - Earth and space)	N/A
Tier 3 Vocabulary		Season, spring, summer, autumn, winter, weather, hot/warm, cool/cold, sun/sunny, cloud/cloudy, wind/windy, rain/rainy, snow/snowing, hail/hailing, sleet, frost, fog/mist, ice/icy, rainbow, thunder, lightning, storm, light/dark, day/night					
Materials	FS1 - Use all their senses in hands-on exploration of natural materials. - Explore collections of materials with similar and/or different properties. - Talk about the differences between materials and changes they notice. FS2 - Explore the natural world around them. - Describe what they see, hear and feel whilst outside.	- Distinguish between an object and the material from which it is made. - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. - Describe the simple physical properties of a variety of everyday materials. - Compare and group together a variety of everyday materials on the basis of their simple physical properties.	- 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	- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks) - Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) - 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. (Y3 - Forces and magnets)	- 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. - Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)	- 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.	N/A
Tier 3 Vocabulary		Object, materials, wood, plastic, glass, water, rock, brick, paper, fabrics, 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 through	Suitable/unsuitable, use/useful, object, material, property, hard, soft, stretchy, rigid, flexible, waterproof, absorbent, strong/weak, rough, smooth, reflective, non-reflective, transparent, opaque, translucent, shape, changed, push, pull, twist, squash, bend, stretch, pinch, poke, roll, squeeze			Hard, soft, stretchy, rigid, flexible, waterproof, absorbent, strong/weak, rough, smooth, reflective, non-reflective, transparent, opaque, translucent, solubility, electrical, conductivity, thermal conductivity, melting, stages of matter, solid, liquid, gas, change state, dissolve, solution, soluble, insoluble, condensing, reversible changes, new materials, non-reversible changes, burning, gas given off, rusting, solute, solvent, particle, mix//mixture, filtering, sieving, evaporating, residue	



Disciplinary Knowledge							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Rocks	FS1 - Use all their senses in hands-on exploration of natural materials. (Nursery – Living things and their habitats) - Explore collections of materials with similar and/or different properties. (Nursery – Living things and their habitats) FS2 - Explore the natural world around them. (Reception – Living things and their habitats) - Describe what they see, hear and feel whilst outside. (Reception – Living things and their habitats)	- Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) - Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) - Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday 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. (Y2 - Uses of everyday materials)	- 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.	N/A	N/A	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 - Evolution and inheritance)
Tier 3 Vocabulary				Rock, stone, pebble, boulder, soil, fossils, grains, crystals, hard/soft, texture, absorb, water, let water through, marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat			
Light	FS1 - Explore how things work. - Talk about the differences in materials and changes they notice. FS2 - Describe what they see, hear and feel whilst outside.	- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) - Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)	N/A	- 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.	N/A	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. (Y5 - Properties and changes of materials)	- 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.
Tier 3 Vocabulary				Light source, names of light sources e.g. torch, dark/darkness, reflect, reflective, mirror, shadow, block, direct/direction, transparent, opaque, translucent.			Light source, names of light sources e.g. torch, dark/darkness, reflect, reflective, mirror, shadow, block, direct/direction, transparent, opaque, translucent.



Disciplinary Knowledge							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces	FS1 - Explore how things work. - Explore and talk about different forces they can feel. - Talk about the differences between materials and changes they notice. FS2 - Explore the natural world around them. - Describe what they see, hear and feel whilst outside.	N/A	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)	- Compare how things move on different surfaces. - Notice that some forces need contact between two objects, but magnetic forces can act at a distance. - Observe how magnets attract or repel each other 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.	N/A	- 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.	N/A
Tier 3 Vocabulary				Forces & Magnets, force, push, pull, contact force, non-contact force, magnetic force, magnet strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, material, metal, iron, steel, non-magnetic materials, poles, north pole, south pole		Fall, Earth, gravity, air resistance, water resistance, friction, moving surfaces, mechanisms, levers, pulleys, gears, force, transfers	
Sound	FS1 - Explore how things work. FS2 - Describe what they see, hear and feel whilst outside	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	N/A	N/A	- 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	N/A	N/A
Tier 3 Vocabulary					Sound, noise, vibration, travel, solid/liquid/gas, pitch, tone, high/low, volume, loud/quiet, fainter, muffle, strength, insulation, instrument, percussion, strings, brass, woodwind, tuned instrument		



Disciplinary Knowledge							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity	FS1 Explore how things work. FS2 N/A	N/A	N/A	N/A	- 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.	N/A	- 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.
Tier 3 Vocabulary					Electricity, appliances, device, electrical circuit, complete circuit, diagram, circuit symbol, components, cell, battery, positive/negative, terminal, connect/connection, loose connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor fast/faster,		Electricity, appliances, device, electrical circuit, complete circuit, diagram, circuit symbol, components, cell, battery, positive/negative, terminal, connect/connection, loose connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor fast/faster, conductor, insulator, metal/non-metal, voltage, current, resistance.
Earth and space	FS1 N/A FS2 - Explore the natural world around them. - Describe what they see, hear and feel whilst outside.	- Observe changes across the four seasons. (Y1 – Seasonal changes) - Observe and describe weather associated with the seasons and how day length varies. (Y1 – Seasonal changes)	N/A	N/A	N/A	- 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 and the apparent movement of the sun across the sky.	N/A
Tier 3 Vocabulary						Earth, planets, Sun, solar system, Moon, celestial body, sphere/spherical, rotate/rotation, spin, night/day, Mercury, Venus, Mars, Jupiter, Saturn, Uranus,	



Long Term Plan - example							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Theme 1 <i>Ourselves and <u>Humankind</u></i>							
Theme 2 <i>Culture and Diversity</i>							
Theme 3 <i>Community and Citizenship</i>							
Theme 4 <i>Exploration and Discovery</i>							
Theme 5 <i>Expression and Creativity</i>							
Theme 6 <i><u>Ourselves</u> and humankind</i>							