Science
Curriculum Documents

Intent

At Draycott & Rodney Stoke First School, our intent for Science education is to ignite curiosity, wonder, and a love of learning about the world around us. Rooted in our inclusive and nurturing school ethos, we are committed to ensuring that every child—regardless of background, ability, or additional need—has the opportunity to flourish and become the very best version of themselves.
We believe a high-quality science education is essential in helping pupils make sense of the world. Our curriculum is designed to develop both scientific knowledge and the skills necessary to explore, investigate, and question the natural phenomena they encounter in everyday life.

Our science intent is guided by the following principles:

- **Engagement and Inspiration**: We strive to engage learners through meaningful, hands-on experiences that bring science to life. Through exciting activities and real-world contexts, we aim to inspire children to ask thoughtful questions and develop a lifelong interest in science.
- **Inquiry-Based Learning**: Our approach encourages exploration, discovery, and a spirit of investigation. We nurture inquisitive minds by supporting children in developing their own lines of enquiry, enabling them to think critically and independently.
- **Knowledge and Skills Development**: We aim to provide a solid foundation of knowledge across the biological, chemical, and physical sciences, alongside key scientific skills such as observing, predicting, recording, and evaluating.
- **Inclusivity**: We are dedicated to offering a science curriculum that is fully accessible to all learners. Our teaching is responsive to individual needs, ensuring all children are supported and challenged appropriately.
- **Environmental and Global Awareness**: At Draycott & Rodney Stoke, we help children understand their responsibility as global citizens by integrating environmental education and sustainability into our science curriculum, fostering awareness of key global issues.

Implementation

To bring our science vision to life, we deliver a carefully planned and sequenced curriculum that promotes inquiry, builds on prior learning, and meets the needs of all learners.
Key strategies include:

- **Inquiry-Centred Curriculum**: Our curriculum follows the National Curriculum for science and is built around enquiry-led learning. It is carefully structured to ensure progression of knowledge and skills as pupils move through the school.
- **Practical, Hands-on Science**: We prioritise practical investigations, allowing children to explore scientific concepts through experiments and activities. These experiences enable children to ask questions, make predictions, and draw conclusions based on evidence.
- **Cross-Curricular Connections**: Where appropriate, science is linked with other curriculum areas such as Maths, Art, Geography, and English. This enriches learning and helps children make meaningful connections across subjects.
- **Staff Development**: We provide ongoing professional development for staff to ensure confidence and consistency in the delivery of science teaching. Staff stay informed about best practices and new developments in science education.
- **Partnerships and Enrichment**: We work with local experts, organisations, and the wider community to enhance the science curriculum. This includes trips, workshops, visitors, and themed days that bring science to life and widen children's understanding.

Impact

The success of our science curriculum is monitored through both formative and summative assessments, as well as feedback from pupils, staff, and parents.
We evaluate impact in the following ways:

•**Progress and Attainment**: Pupil progress is tracked through assessments and teacher judgements against curriculum objectives. This data helps us identify next steps and tailor support for individuals or groups.
•**Engagement and Enjoyment**: We monitor pupil attitudes to science through observation, discussion, and pupil voice. Children at Shipham are excited to learn science and actively participate in lessons and enrichment opportunities.
•**Application of Scientific Skills**: We assess how well children apply skills such as predicting, observing, recording, and evaluating during practical investigations. Evidence of this is seen in their workbooks, presentations, and classroom dialogue.
•**Parental and Community Involvement**: Through science-focused events such as family science days, parent workshops, and community links, we foster a shared enthusiasm for science and strengthen home-school partnerships.

In summary, science at Draycott & Rodney Stoke First School is designed to nurture confident, curious learners who are equipped with the knowledge, skills, and attitudes to thrive in an ever-changing world. Our thoughtful, inquiry-driven approach ensures that all children are supported to reach their full potential and develop a genuine appreciation for the wonders of science.

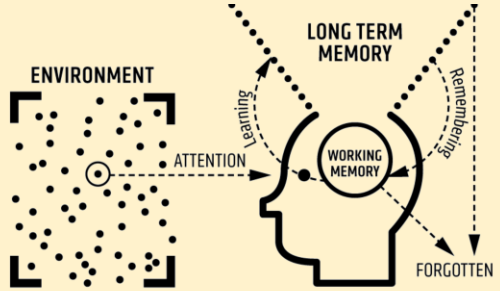
Wessex Learning Trust Principles

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.

We Learn **Together**

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. *Next lessons, rest of day, community, wider world.*

Knowledge in Science

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

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

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, next, 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,

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, resistence.
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,	

Long Term Plan							
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Theme 1 ***Ourselves and Humankind***	**Awesome Autumn** This project teaches children about the natural changes that happen during the season of autumn, including how the weather changes, why trees lose their leaves and how wild animals prepare for winter.	**Human Senses** This project teaches children that humans are a type of animal known as a mammal. They name and count body parts and identify similarities and differences. They learn about the senses, the body parts associated with each sense and their role in keeping us safe.		**Animal Nutrition and the Skeletal System** This project teaches children about the importance of nutrition for humans and other animals. They learn about the role of a skeleton and muscles and identify animals with different types of skeleton.			
Theme 2 ***Culture and Diversity***	**Night Night** To know some of the differences between day and night.	**Everyday Materials** This project teaches children that objects are made from materials. They identify a range of everyday materials and their sources. Children investigate the properties of materials and begin to recognise that a material's properties define its use.					

Long Term Plan							
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Theme 3 ***Community and Citizenship***	Brilliant Bulbs To know that plants grow over time and talk about how these changes will appear. We will focus on planting bulbs.	**Seasonal Changes** This project teaches children about the seasons, seasonal changes and typical seasonal weather and events. They learn about measuring the weather and the role of a meteorologist. Children begin to learn about the science of day and night and recognise that the seasons have varying day lengths in the UK.		**Forces and Magnets** This project teaches children about contact and non-contact forces, including friction and magnetism. They investigate frictional and magnetic forces and identify parts of a magnet and magnetic materials.			
Theme 4 ***Exploration and Discovery***	**Fantastic Fossils** To know that things change over time and to find out why we have fossils.						
Theme 5 ***Expression and Creativity***	**Signs of Spring** To understand changes in the natural world around them including the seasons.	**Plant Parts** This project teaches children about wild and garden plants by exploring the local environment. They identify and describe the basic parts of plants and observe how they change over time.		**Plant Nutrition and Reproduction** This project teaches children about light and dark. They investigate the phenomena of reflections and shadows, looking for patterns in collected data. The risks associated with the Sun are also explored.			
Theme 6 ***Ourselves and humankind***	**Contrasting Climates** To know some similarities and differences between the natural world around them and contrasting environments.	**Animal Parts** This project teaches children about animals, including fish, amphibians, reptiles, birds, mammals and invertebrates. They identify and describe their common structures, diets, and how animals should be cared for.		**Light and Shadows** This project teaches children about the requirements of plants for growth and survival. They describe the parts of flowering plants and relate structure to function, including the roots and stem for transporting water, leaves for making food and the flower for reproduction.			