

Hazelwood Schools



Science

Curriculum Overview

Science at Hazelwood

Intent

At Hazelwood Schools, we believe that Science should enable children to discover and explore the world around them through real, relevant, immersive and purposeful experiences.

Science should be knowledge-rich, engaging and practical, enabling children to gain new knowledge and apply knowledge learned to their first-hand experiences.

Children have regular opportunities to develop their working scientifically skills and to apply knowledge taught through the five types of enquiry across the year: observing over time, pattern seeking, research, fair and comparative testing and classifying.

Our aims in Science are to:

- Provide real, relevant, immersive and purposeful opportunities for children to develop a secure understanding of the world around them.
- Provide opportunities for children to secure their knowledge and understanding of the scientific disciplines of biology, chemistry and physics.
- Enable children to successfully develop and refine their working scientifically skills through our five types of enquiry: **observing over time, pattern seeking, research, comparative and fair testing, and classifying.**
- Revisit, build on and make connections between prior and new learning.
- Support children in communicating their understanding effectively and coherently using relevant scientific vocabulary.
- Inspire and engage children with the subject through enrichment opportunities, projects, themed days and external visits.



Implementation

At Hazelwood, although we make meaningful links to other curriculum areas, Science is taught discretely every week. Using the National Curriculum objectives, and PLAN resources, we have designed our own scheme of work that carefully sequences the learning objectives and working scientifically skills across year groups, to ensure progression, opportunities for consolidation and opportunities for practising the substantive knowledge. Big Questions are used in every lesson to focus the learning and these are sequenced carefully across the half term. Key scientific concepts are introduced, revisited and built upon from lesson to lesson, as well as from year to year. Disciplinary knowledge is taught with the same rigour as substantive concepts as we ‘prioritise practical’ work which is used to focus pupils’ thinking on the scientific content of the lesson.

Hazelwood’s Approach to Teaching and Learning

At Hazelwood you will see a range of real, relevant, immersive and purposeful learning opportunities within a nurturing, enabling environment, including the following approaches to teaching and learning:

- Children **exploring and answering big questions** which allow them to think deeply about their learning
- Children **hearing and using key vocabulary** in a range of contexts
- Children **speaking in full sentences** using the key vocabulary taught
- **Cold calling** - supporting all children in engaging in their learning and believing they can achieve
- **Adaptive teaching** - responding to the needs of all children
- **Retrieval practice** – allowing children to know more, remember more and do more
- **Positive relationships and quality interactions** that nurture our responsible citizens
- **Spaced and sequential learning** over time to help children learn more quickly and remember learning better.

Hazelwood’s Principles of Science

Science teaching and learning is good when it:

- Is **Real and Relevant** - Children leading investigations and exploring big questions that link to real life situations *where possible*.
- Is **Immersive and Purposeful** – Fostering curiosity about the world, having fun and being engaged, utilising the outdoor area and locality *where possible*.
- **Prioritises Practical** – Enriching scientific knowledge by learning first-hand through experiments and experiences.
- Is **Thought-provoking** - Deepening understanding through discussions about scientific concepts with the use of thought-provoking stimuli.
- Enables children to **“Be Scientific”** – Children to work both collaboratively and independently to develop working scientifically skills as well as building a secure understanding of key scientific vocabulary to communicate ideas confidently.

In a typical Science lesson, you will see:

- **Big Questions** used for children to explore throughout the lesson
- Retrieval practice, using our '**Know More, Remember More**' grids that are designed to promote rapid recall of information from previous lessons and units, as well as building connections.
- Children using and applying one of the five types of enquiry: **observing over time, pattern seeking, research, comparative and fair testing, and classifying.**
- Children enriching their scientific knowledge by engaging in creative and **immersive** lessons where they can experience the learning first-hand through experiments or demonstrations, *where possible.*
- Children working both collaboratively and independently to develop their working scientific skills (**asking questions, predicting, observing and measuring, recording data, interpreting and communicating their results and evaluating**) through carefully planned investigations, with real-life contexts *where possible.*
- **Talk for Science** opportunities around scientific concepts, with the use of thought-provoking stimuli which may include: 'odd ones out', 'concept cartoons' or 'what if...?' questions.
- **Explicit vocabulary** instruction to ensure all children understand key concepts and children applying this understanding when communicate their ideas
- The **outside area and locality** being utilised for learning experiences *where appropriate.*

Real, relevant, immersive and purposeful learning experiences are important when learning about Scientific concepts. To further enhance our History curriculum, we provide opportunities for children to visit Museums, local schools with labs, take part in science projects and fayres, as well as engage with workshops and visiting speakers. We also provide all children with access to **Forest School**, enabling them to see and use Science in context; children have the opportunity to in apply their understanding of Scientific concepts, in a practical way away from the classroom. These experiences enable our children to develop a real interest in Science as well as make connections to the real world.

Impact

How do we assess?

We assess our children using a range of methods:

- Routine, embedded, informal formative assessment is built into every lesson.
- Questioning is a large part of our assessment. We use a range of questions to constantly check children's knowledge is secure and that children are learning to think scientifically with their new knowledge
- Retrieval practice to support children in remembering more and ensure learning is retained. This ongoing information tells teachers how well children have remembered and understood. This enables them to adapt and/or re-teach immediately, ensuring no pupil ever gets left behind.
- Teachers highlight the lesson question or objective to quickly show those who have remembered and understood.
- Use of talk for science strategies (discussion prompts like 'odd one out' or 'what if..?') to assess children's understanding and address misconceptions
- Use of PLAN Exemplification materials to support summative assessment, which is reported every term on Scholar Pack.
- Summative assessment is recorded termly on Scholar Pack. Identifying those working at ARE, as well as those below.

How do we know that children are at age-related expectation?

- Children are using the taught key vocabulary and substantive knowledge to answer big questions throughout each lesson.
- Children are able to talk confidently about what they have learnt.
- Use of PLAN Exemplification materials to moderate and support judgements.
- LOs are mostly consistently highlighted pink (both skills and knowledge)
- Children achieve the Hazelwood Science Curriculum end of unit outcomes.

How do our children feel about Science?

- "I like the way we do formal experiments and write up predictions"
- "I like how we use the KMRRM grid at the start so we can remember the learning and build on it"
- "I like how we learn about the different organs"
- "I like when we have themed Science days because it's really fun and it gives those who like science a chance to shine!"

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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Nursery	<p>All about Me (LJ) Linked texts - Owl Babies (Living things and their Habitats, Humans)</p> <ul style="list-style-type: none"> Explore the surrounding natural environment Explore natural objects from the surrounding environment what we see our environment (school and home) what we see when I play outside such as splashing in puddles or digging in mud Use senses to explore small world to make links to word they have seen (animals zoo/ farm?) <p>Me and my relationships (Humans) (Linked to scarf) Marvellous Me</p> <ul style="list-style-type: none"> Learn about how to take care of themselves Learn about their senses 	<p>In our World (LJ) Linked texts -We are going on a Leaf Hunt, Handa’s Surprise (Living things and their Habitats, Humans)</p> <ul style="list-style-type: none"> Explore the surrounding natural environment Explore natural objects from the surrounding environment Use senses to explore the world around explore how things work (how to use Nursery equipment) 	<p>Exploring forces (provision) (Forces)</p> <ul style="list-style-type: none"> Feel forces Explore how things work Explore how objects/materials are affected by force Gravity - Cars, balls and guttering Water Wind 			<p>Exploring Light – In provision (Light & Electricity)</p> <ul style="list-style-type: none"> Exploring Torches & battery powered toys Shining light through different materials (linked to computing) 	<p>Growing & Changing (LJ) Linked texts – The very Hungry Caterpillar, Titch, Errol’s Garden (Humans, Animals Plants) (Linked to scarf) Growing and changing in nature/ When I was a baby</p> <ul style="list-style-type: none"> Learn about the life cycles of animals Compare adult animals to their babies Observe how baby animals change over time Grow a plant Observe Life cycles (Caterpillars) Observe decay
	<p style="text-align: center;">Cooking Across the year (Materials) Explore a range of materials Shape and join materials Combine and mix ingredients Change materials by heating and cooling, including cooking</p> <p>Big questions: How does the cake mixture change? • How does chocolate change when heated? • How does fruit juice change when put in the freezer? • How does fruit change when blended?</p> <p style="text-align: center;">Music and Phonics Across the year (sound) Listen to sounds Make sounds</p> <p>Big questions: How sounds and music make you feel? How can we change the sound? (louder/ quieter) What sounds can you hear?</p>						

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Vocabulary	grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf life cycle, senses, elderly, die (if appropriate)	natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern living, dead, similar	object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow rising, falling, attract, repel, faster, slower, pulley, gear, elastic		battery, plug, socket, electricity, wire, sound, light, move mains electricity, device, appliance, electrical light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror light source, reflective, non-reflective, dim, dimmer, dimmest	plant, leaf, stem, trunk, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil seedling, healthy, unhealthy, strong, sturdy, wilting, decay, mould, life cycle
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Reception	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Me and My Relationships <i>(Humans)</i> (Linked to scarf)</p> <ul style="list-style-type: none"> Describe people who are familiar to them 	<p>All around the world Linked to Text: Lost and Found <i>(Animals)</i></p> <ul style="list-style-type: none"> Name and describe animals that live in different habitats. Describe different habitats <p><i>Blubber experiments</i> <i>How do Penguins stay warm?</i> (Provision) <i>(Forces)</i></p> <ul style="list-style-type: none"> Explore how to change how things work Explore how the wind can move objects Explore how objects move in water <p>Floating and sinking <i>How many plastic animals fit in the boat?</i></p> <p>(Provision) <i>(Materials, including changing materials)</i></p> <ul style="list-style-type: none"> Observe, measure and record how materials change when heated and cooled Compare how materials change over time and in different conditions 	<p>(Provision) <i>(Light)</i></p> <ul style="list-style-type: none"> Explore rainbows and shadows What objects make dark shadows? How do the sun and shade change in the day? 	<p>Space Linked to Text: Astro Girl <i>(Earth and Space)</i></p> <ul style="list-style-type: none"> Learn about the Solar System and stars Learn about space travel 	<p>We are going wild! <i>(Animals)</i></p> <ul style="list-style-type: none"> Name and describe animals that live in different habitats. Describe different habitats <p>Being my Best <i>(Humans)</i> (Linked to scarf)</p> <ul style="list-style-type: none"> Learn about how to take care of themselves 	<p>Minibeasts Linked to Text: Mad about Minibeasts <i>(Living things and their habitats)</i></p> <p>Explore the plants in the surrounding natural environment</p> <ul style="list-style-type: none"> Explore the animals in the surrounding natural environment Explore plants and animals in a contrasting natural environment <p>Growing and changing <i>(Animals & Humans)</i> (linked to scarf)</p>
<p style="text-align: center;">Across the year - Cooking (Materials)</p> <p>Explore a range of materials, including natural materials Make objects from different materials, including natural materials Observe, measure and record how materials change when heated and cooled Compare how materials change over time and in different conditions</p> <p>Big questions: How does popcorn made in a microwave compare to popcorn made on a Fire? How quickly do ice cubes melt in different areas of the playground? How are pizza bases different when made with different flours? How does a loaf cook differently in different tins? How do cupcakes cook if they have different amounts of mixture?</p> <p style="text-align: center;">Phonics & Music Across the year - Provision (Sound)</p> <p>Listen to sounds outside and identify the source Make sounds</p> <p>Big questions: How does rain sound different when it lands in different containers? How does sound change when it gets closer. further away? What is making that sound?</p> <p style="text-align: center;">Seasons - Across the year - Provision (Seasonal changes)</p> <p>Play and explore outside in all seasons and in different weather Observe living things throughout the year</p> <p>Big questions: Which clothes are suitable for each season? How does a puddle change over time? How does a snowman change as it melts? How does the natural world change with the seasons?</p>						

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		<ul style="list-style-type: none"> • <i>Observe how long it takes for penguins to be rescued from ice</i> • <i>How quickly does ice change?</i> 				
<p>Vocabulary</p>	<p>hair (black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (blue, brown, green, grey), skin (black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman bald, elderly, wrinkles, male, female, freckles</p>	<p>Names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice environment, polar regions, ocean, camouflage</p> <p>float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow force, rotate, solid, liquid, gravity</p> <p>ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back solid, liquid, gas, most suited</p>	<p>Sun, sunny, light, shadow, shady, clouds, torch, see-through, non-see-through, source, light source casting a shadow, pale, dark, transparent, opaque</p>	<p>Sun, Moon, Earth, star, planet, sky, day, night, space, round, light, heavy, fall, bounce, float, rise, fall, air sunrise, sunset, astronaut, astronomer, constellation, orbit, nocturnal, slow-motion, magnify</p>	<p>Names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice environment, polar regions, ocean, camouflage</p>	<p>plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment e.g. beach, forest Environment</p>

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Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p style="text-align: center; color: red;">Forest schools</p> <p>Plants (Revisit Termly)</p> <ul style="list-style-type: none"> ● 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 <p>Note on Plants: Pupils should visit the same plants throughout the year gathering additional clues for identification.</p> <p>While learning to name and identify plants, pupils should be drawing on a range of different clues. Many plants change in appearance over the year – losing leaves, buds developing into flowers, flowers developing into seeds or berries. To ensure correct identification, all parts should be considered.</p>	<p>Everyday materials</p> <ul style="list-style-type: none"> ● 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 <p>(Revisit every term) Seasonal changes (Autumn)</p> <ul style="list-style-type: none"> ● observe changes across the four seasons ● observe and describe weather associated with the seasons and how day length varies 	<p>Everyday materials (Ex Unit)</p> <ul style="list-style-type: none"> ● 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 <p>(Revisit every term) Seasonal changes (Winter)</p> <ul style="list-style-type: none"> ● observe changes across the four seasons <p>observe and describe weather associated with the seasons and how day length varies</p>	<p>Animals including humans (Animal focus)</p> <ul style="list-style-type: none"> ● 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) <p>Plants (Revisit Termly)</p> <ul style="list-style-type: none"> ● 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 plants 	<p>Plants</p> <ul style="list-style-type: none"> ● 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 <p>(Revisit every term) Seasonal changes (Summer)</p> <ul style="list-style-type: none"> ● observe changes across the four seasons <p>observe and describe weather associated with the seasons and how day length varies</p>	<p>Animals including humans (Human focus)</p> <ul style="list-style-type: none"> ● identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>(Revisit every term) Seasonal changes (Spring)</p> <ul style="list-style-type: none"> ● observe changes across the four seasons <p>observe and describe weather associated with the seasons and how day length varies</p>

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<p>Vocabulary</p>	<p>Materials: object, material, water, wood, plastic, glass, metal, solid, liquid, solid, gas, rock, rough, smooth, bright, shiny, dull, dim, absorbent, waterproof, bendy, stiff, hard, squashing, stretching, see through (other names of materials), transparent, properties</p> <p>Seasonal: day, light, dark, weather Season, Autumn, Winter, Spring, Summer, shadow, moon, daylight, day length</p>	<p>object, material, water</p> <p>wood, plastic, glass, metal, solid, liquid, solid, gas, rock, rough, smooth, bright, shiny, dull, dim, absorbent, waterproof, bendy, stiff, hard, squashing, stretching, see through (other names of materials), transparent, properties</p>	<p>names of common animals e.g. fish, man-eaters, plant feeders, wild animals, wing, claw, beak, tail, fur, fin, feather, scales</p>	<p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud</p> <p>Names of trees in the local area</p> <p>Names of garden and wild flowering plants in the local area</p>	<p>mouth, head, body, necky, arms, eyebrows, eyelashes, legs, elbows, knees, face, eyes, ears, teeth</p> <p>names of common animals e.g. fish, man-eaters, plant feeders, habitat, wild animals, senses, hearing, seeing, touching, tasting, wing, claw, beak, tail, fur, fin, feather, scales</p>
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Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Living things and their habitats</p> <ul style="list-style-type: none"> • 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 <p>Plants:</p> <ul style="list-style-type: none"> • observe and describe how bulbs grow into mature plants <p><i>Seeds and bulbs need to be planted at different times of the year (bulbs in Autumn and seeds, generally, in Spring).</i></p>	<p>Uses of everyday materials</p> <ul style="list-style-type: none"> • 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 	<p>Animals including humans</p> <ul style="list-style-type: none"> • 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) 	<p>Forest School</p>	<p>Plants</p> <ul style="list-style-type: none"> • 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 	<p>Animals including humans</p> <p>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>

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Vocabulary	<p>living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and microhabitats studied</p>	<p>(as year 1) pushing, pulling, shape, useful, use</p> <p>man-made, natural, characteristics, properties, rigid, flexible, strong, weak, reflective, non-reflective, transparent,</p>	<p>adult, baby, toddler, child, teenager, grow, water, food, air</p> <p>Offspring, young, survival, life cycle, nutrition</p>		<p>Light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling</p> <p>Mature plant, Temperature, Germinate/germination, Pollination, Seed dispersal</p>	<p>hygiene, infection, exercise, unhealthy, healthy, nutrition</p>
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Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Animals, including humans (nutrition focus)</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat <p>Animals, including humans (movement focus)</p> <ul style="list-style-type: none"> identify that humans and some other animals have skeletons and muscles for support, protection and movement. <p>NOTE Plants: (Termly) Many plants have an annual cycle – having buds, flowers, seeds/berries at certain times in the year. Pupils should therefore visit the same plants throughout the year gathering evidence linked to their life cycle e.g. collecting seeds and taking photographs or making observational drawings for buds, flowers etc. This evidence can then be reviewed at the end of the year to</p>	<p>Light</p> <ul style="list-style-type: none"> 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 	<p>Forest schools</p> <p>Plants: (Termly)</p> <ul style="list-style-type: none"> visit the same plants throughout the year gathering evidence linked to their life cycle e.g. collecting seeds and taking photographs or making observational drawings for buds, flowers etc. 	<p>Rocks</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter 	<p>Forces and magnets</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between 2 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 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing 	<p>Plants</p> <ul style="list-style-type: none"> 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

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	exemplify a range of plants' life cycles.					
Vocabulary	<p>nutrition, nutrients, balanced diet, skeleton, muscles, protection, movement, ribs, spine, backbone, joints, sockets</p> <p>carbohydrates, protein, vitamins, minerals, fat, brain, blood vessels, heart, skull, tendons</p> <p>vertebrates, invertebrates, endoskeleton, exoskeleton</p>	<p>light, darkness, names of light sources e.g. torch, sun, mirror, sunlight</p> <p>light source, reflect, reflective, shadow, absorb, block, transparent, opaque, translucent, bright, dim, light beam, emit, spectrum</p>		<p><i>Tier 1:</i> rock, stone, pebble, soil, boulder, name of properties e.g. hard and soft, bone, flesh</p> <p><i>Tier 2:</i> absorb, fossil, grains, minerals, crystals, layers, texture, common rocks: marble, chalk, clay, granite, slate, strata, porous, permeable, impermeable, types of soil (e.g. peaty, sandy, chalk, clay)</p>	<p>push, pull, twist, magnet, strength, force, iron, steel magnetic, attract, repel, ring magnet, bar magnet, horse-shoe magnet, button magnet, newton meter, contact/non-contact force, north and south pole</p>	<p>soil, well-drained, fertiliser, nutrients, plant life cycle, seed</p> <p>seed dispersal, formation, pollination, transported</p>

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Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Living things and their habitats</p> <ul style="list-style-type: none"> 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 environments recognise that environments can change and that this can sometimes pose dangers to living things 	<p>States of matter</p> <ul style="list-style-type: none"> 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 	<p>Electricity</p> <ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors 	<p>Animals, including humans (humans focus)</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions <p>Animals, including humans (animals focus) (swapped with Living things)</p> <ul style="list-style-type: none"> construct and interpret a variety of food chains, identifying producers, predators and prey 	<p>Sound</p> <ul style="list-style-type: none"> 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 	<p>Forest Schools</p>
<p>Vocabulary</p>	<p>environment, fish, reptiles, amphibians, mammals, birds, classification keys, vertebrates, invertebrates, human impact, organism, population, deforestation, variation characteristics</p>	<p>air, powder, grain, oxygen, changing state, gaseous, particles, water vapour, water cycle, heating/cooling, degree Celsius, melt, freeze, boil, evaporation, condensation, energy transfer, solidify, boiling</p>	<p>electricity, plug, battery, wire, switch, connect, electrical device, mains, components, conductor, insulator, circuit symbol, cell, bulb, buzzer, motor, simple circuit, complete circuit, open/closed circuit, positive,</p>	<p>environment, fish, reptiles, amphibians, mammals, birds, classification keys, vertebrates, invertebrates, human impact, organism, population, deforestation, variation characteristics</p>	<p>sound, source, noise, volume, travel, insulation, loud, quiet, tune, high, low, sound source, vibrate, sound wave, pitch, echo, insulation, instrument, percussion, string, brass, woodwind, strength of vibrations</p>	

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		point, precipitation, transpiration, forces of attraction	negative, crocodile clip, series circuit, terminal			
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Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Properties and changes of materials</p> <ul style="list-style-type: none"> 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 	<p>Forces</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs 	<p>Earth and Space</p> <ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> 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 	<p>Forest schools</p>	<p>Animals Including Humans</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age.

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	<ul style="list-style-type: none"> 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 					
Vocabulary	Materials, surface, hardness, softness, durability, solubility, evaporating, reversible, irreversible, states, matter, transparency, conductivity, dissolving, mixing, solids, liquids, gases,	forces, magnetism, gravity, friction, air resistance, water resistance, buoyancy, attraction, repel, Earth, centre, float, material, surface, weight, mass, gears. pulleys, springs, movement.	Earth, gravity, mass, weight, space, movement, planets, solar system, moon, rotation, sun, universe, galaxy, space	birth, eggs, live young, life cycle, sexual reproduction, asexual reproduction, menstrual cycle, fertilisation, plantlets, runners, tubers, bulbs, cuttings, gestation, genes		Humans, people, adults, children, babies, toddlers, changes, physical, behaviour, life cycle, growth,

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Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Electricity</p> <ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram 	<p>Forest schools</p>	<p>Animals including humans</p> <ul style="list-style-type: none"> 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 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics. 	<p>Evolution and inheritance</p> <ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 	<p>Light</p> <ul style="list-style-type: none"> 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 and to predict the size of shadows when the position of the light source changes
Vocabulary	As year 4; Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage		circulatory system, blood vessels, capillaries, arteries, veins, red blood cells, white blood cells, oxygen, carbon dioxide, lungs, air sacs, ventricles, atrium, aorta, wind pipe, diaphragm, bronchi, pulmonary	organism, micro-organism, bacteria, microbes, fungus, arachnid, mollusc, insect and crustacean, vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, warm-blooded, cold-blooded, insects,	adaptation, genes, change, features, fossils, evolution, DNA, evolutionary change, inherit, inheritance, environmental conditions, natural selection, variation, reproduction, competition,	light, darkness, names of light sources e.g. torch, sun, mirror, sunlight, light source, reflect, reflective, shadow, absorb, block, transparent, opaque, translucent, bright, dim, light beam, emit, spectrum

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			vein/artery, plasma, drugs, diet, heart rate, clotting, gaseous exchange, oxygenated, deoxygenated, respiratory system, aerobic respiration, trachea, haemoglobin, bronchioles, alveoli	spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers	environmental variations, survival of the fittest, Dominance, recessive	Absorption, transmission, lenses, optics, prism, refraction, spectrum
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