

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 identifying, grouping & 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.



Our Vision and Values



At Hazelwood, we believe in nurturing responsible citizens to achieve educational excellence by inspiring awe and wonder through a real, relevant, immersive and purposeful curriculum.


Respect


Kindness


Resilience


Responsibility


Courage


Appreciation & Understanding


Ambition


Creativity


Teamwork


Trust


Honesty


Fairness

Our shared values are at the heart of all we do.

Believe and Achieve



Implementation

At Hazelwood, although we make meaningful links to other curriculum areas, Science is taught discretely every week. Using the National Curriculum objectives, Opening Worlds Curriculum 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 identifying, classifying & grouping.**
- 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 scientifically 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 objective and working scientifically skill 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 Insight.
- Summative assessment is recorded termly on Insight. Identifying those working at GD, 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 KMRM 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!"

Hazelwood schools –Science Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	All about Me Linked texts - Owl Babies (Living things and their Habitats, Humans) - Explore the surrounding natural environment - Explore natural objects from the surrounding environment <i>what we see our environment (school and home)</i> <i>what we see when I play outside such as splashing in puddles or digging in mud</i> <i>Use senses to explore small world to make links to word they have seen (animals zoo/ farm?)</i> Me and my relationships (Humans) (Linked to scarf) Marvellous Me - Learn about how to take care of themselves - Learn about their senses	In our World Linked texts -We are going on a Leaf Hunt, Handa’s Surprise (Living things and their Habitats, Humans) - Explore the surrounding natural environment - Explore natural objects from the surrounding environment <i>Use senses to explore the world around</i> <i>explore how things work (how to use Nursery equipment)</i>	Exploring forces (provision) (Forces) - Feel forces - Explore how things work - Explore how objects/materials are affected by force - Gravity - Cars, balls and guttering - Water - Wind		Exploring Light – In provision (Light & Electricity) - Exploring Torches & battery powered toys - Shining light through different materials (linked to computing)	Growing & Changing 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 - 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
	<u>Cooking Across the year (Materials)</u> - Explore a range of materials - Shape and join materials - Combine and mix ingredients - Change materials by heating and cooling, including cooking <u>Music and Phonics Across the year (sound)</u> - Listen to sounds - Make sounds					

Hazelwood schools –Science Curriculum Overview

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
	<u>Me and My Relationships</u> <i>(Humans)</i> (Linked to scarf) Describe people who are familiar to them	<u>All around the world</u> Linked to Text: Lost and Found <i>(Animals)</i> - Name and describe animals that live in different habitats. - Describe different habitats <u>(Provision)</u> <i>(Forces)</i> - Explore how to change how things work - Explore how the wind can move objects - Explore how objects move in water <u>Floating and sinking</u> - How many plastic animals fit in the boat? (Provision) <i>(Materials, including changing materials)</i> - Observe, measure and record how materials change when heated and cooled - Compare how materials change over time and in different conditions - Observe how long it takes for penguins to be rescued from ice	<u>(Provision)</u> <i>(Light)</i> - Explore rainbows and shadows - What objects make dark shadows? - How do the sun and shade change in the day?	<u>Space</u> Linked to Text: Astro Girl <i>(Earth and Space)</i> - Learn about the Solar System and stars - Learn about space travel	<u>We are going wild!</u> <i>(Animals)</i> - Name and describe animals that live in different habitats. - Describe different habitats <u>Being my Best</u> <i>(Humans)</i> (Linked to scarf) - Learn about how to take care of themselves	<u>Minibeasts</u> Linked to Text: Mad about Minibeasts <i>(Living things and their habitats)</i> Explore the plants in the surrounding natural environment - Explore the animals in the surrounding natural environment - Explore plants and animals in a contrasting natural environment <u>Growing and changing</u> <i>(Animals & Humans)</i> (linked to scarf)
			<u>Across the year - Cooking (Materials)</u> - 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 <u>Phonics & Music Across the year - Provision (Sound)</u> - Listen to sounds outside and identify the source - Make sounds <u>Seasons - Across the year - Provision (Seasonal changes)</u> - Play and explore outside in all seasons and in different weather - Observe living things throughout the year			

Hazelwood schools –Science Curriculum Overview

		How quickly does ice change?				
Vocabulary	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	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 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 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	Sun, sunny, light, shadow, shady, clouds, torch, see-through, non-seethrough, source, light source casting a shadow, pale, dark, transparent, opaque	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	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	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

Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Forest Schools Biology (Revisit every term) Seasonal changes (Autumn) - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies	Plants (Revisit Termly) - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Animals including humans (Human focus) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Revisit every term) Seasonal changes (Winter) - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies	Animals including humans (Animal focus) - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Animals including humans (Animal focus) - Identify and name a variety of common animals that are carnivores, herbivores and omnivores (Revisit every term) Seasonal changes (Spring) - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies	Plants - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees - Identify and describe the basic structure of a variety of common flowering plants, including trees <u>Note on Plants:</u> Pupils should Visit the same plants throughout the year gathering additional clues for identification. 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 –	Everyday materials - 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 Seasonal changes (Summer) - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies
Vocabulary	Seasonal changes seasons spring summer autumn winter months leaves windy cloudy crunchy weather	Plants tree trunk branch evergreen leaves Animals including humans (Human focus) Arms Elbow Feet Knee Legs Mouth Neck Teeth Hearing	Animals including humans (Animal focus) mammal fur milk babies birth lungs breathe bird feathers wings beak eggs fly walk swim fish scales fins gills scales land cold-blooded sun warm eggs amphibian moist	Animals including humans (Animal focus) food meat plants products supermarket grow herbivore plants grind crush teeth leaves carnivore meat hunt sharp catch prey omnivore both choice snout seeds peck ocean seaweed coral gills fins	Plants plant wild garden look feel smell root stem leaf flower flower petals stem blossom seed sprout bud grow light soil air fruit	Everyday materials bendy firm hard press shape soft squash stiff bumpy feel grip rough scratch slippery smooth touch absorbent drip dry soak waterproof wet bright dull light shine shiny sparkle choice see-through

Hazelwood schools –Science Curriculum Overview

		Sight Smell Taste Touch Close Eyes Far Magnify See Ears Hear Loud Quiet Sound Salty Sour Sweet Tongue Rough Skin Smooth Soft Seasonal changes winter frost hibernate ice bare den	eggs jelly gills lungs tadpole frog change fish scales fins gills swim eggs water nests habitat skin	underwater unusual special different surprising strange shrimp Seasonal changes spring blossom buds warmer rainy babies		Seasonal changes temperature sunshine daylight summer shadow thermometer seasons weather daylight pattern change favourite
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Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Living things and their habitats - explore and compare the differences between things that are living, dead, and things that have never been alive - 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 Plants: - observe and describe how seed and bulbs grow into mature plants <i>Seeds and bulbs need to be planted at different times of the year (bulbs in Autumn and seeds, generally, in Spring).</i>	Plants: - observe and describe how seed and bulbs grow into mature plants Uses of 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. - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching - 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	Animals including humans - notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Forest School	Plants observe and describe how seeds and bulbs grow into mature plants - find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Animals including humans describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

Hazelwood schools –Science Curriculum Overview

Vocabulary	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	(as year 1) pushing, pulling, shape, useful, use man-made, natural, characteristics, properties, rigid, flexible, strong, weak, reflective, non-reflective, transparent,	adult, baby, toddler, child, teenager, grow, water, food, air Offspring, young, survival, life cycle, nutrition		Light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling Mature plant, Temperature, Germinate/germination, Pollination, Seed dispersal	hygiene, infection, exercise, unhealthy, healthy, nutrition
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Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Rocks - compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - describe in simple terms how fossils are formed when things that have lived are trapped within rock - recognise that soils are made from rocks and organic matter	Light - recognise that they need light in order to see things and that dark is the absence of light - notice that light is reflected from surfaces - recognise that light from the sun can be dangerous and that there are ways to protect their eyes - recognise that shadows are formed when the light from a light source is blocked by an opaque object - find patterns in the way that the size of shadows change	Forest schools Plants: (Termly) 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.	Animals, including humans (nutrition focus) - 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 Animals, including humans (movement focus) - identify that humans and some other animals have skeletons and muscles for support, protection and movement. 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	Forces and magnets - 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	Plants - identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant - investigate the way in which water is transported within plants - explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Hazelwood schools –Science Curriculum Overview

				exemplify a range of plants' life cycles.		
Vocabulary	crust meteorites minerals granite igneous metamorphic mineralogist porosity properties sedimentary talc crystal lava magma obsidian pumice boulder continents Fossils meteorologist paleontologist pebble sediment gneiss metamorphic pressure temperature bedrock humus Silt topsoil waterlogged	absence bioluminescence Celsius mirror reflect blocked shadow position astronomer iris pupil project astronaut binoculars curved optician telescope lens image opaque translucent transparent aluminium dull scattered		carnivore consumer herbivore omnivore pescatarian producer vegan vegetarian carbohydrates fats minerals proteins scurvy vitamins hibernate obesity starvation collagen fracture leukaemia osteoporosis exoskeleton biceps contract gluteus maximus muscle tendon triceps	biomechanics contractions physiotherapy tendons air resistance arthritis cartilage contact friction lubricant non-contact streamlined water resistance attract electrostatic force gravity levitation magnetic force magnetic field pole repel tides cobalt iron lodestone MRI scan nickel steel ball magnet bar magnet cylinder magnet disc magnet horseshoe magnet compass	absorb botanist carbon dioxide deciduous evergreen flowers herbalist leaf (leaves) nutrients root stem trunk anther carpel filament nectar ovary pollen stamen stigma style egg dispersal fertilisation pollination seed scent adaptations fertiliser magnesium nutrients atmosphere drop evaporate wilt dormant germination mature seedling investigation aim equipment evaluation measure method observation prediction reliable temperature

Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Living things and their habitats - recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environments - recognise that environments can change and that this can sometimes pose dangers to living things	States of matter - compare and group materials together, according to whether they are solids, liquids or gases - observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Electricity - 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	Animals, including humans (humans focus) - 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 Animals, including humans (animals focus) (swapped with Living things) - construct and interpret a variety of food chains, identifying producers, predators and prey	Sound - identify how sounds are made, associating some of them with something vibrating - recognise that vibrations from sounds travel through a medium to the ear - find patterns between the pitch of a sound and features of the object that produced it - find patterns between the volume of a sound and the strength of the vibrations that produced it - recognise that sounds get fainter as the distance from the sound source increases	Forest Schools
Vocabulary	characteristics conifer fern fronds invertebrates moss non-flowering plants properties spores vertebrates amphibians blowhole pooter sweep net deforestation endangered extinct nature reserve slash-and-burn	States matter carbon monoxide gas liquid plasma solid sulphur dioxide melting melting point tungsten antifreeze bacteria freezing freezing point frostbite evaporation sweat sweat glands water vapour cloud	charge electrostatic forces flows nerves static electricity acid rain appliances circuit current electricity fossil fuels nuclear power pollution renewable energy battery bulb buzzer cell components motor switch voltage	carnivore consumer herbivore omnivore predator prey producer food chain microplastics canines enamel incisors molars premolars salivary glands taste buds umami cellulose fibre indigestion heartburn	audiologist auditory nerve cochlea ear canal eardrum hearing impairment pinna brass string woodwind vibration vocal cord echoes medium particle wave audible range echolocation hertz pitch sonar	

Hazelwood schools –Science Curriculum Overview

	blubber cold-blooded gills mucus shiver warm-blooded abdomen antennae cocoons colonies compound eyes entomologist thorax	condensation dew fog fungi precipitation	conductor insulator electric shock electrocuted hazards radioactive carbon monoxide generator	ruminant ulcer anus appendix colon constipated dehydration diarrhoea faeces flatulence gut flora lactose probiotics rectum	ultrasonography ultrasound amplifier decibel	
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Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Properties and changes of materials - compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - demonstrate that dissolving, mixing and changes of state are reversible changes	Forces - explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - identify the effects of air resistance, water resistance and friction, that act between moving surfaces - understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs	Earth and Space - Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. - Describe the movement of the Moon relative to the Earth. - Describe the Sun, Earth and Moon as approximately spherical bodies. - Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	Living things and their habitats - describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird - describe the life process of reproduction in some plants and animals	Forest schools	Animals Including Humans Describe the changes as humans develop to old age.

Hazelwood schools –Science Curriculum Overview

	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	ceramics durability silica silicon synthetic conductors thermal insulators acetone alloy dissolved soluble solution solvent fracking insoluble polymers reversible suspension filtering microplastics sieve boulder alkali bicarbonate irreversible neutralisation phlogiston	catapults grit trebuchets synovial fluid aerodynamics drag mechanical engineer streamlined marine engineer mass clutch effort fulcrum gear lever load	asteroid celestial bodies comet elliptical galaxy orbit sphere universe axis rotation crescent gibbous phase satellite sundial geocentric scholar heliocentric	mammary glands marsupials offspring camouflaged clusters embryo frog spawn metamorphosis tadpole cocoon entomologist larva/larvae (plural) moulting nymph parasites pupa/pupae (plural) scabies down egg tooth incubated asexual fertilisation ovaries ovules testes variation bulb/cutting clone plantlet regenerate tuber		Milestones adolescent gestation period alzheimers dementia elastic

Hazelwood schools –Science Curriculum Overview

Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Living things and their habitats describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.	Forest schools	Animals including humans - identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood - recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function - describe the ways in which nutrients and water are transported within animals, including humans	Light - recognise that light appears to travel in straight lines - use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes - use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them and to predict the size of shadows when the position of the light source change	Electricity - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches - use recognised symbols when representing a simple circuit in a diagram	Evolution and inheritance - recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
Vocabulary	adaptation invertebrates vertebrates algae bacteria fungi microorganisms protozoa viruses conifers ferns moss spores pooter Euglena taxonomist Carl Linnaeus classification taxonomy		cardiac muscle circulatory system valves arteries blood pressure capillaries tourniquet veins varicose veins plasma platelet red blood cells white blood cells cholesterol stroke anaemia disorder haemophilia sickle cell leukaemia	ray surgeon opaque translucent transparent periscopes distort absorb	circuit component insulator lithium switch voltage electrical engineers shaft circuit diagrams symbol diagrams electric shock risk assessment surge protector amber	genes offspring species variation adaptation natural selection reproduction camouflage saline amber fossils Mary Anning Charles Darwin evolution Alfred Wallace



Hazelwood schools –Science Curriculum Overview