Cogenhoe Primary School

Science

Inspire. Aspire. Achieve.

Inspiring a life-long commitment to learning

School vision

Inspire - 'Inspire' to provide our pupils with an engaging, bespoke curriculum which fosters a desire to keep learning because "education is not the filling of a pail, but the lighting of a fire".

Aspire - 'Aspire' to ignite our pupils with dreams and aspirations that they know are within their reach.

Achieve - 'Achieve' is to ensure that all of our pupils successfully reach their academic goals through sheer hard work, determination and persistence.

Curriculum Vision – Science

To know about the world – to learn the processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.

To have high levels of oracy – children will be able to discuss and question observations, tests and experiments built with practical hands-on experiences that encourage a deeper understanding and curiosity with questioning

To have ambition – children will be given the tool set to challenge themselves. Our objective is to provide lessons which consolidate prior knowledge, encourage deeper understanding and that are rooted in scientific vocabulary.

A secure understanding of knowledge and concepts using technical terminology accurately and precisely

The ability to seek answers to questions through collecting, analysing and present data

An understanding of the uses and implications of science, for today and the future

The vision is achieved through studying the key concepts.

Science Key Concepts:

Science Intent:

At Cogenhoe, our stimulating, innovative Science curriculum is designed to ensure that all of our children, no matter what their ability, are exposed to a set of skills that will not only equip them with the knowledge and understanding of all aspects of Science but will enable them to have an awareness of the world around them. Our engaging, well sequenced Science lessons create curious pupils who ask questions and challenge theories. Teachers continue to build on key concepts yearly in order to ensure tht learning has formed in their long term memory.

Science Implementation:

The children are taught discrete Science for a minimum of two hours per week covering subjects such as materials, physical processes, life processes and living things; all alongside being shown how to use scientific skills, investigative skills and questioning.

The children are taught in a range of practical ways, to guarantee that they have been exposed to a variety of different Scientific enquiries.

Children have the opportunity to learn through taking part in practical, hands on tasks and experiments, observing and questioning. Investigations will be reinforced with knowledge and understanding that they have gained from the experience. They have the opportunity to implement their own investigations right from Reception. Children also have the chance to carry on their passion for Science outside of school as Cogenhoe work in partnership with outside Scientists who undertake termly Science clubs for children that want to explore their interest further.

Science Impact:

Our pupils consistently achieve the learning intentions set out for them at the end of a taught unit and at the end of a school year. Assessment is tracked consistently throughout individual lessons and during school assessment weeks. Our Science books and whole class floor books clearly demonstrate the breadth of learning and exploration which has taken place. Our pupils are able to clearly talk about their learning previously and how it has helped to prepare them for future learning. Our children love Science; they feel challenged and excited by the learning that is on offer to them at Cogenhoe.

EYFS Development Matters

Explore the natural world around them.

Describe what they see, hear and feel whilst outside.

Recognise some environments that are different from the one in which they live.

Understand the effect of changing seasons on the natural world around them.

National Curriculum Threads KS1

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

National Curriculum Threads LKS2

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

National Curriculum Threads UKS2

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting 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
- identifying scientific evidence that has been used to support or refute ideas or arguments

Reception	**Autumn 1** My body	**Autumn 2** Seasons	**Spring 1** Growing	**Spring 2** Life cycles	**Summer 1** Marine life	**Summer 2** Mini beasts & habitat
Vocabulary	herbivore face carnivore hair omnivore leg human knee animal arm fish elbow birds back head toes ear hands eye fingers mouth nose tree petals trunk fruit branch roots leaves bulb flowers seed stem material metal wood rock plastic hard glass soft paper fabric material smooth shiny rough Summer day Spring dark autumn light Winter night Season Moon Sun Earth Moon Planet space Sun star loud quiet volume sound					
Focus/skill	• Discussions around snack time and lunch time - healthy eating choices. • Discussions around healthy living choices including: washing hands, brushing teeth, eating and exercise. • Story time and circle time to explore books focusing on staying healthy and the human body:	• Exploring school's grounds and observing seasonal changes • Exploring natural resources in Tuff Tray, asking questions and making/drawing observations. • Explore hibernation and migration, looking at contrasting environments/animals around the world	• Observe, question and draw spring plants/spring growth. • Planting seeds and plants • Discover, compare and contrast food produce/grown in different climates around the world. • - Draw pictures of parts of a sunflower using magnifying glasses to look at main features such as	• If possible put frogspawn in a tank in the classroom and watch it turn into frogs. Have children draw pictures of each phase (emphasise how the children must treat the tank with care) – • Look at the life cycle of a butterfly • Look at the lifecycle of a frog	• Looks closely at similarities, differences, patterns and change in nature • Knows about similarities and differences in relation to places, objects, materials and living things • Talks about the features of their own immediate environment and how environments might	• Shows care and concern for living things and the environment • Explore hibernation and migration, looking at contrasting environments/animals around the world •

	Funnybones, Germs and The Little Book of Manners. • Naming body parts through songs: if you're happy and you know it and head, shoulders, knees and toes… • RSE link autumn 2 – naming body parts. • Talking about our pets at home and drawing out pets in our family portraits.	• Explore harvest time in the UK and farming at harvest time. • Observe seasonal weather changes and longer nights in the autumn compared to the summer.	petals, leaves and stem.		vary from one another Makes observations of animals and plants and explains why some things occur, and talks about changes.	
EYFS statements						
Year 1	**Autumn 1** Materials	**Autumn 2** Plants	**Spring 1** Plants cont	**Spring 2** Animals including humans	**Summer 1** Animals including humans cont	**Summer 2** Weather and seasons
Vocabulary	Everyday materials Material, object, wood, plastic, glass, metal, water, rock, brick, paper, fabrics, elastic, foil, properties, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, waterproof, not waterproof, absorbent, nonabsorbent	Plants Common, wild plants, garden plants, deciduous, evergreen, plant, leaf, root, leaves, bud, flowers, blossom, petals, root, stem, tree, trunk, branches, leaf, root, fruit, vegetables, bulb, seed		Animals including humans Fish, amphibians, reptiles, birds, mammals, pets, tongue, nose, eyes, ears, skin, taste, smell, sight, touch, hear, head, legs, eyes, neck, knees, hair, arms, face, mouth, elbows, ears, teeth, carnivore, omnivore, herbivore, meat, plants, names of animals		Season, month, summer, autumn, winter, spring, day, daytime, sun, day, length, weather, wind, rain, snow, hail, sleet, fog, sun, hot, burn, warm, cold, animals, plants, trees, flowers, leaves, adapting, hibernating, migrating
Working scientifically	Working scientifically Question, answer, observe, observing, equipment, identify, classify, sort, diagram, chart, map, data, compare, contrast, describe, biology, chemistry, physics, group, record					
Links to prior learning	-	**Spr 1 Rec**		**Spr 1, Sum 1 Sum 2 Rec**		**Aut 2 Rec**
Focus/skill	**Pupils should be taught to:**	**Pupils should be taught to:**		**Pupils should be taught to:** • identify and name a variety of		**Pupils should be taught to:**

	• 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 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.		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.		• observe changes across the 4 seasons; • observe and describe weather associated with the seasons and how day length varies.
Year 2	**Autumn 1** Materials	**Autumn 2** Space	**Spring 1** Animals including humans	**Spring 2** States of matter	**Summer 1** Habitats	**Summer 2** Habitats
Vocabulary	Material, object, wood, metal, plastic, glass, brick, rock, paper, cardboard, rubber, squash, bend, twist, stretch, waterproof fabric, macadamisation	Earth, sun, moon, space, planets, stars, solar system, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, rotate, day, night, orbit	Offspring, grow, adults, survival, water, food, air, exercise, hygiene, nutrition, reproduce, egg, chick, chicken, egg, caterpillar, pupa, butterfly, spawn, tadpole, frog, lamb,	Solid, solidify, ice, melt, freeze, liquid, evaporate, condense, gas, heated, heat, cooled, cool, degrees Celsius, thermometer, temperature, melting, warm, cool, water, water vapour	Animals including humans Offspring, grow, adults, survival, water, food, air, exercise, hygiene, nutrition, reproduce, egg, chick, chicken, egg, caterpillar, pupa, butterfly, spawn, tadpole, frog, lamb, sheet, baby, toddler, child, teenager, adult	

			sheet, baby, toddler, child, teenager, adult			
Working scientifically	Working scientifically Question, answer, observe, observing, equipment, identify, classify, sort, diagram, chart, map, data, compare, contrast, describe, biology, chemistry, physics, group, record					
Links to prior learning	**Aut 1 Yr 1**	**-**	**Spr 1 Sum 1 Yr 1**	**-**	**Sum 2 Rec**	
Focus/skill	**Pupils should be taught to:** • 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.	**Pupils should be taught to:** • name the planets • Look at movement of the planets • Explore day and night • Research the moon	**Pupils should be taught to:** • 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.	**Pupils should be taught to:** • Explore what solids, liquids and gases are • Be able to group them • Explore melting and freezing	**Pupils should be taught to:** • 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.	
Year 3	**Autumn 1** Rocks	**Autumn 2** Light	**Spring 1** Plants	**Spring 2** Animals & humans	**Summer 1** Forces	**Summer 2** Catch up time
Vocabulary	Rocks Rock, appearance, physical,	Light, see, dark, reflect, surface,	Plants common, wild plants, garden plants,	Animals including humans Nutrition,	Forces and magnets Force, push, pull,	

	properties, hard, soft, shiny, dull, rough, smooth, absorbent, nonabsorbent, fossils, sedimentary, soils, organic matter, buildings, gravestones, grains, crystals	natural, star, moon, sun, shadow, blocked, solid, artificial, torch, candle, lamp, sunlight, dangerous, protect eyes	deciduous, evergreen, leaf, root, leaves, bud, flowers, blossom, petals, root, stem, trunk, branches, leaf, root, fruit, vegetables, bulb, seed, water, light, suitable, temperature, germination, reproduction, grow, healthy, structure, flowering plants, nutrition, support, air, light, water, soil, grow, varying needs, fertiliser, flowers, pollination, seed formation, seed dispersal, life cycle	nutrients, carbohydrates, protein, fats, fibre, water, vitamins, minerals, skeleton, bones, joints, endoskeleton, exoskeleton, hydrostatic, skeleton, vertebrate, invertebrate, contract, relax, muscles, ball joint, socket joint, hinge joint, gliding joint	open, surface, magnet, magnetic, attract, repel, magnetic poles, North, South	
Working scientifically	Research, relevant, questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate, measurements, data, gather, record, classify, present, record, drawings, labelled diagrams, keys, bar charts, tables, oral and written explanations, conclusion, predictions, differences, similarities, changes, evidence, improve, secondary sources, guides, keys, construct, interpret, thermometer, data logger					
Links to prior learning	-	-	**Aut 2 Spr 1 Yr 1**	**Spr 1 Yr 2**	-	
Focus/skill	**Pupils should be taught to:** • compare and group together different kinds of rocks on the basis of their appearance and simple physical properties;	**Pupils should be taught to:** • 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;	**Pupils should be taught to:** • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers;	**Pupils should be taught to:** • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition	**Pupils should be taught to:** • compare how things move on different surfaces; • notice that some forces need contact between 2 objects, but magnetic forces	

	• 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	• 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.	• 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.	from what they eat; • identify that humans and some other animals have skeletons and muscles for support, protection and movement.	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.	
Year 4	**Autumn 1** Sound	**Autumn 2** States of matter	**Spring 1** Animals including humans	**Spring 2** Electricity	**Summer 1** Living things and their habitats	**Summer 2** Catch up time
Vocabulary	Vibrate, vibration, vibrating, air,	States of matter Solid, solidify, iron, ice, melt,	Animals including humans Human	Electricity Appliances, electricity, electrical	Living things and habitats Environment,	

	medium, ear, hear, sound, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate	freeze, liquid, evaporate, condense, gas, container, changing state, heated, heat, cooled, cool, degrees Celsius, thermometer, water cycle, evaporation, condensation, temperature, melting, warm, cool, water, water vapour	digestive system, digestion, mouth, tongue, mixes, moistens, saliva, oesophagus, transports, stomach, acid, enzymes, small intestines, colon, absorbs, compacts, teeth, incisors, cutting, slicing, canines, ripping, tearing, molars, chewing, grinding, floss, brush, food chain, sun, producers, prey, predators, carnivore,	circuits, cell, wire, bulb, buzzer, danger, electrical safety, sign, insulators, conductors, switch, open, closed	flowering, non-flowering, plants, animals, vertebrate, danger, fish, amphibians, reptiles, birds, mammals, invertebrate, snails, slugs, worms, spiders, insects, grasses, mosses, ferns, human impact, positive, negative, nature reserve, ecologically planned parks, garden ponds, population, development, litter, deforestation	
Working scientifically	Research, relevant, questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate, measurements, data, gather, record, classify, present, record, drawings, labelled diagrams, keys, bar charts, tables, oral and written explanations, conclusion, predictions, differences, similarities, changes, evidence, improve, secondary sources, guides, keys, construct, interpret, thermometer, data logger					
Links to prior learning	-	**Spr 2 Yr 2**	**Spr 2 Yr 3**	-	**Yr 2 Sum 1**	
Focus/skill	**Pupils should be taught to:** • identify how sounds are made, associating some of them with something vibrating; • recognise that vibrations from sounds travel through a	**Pupils should be taught to:** • compare and group materials together, according to whether they are solids, liquids or gases; • observe that some materials change state when they are	**Pupils should be taught to:** • 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;	**Pupils should be taught to:** • identify common appliances that run on electricity; • construct a simple series electrical circuit, identifying and naming its basic parts, including cells,	**Pupils should be taught to:** • 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	

	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.	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.	• construct and interpret a variety of food chains, identifying producers, predators and prey.	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.	things in their local and wider environment; • recognise that environments can change and that this can sometimes pose dangers to living things. -	
Year 5	**Autumn 1** Space	**Autumn 2** Materials	**Spring 1** Animals including humans	**Spring 2** Living things and their habitats	**Summer 1** Forces	**Summer 2** Catch up time

Vocab	Earth, sun, moon, space, planets, stars, solar system, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, rotate, day, night, Aristotle, Ptolemy, Galileo, Copernicus, Brahe, Alhazen, orbit, axis, spherical, heliocentric, geocentric, hemisphere, season, tilt	Properties, hardness, solubility, transparency, electrical conductor, thermal conductor, magnetic, dissolve, solution, separate, separating, solids, liquids, gases, evaporating, reversible changes, dissolving, mixing, evaporation, filtering, sieving, melting, irreversible, new material, burning, rusting, magnetism, electricity, chemists, quantitate, measurements, conductivity, insulation, chemical	Living things and habitats Life cycles, mammal, amphibian, insect, bird, life processes, plants, animals, vegetable garden, flower border, animal naturalists, animal behaviourists, reproduction, sexual, asexual, rainforest, oceans, deserts, prehistoric, similarities, differences	Animals including humans Puberty, life cycle, gestation, growth, reproduce, foetus, baby, fertilisation, toddler, child, teenager, adult, old age, life expectancy, adolescence, adulthood, early adulthood, middle adulthood, late adulthood, childhood	Forces gravity, air resistance, water, resistance, friction, surface, force, effect, move, accelerate, decelerate, stop, change direction, brake, mechanism, pulley, gear, spring, theory of gravitation, Galileo Galelei, Isaac Newton	
Working scientifically	plan, variables, measurements, accuracy, precision, repeat readings, record data, scientific diagrams, labels, classification keys, tables, scatter graphs, bar graphs, line graphs, predictions, further comparative and fair tests, report and present conclusions, causal relationships, explanations, degree of trust, oral and written display and presentation, evidence, support ideas, refute arguments, identify, classify, describe, patterns, systematic, quantitative, measurements					
Links to prior learning	**Aut 2 Yr 2**	**Aut 1 Yr 2**	**Spr 1 Yr 4**	**Sum1 Yr 4**	**Sum1 Yr 3**	
Focus/skill	**Pupils should be taught to:** • describe the movement of the Earth and other planets relative to the sun in the solar system; • describe the movement of the	**Pupils should be taught to:** • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity	**Pupils should be taught to:** • describe the changes as humans develop to old age.	**Pupils should be taught to:** • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird; • describe the life process of	**Pupils should be taught to:** • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object;	

	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.	(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		reproduction in some plants and animals.	• 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.	

		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.				
Year 6	**Autumn 1** Electricity	**Autumn 2** Light	**Spring 1** Animals including humans	**Spring 2** Living things and habitats	**Summer 1** Evolution and inheritance	**Summer 2**
Vocabulary	Electricity voltage, brightness, volume, switches, danger, series circuit, safety, sign, circuit diagram, switch, bulb, buzzer, motor, recognised, symbols	light, travel, straight, reflect, reflection, light source, object, shadows, mirrors, periscope, rainbow, filters	Animals including humans Internal organs, heart, lungs, liver, kidney, brain, skeletal, skeleton, muscle, muscular, digest, digestion, digestive, circulatory system, heart, blood vessels, blood, impact, diet, exercise, drugs, lifestyle, nutrients, water, damage, drugs, alcohol, substances	Classify, compare, Linnaean, Carl Linneus, classification, domain, kingdom, phylum, class, order, family, genus, species, characteristics, vertebrates, invertebrates, microorganisms, organism, flowering, nonflowering	Evolution, inheritance, inherited traits, adapted traits, natural selection, inheritance, Charles Darwin, DNA, genes, variation, parent, offspring, fossil, environment, habitat, fossilisation, plants, animals, living things	
Working scientifically	plan, variables, measurements, accuracy, precision, repeat readings, record data, scientific diagrams, labels, classification keys, tables, scatter graphs, bar graphs, line graphs, predictions, further comparative and fair tests, report and present conclusions, causal relationships, explanations, degree of trust, oral and written display and presentation, evidence, support ideas, refute arguments, identify, classify, describe, patterns, systematic, quantitative, measurements					

Links to prior learning	Spr 1 Yr 4	Aut 2 Yr 3	Spr 1 Yr 5	Spr 2 Yr 5	-	
Focus/skill	**Pupils should be taught to:** • 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.	**Pupils should be taught to:** • 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.	**Pupils should be taught to:** • 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.	**Pupils should be taught to:** • 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.	**Pupils should be taught to:** • 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.	