Science

Curriculum Overview

Year Group Progression	Guidance Areas	Autumn		Spring		Summer	
		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
EYFS	Key Knowledge themes	Harvest Festival, Seasonal changes, New life (plants and animals), Animals and their habitats, Sport, My family, Local area, Foods and their origins, Exploring materials, Climate change, Electricity and forms of technology, Growing up and moving on, Hygiene and hand washing,					
	Key skills	**Explore** the natural world around them. **Describe** what they can see, hear, and feel. **Understand** the effects of the changing seasons on the natural world around them. **Talk** about members of their family and community. **Recognise** similarities and differences between life in this country and others. **Know** and **talk** about the factors that support their health and well being (healthy eating, physical activity, tooth brushing, screen time, sleep, being safe near roads)					
Year 1	Topic/Focus	**Plants**	**Animals, including humans**	**Animals, including humans**	**Plants**	**Everyday materials**	**Seasonal Changes**
	Key knowledge	**Common plants** - oak tree, beech tree, daisies, dandelions, buttercups, nettles and clover **Parts of plants** - roots, stem, leaves, flower, trunk, bark **Trees** - deciduous and evergreen	**Five senses –** see, hear, touch, smell, taste **Human body parts –** nose, ear, eye, face, leg, foot, ankle, knee, toe, arm, hand, finger, thumb, head, neck, elbow, hair, tongue	**Common animals –** from the following vertebrate groups: fish, reptile, amphibian, bird, mammal **Features of different common animals –** carnivore, omnivore, herbivore, feathers, scales, fur, hair, habitat, pets, wild, rough, smooth	**Common plants** - oak tree, beech tree, daisies, dandelions, buttercups, nettles and clover **Parts of plants** - roots, stem, leaves, flower, trunk, bark **Trees** - deciduous and evergreen	**Everyday materials -** materials; properties; brick; wood; plastic; metal; fabric; wool; foil; elastic; man made; natural; object. **Properties of materials** - hard; soft; stretchy; elastic; stiff; shiny; dull; rough; smooth; bendy; not bendy; flexible; solid; liquid; waterproof; absorbent; not absorbent;	**Seasons –** Autumn, Winter, Spring, Summer **Weather –** sun, rain, wind, snow, hail, cloud, partly cloudy, temperature, fog, ice, frost, cool, warm, blizzard, sleet, mist, thunder, lightening
	Key skills	**Classify** plants using charts **Observe** changes in plants over time **Research** common wild and garden plants.	**Identify** senses and associated body parts **Explore** how senses are heightened when one is removed.	**Compare** animals according to their diet **Explain** the differences between carnivores, herbivores and omnivores.	**Observe** changes in plants over time.	**Explain** what materials objects are made from. **Compare** everyday materials **Group** everyday materials using their properties.	**Observe and describe** the four seasons and plants during the four seasons. **Observe** the change in daylight hours. **Observe and describe** the weather.
Year 2	Topic/Focus	**Living Things and their habitats**	**Plants**	**Use of everyday materials**	**Plants**	**Animals, including humans**	**Plants**
	Key knowledge	**Plants and animals in their habitats**, including those in microhabitats **Producers and prey in food chains**	**Life cycle of a plant –** germination, growth, flowering, seed production	**Everyday materials –** metal, plastic, wood, paper, glass, clay, rock, fabric, sand **Properties of materials –** hard, soft, rough, smooth, shiny, dull, bendy, waterproof, absorbent, non-absorbent, strong, weak, magnetic, non-magnetic, transparent, opaque, translucent **How the shape of materials can be changed** – bake, bend, twist, stretch, squash, heat, cool, freeze, melt, boil	**Life cycle of a plant –** germination, growth, flowering, seed production	**Life cycles of common animals –** **Human -** parent, baby, toddler, child, teenager, adult, mature, elderly, **Chicken** - egg, chick, chicken **Butterfly** - egg, caterpillar, pupa, butterfly **Frog** - spawn, tadpole, frog **Sheep** - lamb, sheep **Balanced diet -** food plate/pyramid, proteins, fats, carbohydrates, fibre, minerals, vitamins, sugary foods, dairy foods, energy,	**Life cycle of a plant –** germination, growth, flowering, seed production

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		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
						taste, sweet, sour, salty **Basic needs for survival –** water; air; oxygen, food, safety; habitat	
	Key skills	**Compare and classify** things that are living, dead, and those that have never been alive **Explain** how animals are suited to their habitats **Describe** how animals in the same habitat depend on each other for survival	**Identify and describe** the conditions needed for a plant to grow and be healthy	**Compare** how suitable some everyday materials are for different uses **Explore** how the shape of materials can be changed	**Identify and describe** the conditions needed for a plant to grow and be healthy	**Compare** the lifecycles of common animals **Explain** the importance of exercise to keep a healthy lifestyle **Explain** the impact of poor hygiene – germs, bacteria, diseases, bugs, infection	**Identify and describe** the conditions needed for a plant to grow and be healthy **Observe and compare** plants across the seasons
Year 3	**Topic/Focus**	**Plants**	**Animals, including humans**	**Light**	**Rocks**	**Forces and magnets**	
	Key knowledge	**Function of parts of a plant -** Roots and stem (nutrition and support), leaves (nutrition) and flowers (reproduction) **Water transportation around plant** **Pollination** **Fertilisation**	**Food groups -** protein (food for growth), fats & carbohydrates (foods for activity), vitamins, minerals and fibre (foods for health) **Skeleton –** vertebrate, vertebrae, invertebrate, ribs, skull, bones, spine, joints, femur, patella, tibia, fibula, radius, ulna, digits, tarsals, humerus, clavicle, scapula, skull, spine **Skeleton and muscle function** – support, protection, structure, movement	**How we see -** they need light in order to see things and that dark is the absence of light **How light is reflected on different surfaces** –reflect, reflective reflection, surface	**Names of rocks –** igneous, metamorphic, sedimentary, sandstone, granite, marble, limestone, flint, slate, chalk **Properties of rocks –** grain, crystal, particle, permeable, impermeable, porous **Types of soil –** texture, sand, gravel, clay	**Forces in everyday life –** push, pull, friction **Contact** - some forces need contact between two objects, but magnetic forces can act at a distance **Magnets** – magnetic, non-magnetic, North pole, South pole, repel, attract	
	Key skills	**Explore** different methods of seed dispersal **Explore** the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) **Research** the way in which water is transported within plants	**Create** balanced meals **Compare and contrast** the diets of different animals **Group** animals according to their skeletons	**Explain** how to protect your eyes **Observe and explore** how shadows are made **Compare** shadows made with different objects (opaque, translucent, transparent) **Find patterns** for how the size of shadows can change	**Compare** properties of a range of rocks **Observe** how rocks have changed over time **Compare** types of soil **Explain** how fossils are formed	**Compare** how objects move on different surfaces **Observe** how magnets attract or repel one another, and which materials they attract **Observe and group** materials based on whether they are attracted to magnets	
Year 4	**Topic/Focus**	**Animals, including humans**	**Living things and their habitats**		**Sound**	**Electricity**	**States of Matter**

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		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
	Key knowledge	**Function of the main organs of digestive system –** stomach, small intestine, large intestine **Different types of teeth –** incisor, molar, pre-molar, canine, biting, holding, tearing, grinding, root, gum, jaw bone, tooth decay, plaque, enamel, dentine, pulp **Food chain –** predator, prey, producer, consumer, food webs, predator, photosynthesis, decompose, scavenger		**Animal groups –** vertebrates, invertebrates, exoskeleton, endoskeleton, mammals, reptiles, amphibians, birds, fish, snails, slugs, worms, spiders, insects **Plant groups** - flowering plants, non-flowering plants **Changes to environments -** eco-system, pollution, damage, deforestation, global warming, floods, litter, drought	**Parts of the ear and their functions -** outer ear, auditory canal, ear drum, cochlea, auditory nerve **How sounds are made** – vibrations	**Identify appliances which run on electricity -**battery or mains powered, device, plug. **How to stay safe around electricity –** electrical safety, electrocute, current, voltage, open/closed switch **Working circuits -** complete circuit, component, cell, battery, positive, negative, connect/connections, short circuit, crocodile clip, switch, bulb, buzzer, motor, conductor, insulator, metal, non-metal **Identify conductors and insulators –** connect, insulator, conductor, metal, non-metal	**Properties of solids, liquids and gases** **Changing states -** boiling, melting, freezing, condensing, evaporating **The role of evaporation and condensation** in the water cycle
	Key skills	**Compare and explain** the differences of teeth in carnivores and herbivores **Create** a food chain		**Use and create** keys to identify and classify **Research** how changes to environments can affect living things **Research and suggest** steps to limit negative environmental changes.	**Explore** how well sound travels through different mediums **Compare** the pitch and volume of sounds made with different instruments **Find patterns** between the volume of a sound and the vibrations that produced the sound **Observe** what happens to a sound when it is heard from different distances	**Construct and draw** a simple series circuit, naming its parts **Explore and explain** how a circuit works using scientific vocabulary **Explain** how conductors and insulators work. **Explain** how to change the brightness of a bulb.	**Compare and group** solids liquids and gases **Observe** what happens to materials when they are heated or cooled (boiling, melting, freezing, condensing, evaporating)
Year 5	**Topic/Focus**	**Living things and their habitats (Animals)**	**Properties and changes of materials**	**Revisit Living things and their habitats (plants)**	**Animals, including humans**	**Forces**	**Earth and Space**
	Key knowledge	**Life cycles** of mammals, birds, amphibians, insects – egg, birth, growth, adulthood, male, female, off-spring, pupa, chrysalis, pupa, adult	**Properties of materials –** hardness, solubility, transparency, conductivity - electrical and thermal, and response to magnets **Separating mixtures** – filtering, sieving, evaporating **Thermal and electrical conductors and insulators**	**Asexual and sexual reproduction in plants –** male, female, germination, fertilisation, pollination, fruit, seed, stigma, anther, style, ovary, ovule, carpel pollen, pollen grain, pollen tube	**Human Lifecycle-** fertilisation, egg cell, sperm cell, zygote, foetus, baby, infant, toddler, child, adolescent, teenager, young adult, mature adult, old age, elderly, gestation, life cycle **Gestation periods –** species, womb, timescale, birth.	**Forces –** Air resistance, water resistance, friction, thrust, upthrust, push, pull, stationary, contact force, non-contact force, buoyancy, zero gravity, motion, unsupported force, supported force **Effect of gravity on objects falling towards Earth –**	**Phases of the moon and how they occur** - full moon, gibbous moon, half moon, crescent moon, new moon, waxing moon, waning moon **How day and night happen on Earth** – rotate, axis, revolve, sphere, spherical, day, night

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			Reversible and irreversible changes		**Puberty –** hormones, pituitary gland, testosterone, oestrogen, facial hair, body hair, broad shoulders, narrow waist, breasts, vagina, womb, placenta, uterus, ovary, fallopian tube, period, penis, testicles	Gravity, gravitational force	
	Key skills	**Describe and compare** the life cycles of different mammals **Describe and compare** the lifecycles of amphibians and insects	**Explain** similarities and differences of everyday materials based on their properties **Explain** the reversible process of dissolving **Explore** a range of methods to separate a mixture **Explore and compare** thermal and electrical conductivity **Describe** different uses for common everyday materials based on their properties **Compare** reversible and irreversible change	**Explain** the difference between sexual and asexual reproduction **Identify** the advantages and disadvantages to sexual and asexual reproduction	**Describe** the life cycle of a human from conception to old age. **Compare** the gestation periods of various mammals **Compare** the life expectancy of humans to other animals **Explain** the changes which happen to the human body during adolescence **Describe** the changes (and limitations) to the human body and a human gets older	**Identify** the effects of air resistance **Identify** the effects of water resistance **Identify** the effects of friction **Describe** how levers, pulleys and gears work	**Carry out research** about the planets in our solar system (name, facts, order) **Describe** the movement of the Earth (and other planets) in the solar system **Observe** the position of shadows (link to the movement of the Earth)
Year 6	**Topic/Focus**	**Light**	**Animals, including humans**	**Evolution and Inheritance**	**Electricity**	**Living Things and their habitats**	
	Key knowledge	**Light** travels in straight lines **Parts of the eye -** optic nerve, retina, iris, lens, rods, cones, pupil, cornea	**Parts of the heart and their function –** heart, heart rate, pulse, chamber, atrium, valve, artery, vein, blood vessel, ventricle, aorta, contract **Structure of the lungs and function –** lungs, alveoli, bronchiole, clot, bronchus, trachea, oxygen, oxygenated, deoxygenated, carbon dioxide **Function of blood and name its components** (including nutrients, water and oxygen being transported around the body) - blood cells, red cells, white cells, plasma, platelets, haemoglobin,	**Fossils-** formation, preserved, remains, prehistoric, sediment **Adaptation-** Adapt, adaptation, evolution, inheritance, extinct, environment, suited, evolution **Inheritance** – characteristics, variation, natural selection **Parents produce offspring** – Commonality, features, generation, species, trait, desirable, mutations, heredity, reproduce, diversity, survival, off spring, parents, identical, cloning, genetic engineering	**Symbols for electrical components** – cell, battery, bulb, buzzer, motor, switches	**Classification key** - classification system **Microorganisms** – helpful, harmful, parasite, toxins, unicellular, multi-cellular, membrane, cell, nucleus, DNA, exoskeleton **Classification groups -**taxonomy, kingdom, phylum, class, order, family, genus, species, vertebrates, invertebrates, micro-organisms, plants, algae, mosses, liverworts, ferns, horsetails, conifers, flowering plants, animals, insects, spiders, snails, segmented worms, fish, amphibians, reptiles, birds, mammals, echinoderms, molluscs, crustaceans	

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		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
			capillaries				
	Key skills	**Explore** how light travels **Identify and explain** the function of different parts of the eye **Explain** how we see objects **Explore** how refraction affects how light travels **Explore** the relationship between a light source, object and shadow?	**Identify** the role of the skeleton in protecting the heart and circulatory system **Explain** the impact of diet and exercise on the human body **Explain** how drugs and other substances affects how the body functions	**Recognise** living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. **Explain** why different organisms have lived in different periods. **Explain** how living things adapt to the world around them. **Describe** the similarities and differences of offspring and their parents.	**Create** an electrical circuit using different components **Create** accurate circuit diagrams for my circuits **Explore** how to increase/decrease the brightness of a bulb/loudness of a buzzer/ speed of a motor in a circuit	**Explain** why we classifying plants and animals. **Create** a classification key. **Identify and explain** similarities and differences between groups of plants and microorganisms. **Describe** how living things are classified. **Give reasons** for classifying plants and animals based on specific characteristics.	