



Science 2020-2021

School Drivers		
<p>Independent Learners Resilient Able to solve problems Creative and curious Critical thinkers</p>	<p>21st Century Citizens British values Sense of community- Rights and Responsibilities Understanding of the wider world</p>	<p>Healthy Living Healthy Eating Healthy mind Outdoor learning</p>

Science 2020-2021 where investigations take place it is based on year groups.

<p>Reception</p> <p>Understand some important processes and changes in the natural world around them, including the seasons - Through Forest School Sessions and Outdoor Play Seasons observed across the year.</p>	<p>Core learning: Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Vocabulary: Autumn, change, fall, tree, leaf, fruit, vegetable, weather, rain, cold. Key body parts: head, body, legs, arms, neck, hands, feet.</p>	<p>Core learning: Observe and comment on changing states of matter.</p> <p>Vocabulary: Freeze, melt, change, bake, hard, soft, slimy, smooth, Winter, ice, frost, snow Wood, metal, plastic</p>	<p>Core learning: Explore the natural world around them, making observations and drawing pictures of animals and plants:</p> <p>Vocabulary: Foal, Horse, Kid, Goat, piglet, Pig, Lamb, Sheep, Chick, Chicken, Hen, Egg, incubate, hatch, calf, cow Barn, Coop, Sty, Kennel, Pen Grow, plant, root, stem, leaves, flower, fruit, soil, bean, stalk, weeds, Spring</p>	<p>Core learning: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</p> <p>Vocabulary: Forest, woods, woodland creatures, owl, wolf, fox, bear, badger, squirrel, mouse, snake</p>	<p>Core learning: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; -</p> <p>Vocabulary: Africa, Kenya, Village, travel, fruit names, Jungle, Savannah, Animal names, Seaside, beach, rockpool, sea creatures. Sun, hot</p>
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	<p>Everyday Materials Investigation: What materials are waterproof? <i>Core learning:</i> 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> <p><i>Vocabulary:</i> Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth</p>	<p>Animals including humans Investigation: Will the tallest person in the class have the biggest hands and feet? <i>Core learning:</i> 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> <p><i>Vocabulary:</i> head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, texture, sound, smell, hearing, sight, touch, taste</p>	<p>Plants Investigation: What is the best material to grow cress on? <i>Core learning:</i> 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> <p><i>Vocabulary:</i> Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem</p>	<p>Animals including Humans <i>Core learning:</i> 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> <p><i>Vocabulary:</i> Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak, pets, dog, cat, rabbit, guinea pig,</p>	<p>Seasonal Changes (Visited across year) Investigation: In which season do we have the most hours of sun? (Some readings will have been taken across the year to complete this)</p> <p><i>Core learning:</i> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies</p> <p><i>Vocabulary:</i> Autumn, Winter, Spring, Summer, Cold, Hot, Temperature, Season, Night, day, Day length</p>
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<p>Year 2</p>	<p>Animals including Humans Investigation: Which is the best at giving us energy: banana, wine gums or water? Core learning: 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.</p> <p>Vocabulary: Offspring, Animal, Baby, Adult, Growth, Food, Water , Oxygen, Basic Needs, Exercise, Food, Hygiene, Health, Shelter</p>	<p>Uses of Every Day Materials Investigation: Which material stretches the furthest? Core learning: 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> <p>Vocabulary: Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil, Flexible</p>	<p>Plants What does a plant need to be healthy? Investigate light, water and temperature. Core learning: 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> <p>Vocabulary: Bulb, Seed, Water Light, Temperature, Growth, Healthy</p>	<p>Living things and their habitats Investigation: Which environment is the best for minibeasts? Core learning: 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> <p>Vocabulary: Living, Dead, Never been alive, Habitat, Microhabitat, Food chain, seashore, woodland, in ocean, rainforest, desert</p>
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<p>Year 3 and 4</p>	<p>Rocks Year 3 Investigation: Which rock is the hardest?</p> <p>Year 4 Investigation: Which soil is the best soaker/drainer?</p> <p>Core Learning: 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> <p>Vocabulary: Rock, Fossil, Organism, Properties, Formation, Soil, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent</p>	<p>Forces and Magnets Year 3 investigation: Which materials are magnetic?</p> <p>Year 4 investigation: How will the surface affect a rolling object? How strong is a magnet?</p> <p>Core Learning: compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Vocabulary: Magnet Compass Push Pull, Poles, Attract Repel</p>	<p>Animals Including Humans Year 3 investigation: How do different drinks affect your teeth? (Eggs)</p> <p>Year 4 investigation: Which food keeps you fullest the longest? (Protein, Sugar, Fibre)</p> <p>Core Learning: identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Vocabulary: Digestion, Diet, Teeth, Nutrition, Functions, Skeleton, Muscles, support, protection and movement. Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar</p>	<p>Plants Year 3 investigation: Do plants grow better with fertiliser?</p> <p>Year 4 investigation: Which type of soil is best to grow tomatoes? (Clay, sandy, peaty)</p> <p>Core Learning: 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.</p> <p>Vocabulary: Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower</p>	<p>Light Year 3 investigation: What affects the size and shape of a shadow?</p> <p>Year 4 Investigation: What makes the best light blocker/reflector?</p> <p>Core Learning: 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 a solid object Find patterns in the way that the size of shadows change; 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</p>	<p>States of Matter Year 3 investigation: Does heat affect transpiration in plants? Year 4 investigation: How does volume of water affect the water cycle?</p> <p>Core Learning: 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> <p>Vocabulary: Evaporation, Condensation, Cooling, Heating, Liquid, Gas, particles, pool, pile, hold shape</p>
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<p>Year 4 and 5</p>	<p>Electricity Year 4 Investigation: How can we change the brightness of a bulb without a dimmer? Year 5 Investigation: Which materials make the best conductors and insulators? Core learning: 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. 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</p>	<p>Living things and Habitats Core learning: recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things Vocabulary: classification key group, Identify, environmental change dangers, endangered, extinct, Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats</p>	<p>Sound Year 4 Investigation: How far away can I hear a noise? Year 5 Investigation: Which material is best to soundproof a room? Core learning: 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. Vocabulary: Sound waves, Vibration, Ear, Faint, Loud, Source, Hearing, Volume, Wave, Pitch, Tone, Speaker</p>	<p>Forces Year 4 Investigation: How does friction affect a rolling object? Investigation: Which plasticine shape is the best for water resistance? Year 5 Investigation: What is the best way to slow a falling object? Investigation: What is the easiest way to move a heavy object? (Levers and pulleys) Core learning: explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Vocabulary: Forces, Pulley, Lever, Air resistance, Gravity, Friction, Gear, Water resistance</p>	<p>Animals including Humans Core learning: To describe the changes as humans develop to old age. Taught as prior knowledge to Living Things and Habitats Y5 POS (Cross curricular links to PSHE Sex Education and Puberty) Vocabulary: Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty</p>	<p>Living things and Habitats Core learning: 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 Vocabulary: Mammal, Reproduction, Insect, Amphibian, Bird, Offspring, asexual reproduction, sexual reproduction, metamorphosis, pollination.</p>
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representing a simple circuit
in a diagram.

Vocabulary:
Electricity, Conductor,
Insulator, Battery, Wire,
Bulb, Switch, Symbol,
Diagram, Circuit, Connection,
Amps, Volts, Cell

<p>Year 5 and 6</p>	<p>Living Things and Their Habitats Core learning: describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird 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> <p>Vocabulary: Classification, Micro-organisms, Reptiles, Mammals, Insects, Vertebrates, Fish, Amphibians, Birds, Invertebrates, Snails, Slugs, Worms, Spiders, Environment, Habitats</p>	<p>Evolution and inheritance Core learning: 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> <p>Vocabulary: Fossils, Offspring, Adaptation, Evolution, Characteristics, Reproduction, Genetics, Inheritance, mutation</p>	<p>Earth and Space Core learning: 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> <p>Vocabulary: Space, Planets, Earth, Sun, Moon, Earth, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation, Satellite</p>	<p>Animals including Humans Year 5 Investigation: Pulse. How quickly can your pulse recover? Year 6 Investigation: Will my heart rate change between rest, standing and exercise? Core learning: 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> <p>Vocabulary: circulatory system. Nutrients, Transport. Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration</p>	<p>Properties and changes of materials Year 5 Investigation: Which liquid has the highest density? Year 5 Investigation: Which metal is the strongest? Year 5 Investigation: Does it dissolve if I mix it with water? Investigation: How will this material change when it is heated? Year 6 Investigation: Which materials conduct heat? Year 6 Investigation: Which metals are magnetic? Year 6 Investigation: What is the best way to purify water? Year 6 Investigation: What amount of acid creates the biggest reaction with Bicarbonate of soda? Core learning: compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Understand 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> <p>Vocabulary: material properties, hardness, solubility, transparency, conductivity (electrical and thermal), magnets. Solid, Liquids, Gasses Dissolve, Recover, Substance, Sieve, Filter, Evaporate</p>
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