



Curriculum Overview 2020

Subject: Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y1	Do all superheroes wear capes?	Where do big cats live?	How do we know Birmingham and London are cities?	What is a British woodland like?	How do seasons change?	
N/C objectives Knowledge progression	<p><u>Physics</u> <u>Seasonal Changes</u> <u>Autumn/Winter</u> Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p><u>Biology</u> <u>Animals including humans</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is</p>	<p><u>Scientists and Inventors</u> Learn about the invention of Lego and its inventor Ole Kirk Christiansen.</p> <p>Find out about the work of animal scientists, such as vets and zoo keepers.</p> <p>Make a rain gauge invented by Christopher Wren and Robin Hook.</p>	<p><u>Chemistry</u> <u>Everyday Materials</u> Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p><u>Biology</u> <u>Plants</u> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p><u>Physics</u> <u>Seasonal Changes</u> <u>Spring/Summer</u> Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>

		associated with each sense.				
N/C objectives	<p>Working scientifically Asking simple questions and recognising that they can be answered in different ways.</p>					
Skills progression	<p>Observing closely, using simple equipment.</p> <p>Performing simple tests.</p> <p>Identifying and classifying.</p> <p>Using observations and ideas to suggest answers to questions.</p> <p>Gathering and recording data to help in answering questions.</p>					
Concrete Knowledge	<p>Know the names and the order of the seasons. (Autumn/Winter)</p> <p>Know the changes in the seasons- Autumn and Winter (trees, plants, day length)</p> <p>Know the weather associated with the seasons. (Autumn/Winter)</p>	<p>Know the names of animals including fish, amphibians, reptiles, birds and mammals including those kept as pets.</p> <p>Know the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) and say which part of the body is associated with each sense.</p> <p>Know a variety of animals that are</p>	<p>Give five facts about the invention of Lego and its inventor Ole Kirk Christiansen.</p> <p>Know who invented the first rain gauge.</p> <p>Know how to make a rain gauge.</p> <p>Know and explain the job of a vet/animal scientist.</p>	<p>Name the material an object is made from.</p> <p>Know the properties of materials using words such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.</p>	<p>Know the names of some common flowers. (rose, daisy, dandelion, cherry blossom, daffodil, sunflower)</p> <p>Name a variety of deciduous (oak, sycamore, willow, chestnut)and evergreen (fir, holly, trees.</p> <p>Explain the difference between a deciduous and an evergreen tree.</p> <p>Explain the plant structure using the words- leaves, flowers</p>	<p>Know the names and the order of the seasons. (Spring/Summer)</p> <p>Be able to explain the changes in the seasons- Spring and Summer (trees, plants, day length)</p> <p>Describe the weather associated with the seasons. (Spring/Summer)</p>

		carnivores, herbivores and omnivores.			(blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem.	
Vocabulary	Summer, spring, autumn, winter, sun, day, moon, night, light, dark.	Fish, reptile, mammal, birds, amphibian, herbivore, omnivore, carnivore, leg, arm, elbow, head, ear, nose, back, wings, beak.		Wood, plastic, glass, paper, water, metal, rock, hard, soft, bendy, rough, smooth.	Deciduous, evergreen trees, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem.	Summer, spring, autumn, winter, sun, day, moon, night, light, dark.



Y2	Why should I go to Sheldon?		What is it like in Africa?	Why are there castles?	How do I use a compass?	Why do we visit the seaside?
<p>N/C objectives</p> <p>Knowledge progression</p>	<p>Chemistry 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.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Biology Animals, including humans Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Biology All living things and their habitats Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>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.</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>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>Biology Plants Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Scientists and Inventors Create their own greenhouse based on the invention of the biomes at the Eden Project, and use their greenhouse to compare the growth of plants.</p> <p>Learn about how germs are spread, looking at the work of Louis Pasteur and carrying out a fun experiment to prove how far germs can spread in a few minutes.</p>
<p>N/C objectives</p> <p>Skills progression</p>	<p>Working scientifically Asking simple questions and recognising that they can be answered in different ways.</p> <p>Observing closely, using simple equipment.</p> <p>Performing simple tests.</p> <p>Identifying and classifying.</p> <p>Using observations and ideas to suggest answers to questions.</p>					

	Gathering and recording data to help in answering questions.				
Concrete Knowledge	<p>Know the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Know that some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Know why some materials can't be used for particular purposes.</p>	<p>Know what growth means using examples such as: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep.</p> <p>Know that growing into an adult can include being a baby, toddler, child, teenager, adult.</p> <p>Know the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans.</p>	<p>Know that all living things have certain characteristics that are essential for keeping them alive and healthy.</p> <p>Know the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter) and how animals are able to survive there.</p> <p>Know how living things depend on each other, for example, plants serving as a source of food (food chains) and shelter for animals.</p>	<p>Know what a plant needs for germination, growth and survival, as well as to the processes of reproduction and growth in plants.</p>	<p>Know what plants need to grow healthily.</p> <p>Know how to make a greenhouse and why it is good for growing plants.</p> <p>Know why we need to regularly wash our hands.</p>
Vocabulary	<p>Hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent, opaque, transparent brick, paper, fabrics, squashing, bending, twisting, stretching elastic, foil.</p> <p>Wood, plastic, glass, paper, water, metal, rock, hard, soft, bendy, rough, smooth.</p>	<p>Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.</p> <p><i>Fish, reptile, mammal, birds, amphibian, herbivore, omnivore, carnivore, leg, arm, elbow, head, ear, nose, back, wings, beak.</i></p>	<p>Living, dead, habitat, energy, food chain, predator, prey, woodland, pond, desert.</p>	<p>Seeds, bulbs, water, light, temperature, growth.</p> <p><i>Deciduous, evergreen trees, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem.</i></p>	



Y3	How do I use a map?	Stone Age to Iron Age: How did Britain change?	What did the Ancient Greeks do for us?	Why is Greece popular?	How do natural disasters affect the world?	Who has helped change our world?
<p>N/C objectives</p> <p>Knowledge progression</p>	<p>Physics <u>Forces and magnets</u> Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles.</p>	<p>Physics <u>Light</u> Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>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.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way that the size of shadows changes.</p>	<p>Biology <u>Animals, including humans</u> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Biology <u>Plants</u> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>Investigate the way in which water is transported within plants.</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>Chemistry <u>Rocks</u> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>Scientists and Inventors Learn about Marie Curie and her work on radiation.</p> <p>Find out how she developed the medical use of x-rays and create their own x-ray model.</p> <p>Learn about the discovery of pneumatics by Hero of Alexandria and the inventor of the first pneumatics system- Otto Von Guerick.</p>

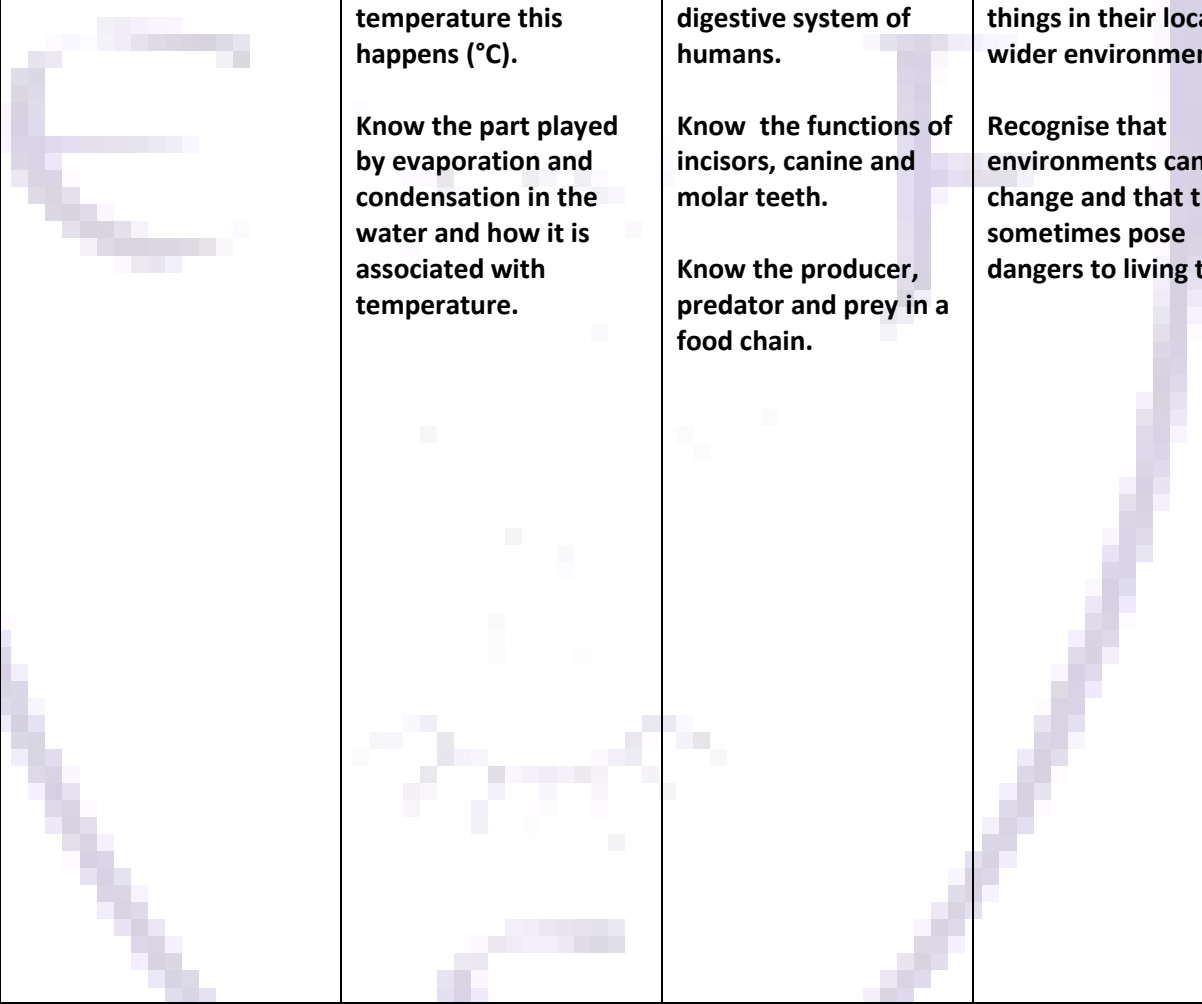
	Predict whether two magnets will attract or repel each other, depending on which poles are facing					
N/C objectives Skills progression	<p>Asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment including thermometers and data loggers.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>					
Concrete Knowledge	<p>Know how different surfaces effect how things move. (faster/slower)</p> <p>Know that some forces need contact between two objects (friction/push/pull), but</p>	<p>Know that to see things light has to enter the eyes and when there is no light (absence of light) it is darkness.</p> <p>Know that light from the sun can be dangerous</p>	<p>Know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</p>	<p>Know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>Know that air, light, water, nutrients from soil, and room to grow</p>	<p>Know different kinds of rocks (sandstone, granite, marble, pumice) on the basis of their appearance and simple physical properties.</p>	<p>Know four facts about Marie Curie's work.</p> <p>Know the Ancient Greek who discovered pneumatics- Hero of Alexandria.</p>

	<p>magnetic forces can act at a distance.</p> <p>Know that some materials are attracted to magnets and these are called magnetic.</p> <p>Know that the magnetic poles attract or repel each other.</p>	<p>and that there are ways to protect the eyes.</p> <p>Know that light gets reflected off surfaces. (shiny)</p> <p>Know that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Know the patterns in the way that the size of shadows changes. (the closer the light source is to the object and the further away the object is from the light source).</p>	<p>Know that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>enables plants to grow healthily and how they vary from plant to plant.</p> <p>Know that water is transported from the soil, through the roots, up the stem and into the leaves,</p> <p>Know that pollination, seed formation and seed dispersal take place inside the flower.</p>	<p>Know how fossils are formed when things that have lived are trapped within rock.</p> <p>Know that soils are made from rocks and organic matter.</p>	<p>Know about the inventor of the first pneumatic system- Otto Von Guericck and his discovery.</p>
<p>Vocabulary</p>	<p>Magnetic, force, contact, attract, repel, friction, poles, push, pull.</p>	<p>Light, shadows, mirror, reflective, dark, reflection</p>	<p>Movement, muscles, bones, skull, nutrition, skeleton. <i>Fish, reptile, mammal, birds, amphibian, herbivore, omnivore, carnivore, leg, arm, elbow, head, ear, nose, back, wings, beak. Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.</i></p>	<p>Air, light, water, nutrients, soil, reproduction, transportation, dispersal, pollination, flower. <i>Seeds, bulbs, water, light, temperature, growth. Deciduous, evergreen trees, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem</i></p>	<p>Fossils, soils, sandstone, granite, marble, pumice, crystals, absorbent. Igneous, sedimentary, metamorphic.</p>	



Y4	Home or aboard?	What did the Romans do for us?	Why was Britain invaded by the Saxons and Vikings?		What is a biome? Why are rainforests important?	Why should we protect our oceans?
<p>N/C objectives</p> <p>Knowledge progression</p>	<p>Physics Sound Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Scientists and Inventors Learn about Alexander Bell and his invention of the telephone.</p> <p>Explore the work of Thomas Edison.</p>	<p>Chemistry States of matter Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>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).</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Biology Animals, including humans Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Biology Living things and their habitats Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Physics Electricity Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p>

						Recognise some common conductors and insulators, and associate metals with being good conductors.
N/C objectives Skills progression	<p>Asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment including thermometers and data loggers.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>					
Concrete Knowledge	<p>Know that something vibrates to create a sound.</p> <p>Know that vibrations from sounds travel through a medium (air,</p>	<p>Know five facts about Alexander Graham Bell's life and work.</p> <p>Know five facts about Thomas Edison's life and work.</p>	<p>Know a material can be a solid, liquid or gas.</p> <p>Know that some materials change state when they are heated or cooled, and at what</p>	<p>Know the simple functions of the mouth, tongue, teeth, oesophagus, stomach and small and large intestine in the</p>	<p>Know the group a living thing belongs in.</p> <p>Explore and use classification keys to help group, identify and name a variety of living</p>	<p>Know that common appliances that run on electricity.</p> <p>Know how to construct a simple series electrical circuit,</p>

	<p>wood, bone, water) to reach the ear.</p> <p>Know there are patterns between the pitch of a sound and features of the object that produced it. (Longer the object= lower pitch the sound, shorter the object= higher pitch the sound)</p> <p>Know the patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Know that sounds get fainter as the distance from the sound source increases.</p>		<p>temperature this happens (°C).</p> <p>Know the part played by evaporation and condensation in the water and how it is associated with temperature.</p>	<p>digestive system of humans.</p> <p>Know the functions of incisors, canine and molar teeth.</p> <p>Know the producer, predator and prey in a food chain.</p>	<p>things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>Know 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.</p> <p>Know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Know some common conductors and insulators, and associate metals with being good conductors.</p>
<p>Vocabulary</p>	<p>Volume, vibration, wave, pitch, tone, speaker, ear, medium.</p>		<p>Solid, liquid, gas, evaporation, condensation, particles, temperature, freezing, heating.</p>	<p>Mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, canine, incisor, molar.</p>	<p>Vertebrates, fish, amphibian, reptile, bird, <i>Mammal, invertebrate, snail, slug, worm, spider, insect, environment, habitat.</i></p>	<p>Cells, wire, bulb, switch, buzzers, battery, circuit, series, conductor, insulator.</p>

				<p>Movement, muscles, bones, skull, nutrition, skeleton. <i>Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.</i> <i>Fish, reptile, mammal, birds, amphibian, herbivore, omnivore, carnivore, leg, arm, elbow, head, ear, nose, back, wings, beak.</i> <i>Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.</i></p>	<p><i>Living, dead, habitat, energy, food chain, predator, prey, woodland, pond, desert.</i></p>	
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Y5	What is a river's journey?		What were the achievements of the Ancient Egyptians?	What did Henry VIII's reign mean for Britain?	Why does the USA have different time zones?	What's beyond the sky?
<p>N/C objectives</p> <p>Knowledge progression</p>	<p>Biology <u>Living thing and their habitats</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Chemistry <u>Properties and changes of materials</u> 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.</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p>	<p>Scientists and Inventors Learn about the life and work of David Attenborough.</p> <p>Find out about Margaret Hamilton and her invention of the software and computer code that enabled Apollo 11 to go the Moon.</p>	<p>Physics <u>Forces</u> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>Biology <u>Animals, including humans</u> Describe the changes as humans develop to old age.</p>	<p>Physics <u>Earth and Space</u> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>

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.

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.

N/C objectives

Asking relevant questions and using different types of scientific enquiries to answer them.

Skills progression

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.

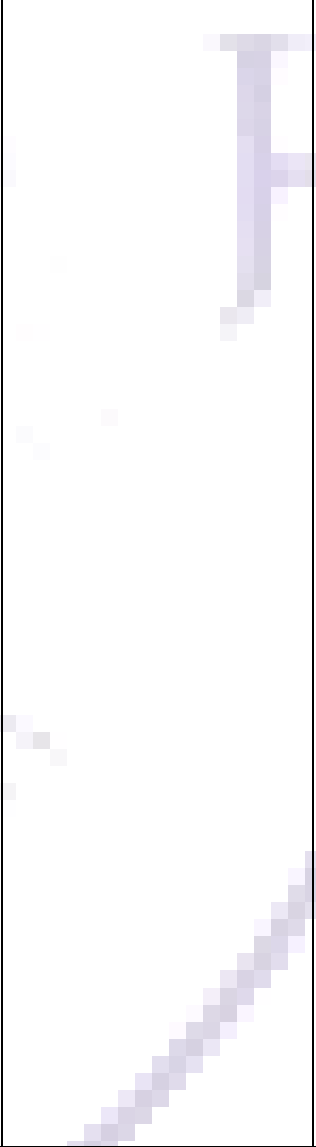
Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

	<p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>					
<p>Concrete Knowledge</p>	<p>Know the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Know about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals.</p> <p>Know the life process of reproduction in some plants and animals.</p> <p>Know how different animals reproduce and grow.</p>	<p>Know how to group materials using their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. (evaporation)</p> <p>Know how to separate, solids, liquids and gases, including using filtering, sieving and evaporating.</p> <p>Know why particular materials are selected, based on their properties</p>	<p>Know facts about David Attenborough's life and work.</p> <p>Know Margaret Hamilton's work on programming the on-board computer for the Apollo 11 spacecraft.</p>	<p>Know that objects fall towards the Earth because of the force of gravity.</p> <p>Know that there are forces acting between moving surfaces (air resistance, water resistance and friction).</p> <p>Know that some mechanisms, (levers, pulleys and gears) allow a smaller force to have a greater effect.</p> <p>Know that Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.</p>	<p>Know the stages in the growth and development of humans.</p> <p>Know about the changes experienced in puberty.</p>	<p>Know that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune</p> <p>Know that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).</p> <p>Know the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Know that the Earth rotates and this explains day and night</p>



		<p>, including metals, wood and plastic.</p> <p>Know that changes of state are reversible. (dissolving, mixing)</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not</p> <p>Know that irreversible, changes, associated with burning and the action of acid on bicarbonate of soda produce a new material.</p>				and the apparent movement of the sun across the sky.
Vocabulary	<p><u>Living things and their habitats</u> Mammal, reproduction, insect, amphibian, bird, offspring. <i>Vertebrates, fish, amphibian, reptile, bird, Mammal, invertebrate, snail, slug, worm, spider, insect, environment, habitat.</i> <i>Living, dead, habitat, energy, food chain,</i></p>	<p><u>Properties and changes of materials</u> Hardness, solubility, transparency, conductivity, magnetic, filter, evaporation, dissolving, mixing.</p>		<p><u>Forces</u> Air resistance, water resistance, friction, gravity, newton, gear, pulley. <i>Magnetic, force, contact, attract, repel, friction, poles, push, pull.</i></p>	<p><u>Animals including humans</u> Foetus, embryo, womb, gestation, baby, toddler, teenager, elderly, growth, development, puberty <i>Mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, canine, incisor, molar.</i></p>	<p><u>Earth and space</u> Earth, sun, moon, axis, rotation, day, night, phases of the moon, star, constellation celestial.</p>

*predator, prey, woodland,
pond, desert.*



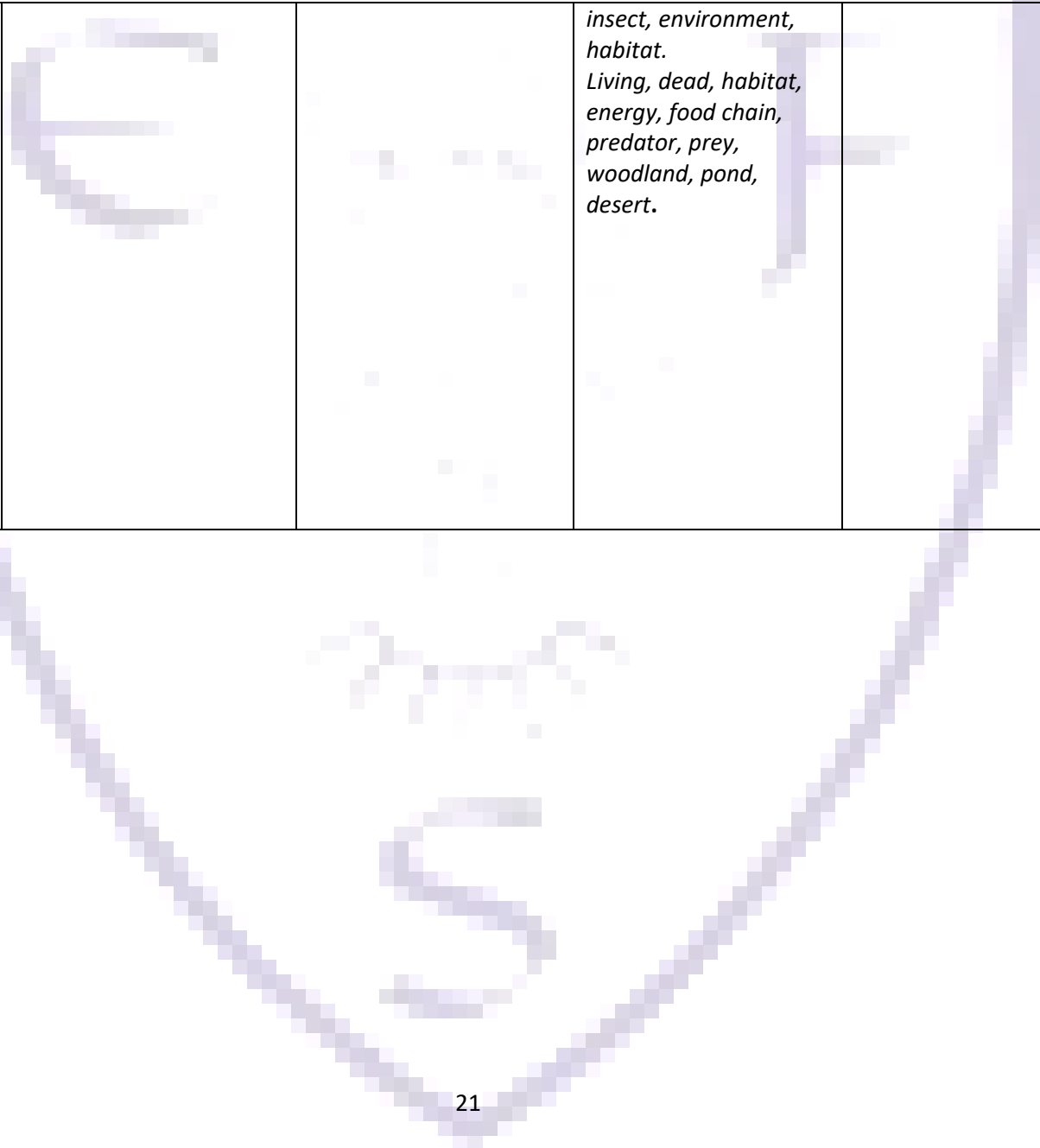
*Movement, muscles,
bones, skull, nutrition,
skeleton.
Survival, water, air, food,
adult, baby, offspring,
kitten, calf, puppy,
exercise, hygiene.
Fish, reptile, mammal,
birds, amphibian,
herbivore, omnivore,
carnivore, leg, arm,
elbow, head, ear, nose,
back, wings, beak.
Survival, water, air, food,
adult, baby, offspring,
kitten, calf, puppy,
exercise, hygiene.*



Y6	What impact did the Maya Civilisation have on Birmingham?	What survives in polar regions?	What was the impact of WW2 on Birmingham?	Why was the Industrial Revolution important to the West Midlands?
<p>N/C objectives</p> <p>Knowledge progression</p>	<p>Biology <u>Animals, including humans</u> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>Biology <u>Evolution and inheritance</u> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>Physics <u>Electricity</u> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>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.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>	<p>Biology <u>Living things and their habitats</u> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> <p>Physics <u>Light</u> Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>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.</p> <p>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>Scientists and inventors Learn about the life and work of Stephen Hawking, and carry out an investigation into Hawking's theories on black holes.</p> <p>Find out about the life and work of Steve Jobs, and his development of new electronics and technologies.</p>

<p>N/C objectives</p> <p>Skills progression</p>	<p>Asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment including thermometers and data loggers.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>					
<p>Concrete Knowledge</p>	<p>Building from learning in years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system)</p> <p>Know the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Know the impact of diet, exercise, drugs and</p>	<p>Building on learning about fossils in rocks in year 3.</p> <p>Know how living things on earth have changed over time. (fossils)</p> <p>Know how characteristics are passed from parents to their offspring. (different breeds of dogs, labradors are crossed with poodles)</p>	<p>Building on their work in year 4.</p> <p>Know that the number and voltage of cells (batteries) used in the circuit will effect brightness of a lamp or the volume of a buzzer.</p> <p>Know the symbols when representing a simple circuit in a diagram.</p>	<p>Building on learning about grouping living things in year 4.</p> <p>Know living things are classified into broad groups (micro-organisms, plants and animals)</p> <p>Know animals are classified into invertebrates (insects, spiders, snails, worms) and vertebrates (fish,</p>	<p>Building on the work on light in year 3.</p> <p>Know that light travels in straight lines.</p> <p>Know that objects are seen because they give out or reflect light into the eye.</p> <p>Know that shadows have the same shape as the objects that cast them. (due to light</p>	<p>Know about the life and work of Stephen Hawking, and Hawking's theories on black holes.</p> <p>Know about the life and work of Steve Jobs, and his development of new electronics and technologies</p>

	<p>lifestyle on the way their bodies function.</p> <p>Know how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body.</p> <p>Know the ways in which nutrients and water are transported within animals, including humans.</p>	<p>Know that variation in offspring over time can make animals more or less able to survive in particular environments. (giraffes’ necks got longer, insulating fur on the arctic fox)</p> <p>Know how Charles Darwin and Alfred Wallace developed their ideas on evolution.</p>		<p>amphibians, reptiles, birds and mammals).</p> <p>Know why living things (plants and animals) are placed in one group and not another (work of scientists such as Carl Linnaeus, a pioneer of classification).</p>	<p>travelling in straight lines)</p> <p>Know that light creates a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters. (do not need to explain why these phenomena occur).</p>	
<p>Vocabulary</p>	<p>Circulatory, heart, blood vessels, veins, arteries, oxygenated, deoxygenated, valve, exercise, respiration. <i>Foetus, embryo, womb, gestation, baby, toddler, teenager, elderly, growth, development, puberty. Mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, canine, incisor, molar.</i></p>	<p>Fossils, adaptation, evolution, characteristics, reproduction, genetics.</p>	<p>Cell, wire, bulb, switch, buzzer, battery, circuit, series, conductor, insulator, amps, volts, cell.</p>	<p>Classification, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, mammals, insects. <i>Mammal, reproduction, insect, amphibian, bird, offspring. Vertebrates, fish, amphibian, reptile, bird, mammal, invertebrate, snail, slug, worm, spider,</i></p>	<p>Refraction, reflection, light, spectrum, rainbow, colour.</p>	

<p><i>Movement, muscles, bones, skull, nutrition, skeleton.</i> <i>Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.</i> <i>Fish, reptile, mammal, birds, amphibian, herbivore, omnivore, carnivore, leg, arm, elbow, head, ear, nose, back, wings, beak.</i> <i>Survival, water, air, food, adult, baby, offspring, kitten, calf, puppy, exercise, hygiene.</i></p>			<p><i>insect, environment, habitat.</i> <i>Living, dead, habitat, energy, food chain, predator, prey, woodland, pond, desert.</i></p>		
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