Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Science at Kingsley Community Primary School:

Intent:

At Kingsley Community Primary School, our vision is to give children a curriculum which enables them to be curious and encourages them to confidently explore and discover the world around them, so they can develop a deeper understanding of the world we live in. We aim to inspire and excite our children to foster a thirst for knowledge, allowing children to become self-motivated learners and gain a conceptual understanding of all aspects of the science curriculum.

Throughout our school children are encouraged to develop and use a range of working scientifically skills including questioning, researching and observing to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. We want our children to have a broad vocabulary where Scientific language is to be taught and built upon as topics are revisited in different year groups and across key stages. We believe that these opportunities will ensure that our children are confident, life-long learners who will flourish in the world around them.

Kingsley Community Primary School aspires to provide excellent opportunities for science so that children can:

- Make meaningful links between classroom learning and the real world in order to develop their understanding of science
- Develop scientific literacy and critical thinking skills by designing and carrying out their own investigations
- Make excellent progress
- Nurture their curiosity by asking 'big' questions in turn developing wonderment and a sense of excitement about science

In order for the above principles to be achieved, we will:

- Provide frequent, high quality real life experiences related to science
- Provide teachers with opportunities to further develop their subject knowledge
- Provide opportunities for children to ask their own questions, experiment and plan their own investigations, giving them the support they need to be able to develop scientific skills
- Provide well maintained, organised and up to date resources, including IT which will support learning

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Implementation:

Early Years Foundation Stage

Within the Early Years Foundation Stage there are seven areas of learning where the theme of investigation and talking about what can be discovered run throughout, the children are encouraged to investigate what they have seen/discovered. Specifically, pupils work through objectives within the 'Understanding the world' area of learning where they learn to explore and look after their environment. Through health and self-care, the pupils also learn how to look after themselves, eat healthy and stay safe.

Key Stage 1

In Key Stage 1 Science is taught once each week. Where possible meaningful links are made to the current class project and cross-curricular links are made with other subjects. The children are encouraged to develop their own appreciation of scientific ideas by answering their own questions, observing changes over time, grouping and classifying things and carrying out simple tests. Children are encouraged to be curious and ask questions about what they notice. The children are encouraged to begin to use scientific language to talk about what they have found. Within key stage one learning about science is through the use of first-hand practical experiences supported by appropriate secondary sources.

Key Stage 2

In Key Stage 2 Science is taught one lesson per week for a full afternoon allowing greater depth of learning and more time for scientific investigation. Where possible, cross-curricular links are made and also links are made to the classes' current project, where appropriate. The principal focus of Science teaching in Key Stage 2 is to enable pupils to broaden their scientific view of the world around them and to develop a deeper understanding of the scientific skills needed. Within Key Stage 2, children are encouraged to design their own investigations, they should ask their own questions about what they observe and then select the most appropriate ways to answer these questions. Children are also encouraged to use scientific vocabulary; firstly, to discuss what they have discovered and then later to write about what they have found out.

We recognise that the school grounds offer a rich resource which we can utilise to inspire and effectively meet the requirements of the EYFS Framework and National Curriculum Programmes of Study.

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Long Term Overview:

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Living Things Materials Places	Everyday Materials Seasonal Changes Animals and humans Plants	Everyday Materials Animals and humans Living things and their habitats Plants	Light Forces & Magnets Rocks Animals and humans Plants	Sounds Electricity States of Matter Animals and humans Plants	Earth and Space Forces & Magnets Properties & Materials Living things and their habitats Animals and humans	Electricity Light Animals and humans Evolution & Inheritance Living things and their habitats

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Curriculum Objectives/Knowledge	**Early Learning Goal** Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. Children know about similarities and	**Everyday Materials** • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials	**Everyday Materials** • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • find out how the shapes of solid objects made from some materials can be changed by squashing,	**Light** • recognise that they need light in order to see things and that dark is the absence of light • notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes • recognise that shadows are formed when the light from a light	**Sound** • identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the	**Earth and Space** • describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night and the	**Electricity** • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the

	differences in relation to: • Places - Different animal habitats. - Seaside and Ashton. • Objects - Fruits and vegetables. - Dough and cooked bread. - Making bigger/smaller shadows. - Floating and sinking. • Materials - Waterproof and not waterproof. - Strong and weak. - Recyclable and not recyclable. - Which materials melt in the Sun and which do not. • Living things - Body parts of familiar animals. - What owls and other birds eat. - Nocturnal and diurnal animals. - Adult and baby animals. - Pet shop animals. - How animals move. - Sounds animals make. - How plants grow without light, water, soil and air.	• compare and group together a variety of everyday materials on the basis of their simple physical properties. **Seasonal changes** • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies. **Animals including humans** • 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	bending, twisting and stretching. **Animals including humans** • notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Living things and their habitats** • explore and compare the differences between things that are living,	source is blocked by an opaque object • find patterns in the way that the size of shadows change. **Forces and Magnets** • 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	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. **Electricity** • identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery	apparent movement of the sun across the sky. **Forces** • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	on/off position of switches • use recognised symbols when representing a simple circuit in a diagram. **Light** • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why

		carnivores, herbivores and omnivores • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Plants** • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees.	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	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. **Rocks** • compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made	• 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. **States of Matter** • compare and group materials together, according to whether they are solids, liquids or gases • observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this	**Properties and changing of materials** • compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through	shadows have the same shape as the objects that cast them. **Animals including humans** • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans. **Evolution and inheritance**

			name different sources of food. **Plants** • observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	from rocks and organic matter. **Plants** • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed	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. **Living things and habitats** • recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose	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 • 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.	• 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. **Living things and their habitats**

				formation and seed dispersal. **Animals including humans** • 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.	dangers to living things. **Animals including humans** • 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.	**Living things and habitats** • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals. **Animals including humans** ▪ describe the changes as humans develop to old age.	• 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 • give reasons for classifying plants and animals based on specific characteristics.

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Subject Skills: Working Scientifically	1. Ask questions demonstrate curiosity about the world around them. 2. Make predictions With support or prompting, talk about what they think might happen based on their own experiences. 3. Decide how to carry out an enquiry Respond to prompts to say what happened to objects, living things or events. 4. Take measurements Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses. 5. Record data Talk to an adult about what has been found/found out. 6. Present data Talk to an adult about what has been found/found out. 7. Answer questions using data with	**Key Stage 1 Working Scientifically: use the following practical scientific methods, processes and skills:** WS1 asking simple questions and recognising that they can be answered in different ways WS2 observing closely, using simple equipment and measurement WS3 performing simple tests WS4 identifying and classifying WS5 using their observations and ideas to suggest answers to questions WS6 gathering, recording and communicating data and findings to help in answering questions. WS7 use scientific language and read and spell age-appropriate scientific vocabulary WS8 begin to notice patterns and relationships	**Lower Key Stage 2 Working Scientifically: use the following practical scientific methods, processes and skills:** WS1 making decisions, asking relevant questions and using different types of scientific enquiries to answer them WS2 setting up simple practical enquiries, comparative and fair tests WS3 making systematic and careful observations using notes and simple tables WS4 taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers WS5 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions WS6 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WS7 reporting on findings from enquiries, using relevant scientific language, including oral and written explanations, displays or presentations of results and conclusions WS8 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions WS9 identifying differences, patterns, similarities or changes related to simple scientific ideas and processes WS10 using straightforward scientific evidence to answer questions or to support their findings. WS11 begin to look for naturally occurring patterns and relationships	**Upper Key Stage 2 Working Scientifically: use the following practical scientific methods, processes and skills:** WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS4 using test results to make predictions to set up further comparative and fair tests WS5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations WS6 identifying scientific evidence that has been used to support or refute ideas or arguments. WS7 explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. WS8 recognise that scientific ideas change and develop over time. WS9 draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific

	support, explain why some things occur. 8. Draw conclusions with support, talk about what they have found out or what they think might happen next.		WS12 recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations	knowledge and understanding to explain their findings. WS10Pupils should read, spell and pronounce science

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Vocabulary	Natural, wild, wildlife, native. **Places -** Habitats - Woodland, desert, ocean, jungle, Arctic. Microhabitats: - Log, stone, tree, dead leaves, soil. Seaside. **Objects** - British Autumn fruits and vegetables (e.g. apples, pears, beetroot, carrots, potatoes, butternut squash, sweetcorn, cauliflower). • Bread: - Mix, knead, prove, rise. **Materials -** Object, material, properties, suitable, pipette, recycling. Properties - Waterproof, strong/weak, dense/less dense, hard/soft. Bubble wrap, foil, plastic, fabric, paper, straw, sticks, bricks, metal, glass. **Living things – plants** Grow Lifecycle: - Roots, shoots, stem, leaves, buds, flower • Water, light,	**Everyday Materials:** Materials, metal, plastic, wood, paper, glass, clay, rock, fabric, sand, hard, soft, rough, smooth, shiny, dull, bendy, waterproof, strong, weak, group, object, sort, stretchy, magnetic, non-magnetic, transparent. **Seasonal Changes:** Autumn, Spring, Summer, Winter, weather, day length, sun, wind, rainbow, cloud, umbrella, storm, lightning, rain, snow, fog. **Animals including humans:** Fish, amphibians, reptiles, birds, mammals, carnivore, herbivore, omnivore, head, neck, arms, elbows, knees, legs, face, ears, eyes, hair, mouth, teeth, smell,	**Everyday Materials** Wood, metal, plastic, glass, brick, rock, paper, cardboard, solid, changeable, squashing, bending, twisting, stretching, uses, materials. **Animals including humans** Humans, adults, offspring, needs, survival, water, food, air, exercise, food, hygiene, basic needs. **Living things and their habitats** Living, dead, habitats, suited, adapted, depend, micro-habitats, food chain, producer, primary consumer, secondary consumer, source, sun, herbivore, carnivore, omnivore, decomposer. **Plants**	**Light:** light, see, dark, reflect, surface, blocked, solid, artificial, torch, candle, lamp, sunlight, natural, star, sun, moon, dangerous, protect eyes, shadow **Forces and Magnets:** Force, push, pull, open, surface, magnet, magnetic, attract, reprep, magnetic poles, North, South **Rocks:** Appearance, physical, properties, hard, soft, shiny, dull, rough, smooth, absorbent, fossils, sedimentary, rock, soils, organic matter, buildings, gravestones, grains, crystals	**States of matters:** Solids, liquids, gases, heated, cooled, temperature, degrees, Celsius, water cycle, evaporation, temperature, condensation, digestive system, Food chains, producers, predators, prey, classification, environment, electrical current, cells wires, bulb, switches, plugs, conductors, insulators.	**Earth and Space:** Planets, moon, space, infinite, terrestrial, gravity, atmosphere, habitable zone, temperature, liquid water, photosynthesis, star, sun, solar system, galaxy, phases, tidal bulge, magnetism **Forces:** Force, push, pull, effort, energy, magnet, magnetism, gravity, newton, accelerate, attract, repel, air resistance, water resistance, friction, mass **Properties and changing of materials:** Compare, group, properties, hardness, solubility, transparency, conductivity, electrical, thermal, magnetic, dissolve, liquid, solid, gas, substance, solution,	**Evolution and inheritance. Plants and animals.** Mammal, animal difference, similar, Evolution, adaption, difference, similar, inheritance, advantageous, disadvantageous, Charles Darwin Not identical, characteristics, variation, evolution, adaptation, environment, advantageous, disadvantageous, species, suites, unsuited. **Light** Reflect, reflective, mirror, distance, light source, light, direction, travel, dark, darkness, transparent, opaque, translucent, block, absorb, shadow, sun, straight lines **Electricity**

	warmth, temperature, soil, compost Living things – animals Body parts - Backbone, skeleton, soft body, shell. Adapted, hibernate, migrate. • Predator, prey. • Nocturnal. • Adult/parent, baby. • Lifecycle: - Egg, caterpillar, chrysalis, butterfly. • Birds (owl, duck), insects/bugs/ minibeasts (lacewing, ladybird, woodlouse, bee, wasp, spider, tarantula, earthworm, snail, locust, cricket, millipede, butterfly, caterpillar), fish, reptiles (snake, tortoise, gecko), amphibians, mammals (mouse, shrew, vole, hare, fox) • What animals give us - Meat, roast chicken, bacon/ham, milk/cheese/ butter, wool, hair, eggs, honeycomb, honey. Environments •	hear, touch, sight, taste, **Plants:** Deciduous, evergreen, habitat, leaves, flowers(blossom), petals, fruits, roots, bulb, seed, trunk, branches, stem.	seeds, bulb, stem, petals, water, light, growing conditions, healthy, temperature, roots, soil, leaves, branches, seedling,	**Plants:** Plants, stigma, flower, petal, seed, pollen, stamen, stem, reproduction, germinate, pollinate, fertilise, life cycle, photosynthesis, dispersal **Animals inc Humans:** Internal organs, heart, lungs, liver, kidney, brain, skeletal, skeleton, muscle, digest, blood vessels, blood, impact, diet, exercise, drugs, lifestyle, nutrients, water, damage		mixtures, separated, filtering, sieving, evaporating, reversible, irreversible. **Living things and habitats:** Life cycles, mammals, amphibians, insects, birds, life process, reproduction, plants, animals **Animals including humans:** Growth, aging, changes, human, description.	Bulb, bright, voltage, volts, simple circuits, series circuit, brightness, buzzer, components, series circuit, motor, short circuit, resistance, wire, conductor, insulator, current, switches, cells, electrical circuit, electrical appliances.

	Environment – Woodland, valley. Playground. Recycling, compost. Changes **Seasons-** Spring (growth, baby animals) - Summer - Autumn (Harvest) - Winter • Weather: - Sun, rain, wind, snow, ice, frost, sleet, hail. - Cold/warm/hot Day length, day light.						

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Enhancements/activities	•Give opportunities to record findings by, e.g. drawing, writing, making a model or photographing. •Provide stories that help children to make sense of different environments. •Provide stimuli and resources for children to create simple maps and plans, paintings, drawings and models of observations of known and imaginary landscapes. •Give opportunities to design practical, attractive environments, for example, taking care of the flowerbeds or organising equipment outdoors.	Make bird feeders to attract birds to our school grounds. Identify the skills of bird watching and look for the birds that come to our school grounds. Compare the parts of a bird's body to our own. Senses investigation – which is the easiest flavour of crisp to identify? Make a seasons booklet to record the changes in our school grounds throughout the year.	Grow plants in and outside. Visit * to look at the different plants and where they live. Dissect different plants and label the parts Create bridges with different material and see which material is the strongest Create food chains	Take part in 'Light it up' project Shadow puppets Create our own balloon buggies Grow our own flowers to dissect Plants experiment – different environments to grow in Rocks experiment Skeleton observations	States of matter: Why do hunters hunt? Looking at bird's feet/claws Looking at a variety of predator's teeth. Observation of feathers Owl pellets	Investigate the necessity of water; observing different water samples over time and a controlled investigation of the effect of water on plants. Show the impact of the moon on the tides using a magnet and scales. Photosynthesis demonstration using controlled light withdrawal. Link between mass and gravitational pull.	Fitness tests and healthy lifestyles Create our own fossils Examination of camouflage within natural environments Experimentation with light: periscopes, binoculars, mirrors Crucial Crew: recognise impact of exercise, drugs on health Natural History museum: handling of artefacts for scientific enquiry

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

'Big Questions' Overview (Question ideas for Scientific Experiments)

Year 1	**Animals including Humans**	**Seasonal Changes** Which season has the greatest rainfall?	**Everyday Materials** Which is the best material to use to make a waterproof hat?	**Plants**		
Year 2	**Everyday Materials** Which is the best material to use for blackout glasses?	**Plants** What does a plant need to grow?	**Animals including Humans**	**Living Things and their Habitats**		
Year 3	**Plants** How is water transported in plants?	**Animals including Humans**	**Rocks** How absorbent are different soils? What happens when we rub rocks together?	**Light** What can shadows tell us?	**Forces and Magnets** Which materials are magnetic?	
Year 4	**Living Things and their Habitats**	**Animals including Humans** Which liquids do the most damage to eggshells?	**States of Matter** What is the difference between ice, water and steam?	**Sound** How does the dynamics of a sound affect how we hear it?	**Electricity** Which materials will allow electricity to flow through?	
Year 5	**Living Things and their Habitats** Can we grow new plants from different parts of the parent plant?	**Animals including Humans** How do gestation periods relate to length and mass?	**Properties of Materials** Can solutions be separated?	**Forces and Magnets** Which surface will cause the most friction?	**Earth and Space**	
Year 6	**Living Things and their Habitats**	**Animals including Humans** What happens when food isn't stored correctly?	**Electricity** Can you make a bulb brighter/a buzzer louder?	**Evolution and Inheritance** How has our body evolved to allow us to complete certain activities?	**Light** Can light travel in any direction?	

Kingsley Community Primary & Nursery School

Curriculum Overview Subject: Science

Progressive 'I can' Statements

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes	I can talk about features of my own environment and how environments may vary from one another.	I can explain changes through Autumn, Winter, Spring and Summer. I can describe the weather in Autumn, Winter, Spring and Summer and that the days get longer and shorter.					
Materials: Everyday Materials, Properties of Materials and States of Matter	I can name the properties of some materials and can suggest some of the purposes they are used for. I can talk about basic scientific concepts, such as; floating and sinking.	I can tell the difference between an object and the material from which it is made. I can name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. I can describe some everyday materials. I can make groups of materials based on what they are like.	I can say why I would choose a material for a particular job. I can explain how objects made from some materials can be changed.		I can group materials together, according to whether they are solids, liquids or gases, including tricky ones like gels, foams, mists and pastes. I can demonstrate and explain 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). I can correctly talk about the part played by evaporation and condensation in the water cycle, and can show a link between the rate of evaporation and temperature.	I can 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. I can explain that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including by filtering, sieving and evaporating. I can give reasons, based on evidence	

						from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. I can demonstrate that dissolving, mixing and changes of state are reversible changes. I can 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.	
Living Things and Their Habitats	I can talk about similarities and differences in relation to places, objects, materials and living things. I can talk about features of my own environment and how environments may vary from one another. I can talk about how the environment and living things are influenced by human activity.		I can explain the differences between things that are living, dead, and things that have never been alive. I can explain that most living things live in habitats which suit them and depend on each other. I can name some plants and animals in their habitats including micro-habitats. I can explain how animals get their food from plants and other		I can show that living things can be grouped together in various ways. I can explore and use classification keys to help group, identify and name a variety of living things. I can explain that environments can change and that this sometimes means that living things are put in danger.	I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I can describe how some animals and plants reproduce.	I can give reasons for classifying plants and animals based on specific characteristics I can describe how plants, animals and micro-organisms are classified into broad groups according to common observable characteristics and based on similarities and differences

			animals using a simple food chain.				
Light				I can explain that I need light in order to see things and that dark is the absence of light. I can show that light is reflected from surfaces. I can explain that light from the sun can be dangerous and that there are ways to protect eyes. I can show how shadows are formed when the light from a light source is blocked by a solid object. I can show that there are patterns in the way that the size of shadows change.			I can show that light appears to travel in straight lines. I can use the explanation that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. I can demonstrate and 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. I can demonstrate that light travels in straight lines to show why shadows have the same shape as the objects that cast them.
Electricity					I can talk about common appliances that run on electricity. I can construct and draw with labels a simple series electrical circuit which includes cells, wires, bulbs, switches and buzzers. I can predict if a lamp		I can show that the brightness of a lamp or the volume of a buzzer depends on the number and voltage of cells used in the circuit. I can compare and give reasons for variations in how components function,

					will light or not in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. I can explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can show that some materials are conductors and some are insulators, and can explain that metals are good conductors.		including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. I can draw a diagram using recognised symbols to represent a simple circuit.
Rocks				I can examine and do practical experiments on various types of rocks in order to group them on the basis of their appearance and simple physical properties. I can describe simply how fossils are formed when things that have lived are trapped within rock. I can explain that soils are made from rocks and organic matter.			
Forces & Magnets				I can compare how things move on different surfaces. I can see that some		I can explain that unsupported objects fall towards the Earth because of the force	

				forces need contact between two objects but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can compare and group some materials on the basis of whether or not they are attracted to a magnet, and identify some magnetic materials. I can describe magnets as having two poles. I can predict whether two magnets will attract or repel each other, depending on which poles are facing.		of gravity acting between the Earth and the falling object. I can demonstrate the effects of air resistance, water resistance and friction, that act between moving surfaces. I can show that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
Sound					I can explain how sounds are made, and show that some of them are linked to vibrations. I can explain that vibrations from sounds travel through a medium to the ear. I can find patterns between the pitch of a sound and features of the object that produced it.		

					I can show that there is a pattern between the volume of a sound and the strength of the vibrations that produced it. I can show that sounds get fainter as the distance from the sound source increases.		
Earth & Space						I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth. I can describe the Sun, Earth and Moon as approximately spherical bodies. I can explain day and night, and the apparent movement of the sun across the sky, using the idea of the Earth's rotation.	
Plants	I can make observations of animals and plants and explain why some things occur and talk about changes.	I can name some common wild and garden plants, including deciduous and evergreen trees. I can name and describe the basic structure of a variety	I can explain how seeds and bulbs grow into plants. I can describe how plants need water, light and a suitable temperature to grow and stay healthy.	I can explain what different parts of flowering plants do. I can explore the requirements of plants for life and growth and how they vary from plant to plant. I can investigate the			

		of common flowering plants, including trees.		way in which water is transported within plants. I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			
Animals including humans	I can make observations of animals and plants and explain why some things occur and talk about changes.	I can spot and name a variety of common animals. I can spot and name a variety of common animals that are carnivores, herbivores and omnivores. I can describe and compare the structure of a variety of common animals. I can name, draw and label the basic parts of the human body and say which part of the body is to do with each sense.	I can explain that animals, including humans, have babies which grow into adults. I can explain the needs of animals, including humans, for survival. I can explain the importance of exercise, eating healthily and keeping clean.	I can 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. I can explain why humans and some other animals have skeletons and muscles.	I can explain some parts of the digestive system in humans. I can explain the different types of teeth in humans and what they do. I can describe and explain a variety of food chains, naming producers, predators and prey.	I can describe the changes as humans develop into old age.	I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. I can recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions. I can describe the ways in which nutrients and water are transported within animals, including humans.
Evolution & Inheritance							I can explain that the kinds of living things that live on the earth now are different from those that inhabited the Earth millions of years ago and that fossils provide this information.

							I can explain that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. I can give examples of how animals and plants are adapted to suit their environment in different ways and can explain that adaptation may lead to evolution.
Working Scientifically		I can ask questions and know they can be answered in different ways. I can look closely, using equipment. I can do tests. I can name and group. I can use my observations and ideas to suggest answers to questions. I can collect and record data to help answer questions.	I can ask questions and know they can be answered in different ways. I can watch closely using equipment. I can do tests. I can name and group. I can use my observations and ideas to suggest answers to questions. I can collect and record data to help answer questions.	I can ask questions and use different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative and fair tests. I can make observations and take measurements using standard units, using a range of equipment, including thermometers and data loggers. I can gather, record, classify and present data in a variety of ways to help with answering questions. I can record findings using simple scientific	I can ask relevant questions and use different types of scientific enquiries to answer them. I can set up practical enquiries, comparative and fair tests. I can make systematic and careful observations, and take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. I can gather, record, classify and present data in a variety of ways to help with answering questions. I can record findings	I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. I can record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can use test results	I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. I can take accurate measurements, using a range of scientific equipment taking repeat readings when appropriate. I can record complex data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. I can use test results to make predictions to set up further

				language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. I can explain differences, similarities or changes related to simple scientific ideas and processes. I can use straightforward scientific evidence to answer questions or to support my findings.	using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. I can identify differences, similarities or changes related to scientific ideas and processes. I can use scientific evidence to answer questions or to support my findings.	to make predictions to set up further comparative and fair tests. I can talk about and present findings from enquiries, including conclusions, causal relationships and explanations of how reliable the information is. I can identify scientific evidence that has been used to support or refute ideas or arguments.	comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. I can identify scientific evidence that has been used to support or refute ideas or argument.