Stanhope Primary School

Progression of Knowledge and Skills in Science

Science	At Stanhope Primary School , it is our intent that all pupils, regardless of background and ability, have access to a broad and balanced science curriculum. Through the delivery of learning opportunities that inspire all children to succeed, it is our intent that: The Science curriculum nurtures a healthy curiosity about our universe. Children are equipped with the confidence to ask questions and engage in science-based discussions which affect their own lives and the future of our world. Scientific processes are built upon over time and developed through investigations and first hand experiences.

Year Group	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Skills	Can ask questions about the natural world. Can talk about some of the things that they have observed such as plants, animals and natural things. Shows care for living things in the environment. Observes the effects that activity has on the body. Can look closely at similarities, differences, patterns and changes over time. Can make observations of animals, and plants and can	Ask simple questions and recognise that they can be answered in different ways. Be able to observe closely and use simple equipment Discuss simple tests Be able to identify and classify Use observations and ideas to suggest answers to questions Gather and record data to help in questions	Ask simple questions and recognise that they can be answered in different ways. Start to use scientific vocabulary when discussing. Be able to observe closely and use simple equipment, including changes over time. Discuss simple tests and make comparisons. Talk about what they have found out. Be able to identify classify and group, plants, animals.	Ask relevant questions and use different types of scientific enquires to answer them. Use relevant scientific vocabulary in discussions and writing. Set up simple practical enquiries, comparative and far tests. Make systematic and careful observations using equipment where appropriate. Gather, record, classify and	Ask relevant questions and use an understanding of different types of scientific enquiries to best answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment. Gather, record, classify and	Plan different types of scientific enquiries to answer questions To give reasons based on evidence from comparative and fair tests. Gather, record, classify and present data in a variety of ways to help in answering questions. Explore and use classification keys and be able to describe them. To use observations and test results to make predictions	Plan different types of scientific enquiries to answer their own and others' questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy, taking repeat readings when appropriate. Record data and results of increasing

	explain why some things occur and talk about changes. Have their own ideas, thinking of ideas, find ways to solve problems. Find new ways to do things. Make predications. Test out ideas. Use everyday language as they explore- talk about size, weight, capacity. Develop ideas of grouping, sequencing, cause and effect. Check how well their activities are going. Change a strategy when needed.		Use observations and ideas to suggest answers to questions noticing similarities, differences and patterns. Gather and record data to help in answering, including from other sources of information.	present data in a variety of ways. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Draw conclusions form careful observations. Identify difference, similarities or changes related to simple scientific ideas and processes.	present data in a variety of ways to help in answering questions. Explore and use classification keys Record findings using appropriate scientific language, drawings, labelled diagrams, keys, bar charts and graphs. Report on findings from enquiries, observations, including oral and written explanations. Use results to draw simple conclusions, make predictions, suggest improvements, and raise further questions.	and to set up further tests. Investigate, explore, review and be able to plan and carry out an investigation Report and present findings from enquiries, including conclusions, observations and collected data. Use results to draw conclusions, make predictions, suggest improvements, and raise further questions.	complexity using scientific diagrams and labels, classification keys, tables and a variety of graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, casual relationships, observations and collected data. Use results to draw conclusions, make predictions, suggest improvements, and raise further questions.
Knowledge	**Nursery** Develops an understanding of growth, decay and changes over time. Eats a range of healthy foods, and understands that it is good to take regular exercise, eat healthily, sleep well, and have good hygiene.	**Animals, including humans** Children will be able to identify, name, draw and label the basic parts of the human body. Find out about the five senses and say which part of the body is associated with each sense.	**Living things in their habitats** Children will be able to identify things that are living, things that are dead and things that have never been alive. Know that living things need to live in a suitable habitat. Identify and name a variety of plants and animals in their	**Animals, including humans** Know that humans get the nutrition they need form what they eat. They cannot make their own food. Explore human and animal skeletons and that the skeleton is needed for support, protection and movement, including the muscles. Know	**Living things in their habitats** To be able to identify a variety of habitats and explore why organisms live in different habitats. To be able to group organisms according to their characteristics. To be able to classify animals into specific groups according to their characteristics.	**Living things in their habitats** To describe the process of sexual reproduction in flowering plants. To describe the process of asexual reproduction in plants. To describe the process of sexual reproduction in animals. To observe and compare the life	**Living things in their habitats** To recap ways of grouping organisms according to their characteristics. To explore ways of distinguishing between organisms that have similar characteristics. To be able to classify plants according to their characteristic

	Explore and learn how sounds change, explores colour and how colour can be changed. Explore different sounds of instruments, experiment with different materials to make different textures. Explores what happens when they mix colours. Know the properties of some materials and can suggest some of the purposes they are used for. The unit incubate eggs and observe the wonder of hatching. They experience the taking care of newly hatched chicks observing the growth over a week or two. The experience gentle handling, understanding their own hygiene as well as that of the birds. Explore different materials feely, in order to develop their ideas about how to use them and what to make. Join different materials and explore different textures	Identity and name a variety of common animals, including common UK mammals, UK birds and UK fish. Identify and sort carnivores, and omnivores. **Plants** Know what a plant is, identify garden and wild plants, identify the different parts of a plant and make observations of growing plants. Identify which plants are found in grass, shade and around ponds. **Everyday Materials** Distinguish between an object and the material from which it is made. Describe materials according to their properties. Describe why some materials are suit certain objects better than others **Seasonal Changes** Find out about the different seasons and describe them. How are the seasons different? Know how animals and humans are affected by the seasons. Find out about the day length is affected by seasons. Investigate	habitats, including micro-habitats. Explore food chains and describe how animals obtain their food from plants and other animals. **Plants** Find out what plants need to grow and stay healthy. Observe and describe how plants grow, mature and reproduce. Understand that different seeds grow into different plants and plants can be grown from bulbs. Be able to explain why and how seeds are dispersed. Understand germination and how conditions affect germination. **Animals, including humans** Know that animals, including humans have offspring. Find out about the different ways in which animals reproduce. Find out what animals, including humans, need to survive and that the environment is a factor for the survival of humans, including humans. Find out and describe how to eat a healthy, balanced diet and why exercise is important	what muscles are and how the skeletal muscles help us move. **Plants** Describe the function of the roots flowering plants. Investigate how 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. Explore some of the ways in which flowering plants disperse their seeds. Understand the structure of seeds and their importance as a food source. **Rocks** Group rocks according to their characteristics. Identify rocks that are used for particular purposes. Explore soil and how it is formed and that soils are made from rocks and organic matter. Explore fossils and how they are formed and know that it was when things that have lived are trapped within rock. **Light** Know we need light to see. Notice and explore that light is reflected from surfaces. Understand how shadows are formed and that this occurs when light from a light a source is blocked by an opaque object. Investigate how	To be able to use a classification key to identify animals. To be able to identify and classify a variety of British plants. To explore the human impact on habitats and environments. **Animals, including humans** To be able to identify and classify carnivores, herbivores and omnivores. To be able to construct and interpret a variety of food chains. To identify the different types of teeth in humans and identify their functions. To explore different ways of keeping teeth healthy .To investigate how the digestive system works. To be able to describe the functions of the basic parts of the digestive system. **States of Matter** To compare and group materials together according to whether they are solids or liquids. To identify and explore the properties of gases. To observe that materials change state when they are heated or cooled. To research	cycles of animals in our local environment with other animals around the world. To compare how different animals reproduce and grow. To find out about the work of naturalists **Animals, including humans** To recognise the stages of growth and development in humans. To know the stages in the gestation period of humans and compare them to other animals. To recognise the stages of development during childhood and understand the needs of children at those stages. To understand the initial changes inside and outside of the body during puberty. To know the changes that occur during puberty and how they differ for boys and girls. To understand how the body changes during adulthood and old age. **Properties and changes in materials** To know that some materials will	To find out about Carl Linnaeus and his classification system. To explore what micro-organisms are and how they can be grouped. To be able to identify and classify organisms in the local area. **Animals, including humans** To find out how scientific ideas about food and diet were tested in the past and how this has contributed to our knowledge of a balanced diet. To investigate some different food groups and find out why a variety of foods is important for a healthy diet. To find out how nutrients and water are transported in the human body. To investigate what happens to the heart when we exercise and why. To investigate how muscles move the skeleton and how muscle activity requires increased blood flow. To investigate the effects of tobacco, alcohol and other drugs.

	Reception Go on a mini-beast hunt and observe where they live and what special features they have. Explore the natural world around them. Describe what they see, hear and feel. Recognise that some environments are different to the one in which they live. Understand the effect of changing seasons on the natural world around them. Explore the natural world around them and contrasting environments, drawing on their experiences and what has been read or discussed in class. Watch chicks develop over a period of time. Plant their own seeds, care for them and watch them change. Learn about healthy eating, discuss non-healthy foods and why we should eat 5 a day and the importance of exercise. Safely use and explore a variety of materials, tools and	the weather during the seasons	to keep our bodies healthy. **Uses of Everyday Materials** Identify and compare a variety of materials and sort them according them to their criteria and particular use. Identify that some materials can change shape by squashing, bending, stretching and twisting and others can't.	shadows behave and how the size of shadows change throughout the day. **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. Explore how magnetic forces work and that 2 magnets will attract or repel. Identify magnetic materials. Know that magnets have two poles.	the temperature in degrees Celsius (°C) at which materials change state. To understand the process of evaporation. To understand the process of condensation. To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Sound** To find out that sounds are made when objects and materials vibrate. To investigate whether sounds can travel through different materials. To explore the relationship between distance and volume. To find out that some materials are effective in preventing vibrations from sound sources reaching the ear. To investigate how sounds can be different pitches and volumes. To find out how the length, thickness and tightness of a string affects its pitch. To find out how sounds can be made by air vibrating and how to change the pitch of notes produced by vibrating air.	dissolve in liquid to form a solution, and describe how to recover a substance from a solution. That some changes of state and dissolving and mixing processes can be reversed through filtering, sieving and evaporating. Explain that some changes form new materials, and that these changes are not usually reversible. Explain that some changes, caused by heating or cooling form new materials, and that these changes are often not reversible. Explain that changes caused by burning form new materials, and that these changes are not reversible. To compare and group together everyday materials on the basis of their properties. To give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials. **Earth and Space** Describe the movement of the Earth, and other	To evaluate what we can do to keep our bodies healthy **Evolution and Inheritance** To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To identify how animals and plants are adapted to suit their environment in different ways. To understand that adaptation of plants and animals to suit their environment may lead to evolution. To find out about how the work of scientists has helped develop our understanding of the process of evolution. To recognise that living things have changed over time and that a number of factors can affect a species' evolution To understand how humans have evolved over time, and how human behaviour can affect change in species over time. **Light** To review understanding of light and shadow and to explore how light travels. To investigate how we see things

	techniques, experimenting with colour, design, texture, form and function. Share their creations explaining the process they have used.				**Electricity** To investigate circuits and their different components. To investigate the differences between mains and battery-powered circuits. To recognise some common conductors and insulators, and associate metals with being good conductors. To investigate the purposes of conducting and insulating materials. To be able to use knowledge of conductors and insulators to create switches to complete a circuit. To be able to plan and carry out an experiment to see how to change the brightness of a bulb.	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. **Forces** To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To identify the effects of friction acting between moving surfaces. To identify and explain the effects of air resistance. To identify and explain the effects of water resistance. To recognise that levers and pulleys allow a smaller force to have a greater effect. To recognise that gears allow a smaller force to have a greater effect.	through light entering the eyes. To explore how light can be reflected and change direction. To investigate reflections from a variety of surfaces. To be able to plan and carry out an experiment to investigate how shadows behave. To explore the differences between shadows and reflections and consolidate knowledge of how we see things **Electricity** To recap knowledge of electricity and circuits. To investigate ways in which the brightness of a bulb or speed of a motor is changed. To be able to recognise and use conventional symbols for circuits. To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb. To be able to review and assess understanding of circuits.

Vocabulary	Vibration, transparent, magnetic, hibernation, migration, Autumn, Winter, Spring, Summer. Herbivore, carnivore, omnivore, human, animal, fish, birds, head, ear, eye, mouth, nose, face, hair, leg, knee, arm, elbow, back, toes, hands, fingers, tree trunk, branch, leaves, flowers, stem, petals, fruit, roots bulb, seed. Material, wood, plastic, glass, paper, shiny, metal, rock, hard, soft, fabric, smooth, rough. Season, sun, day, dark, light, night, Earth, moon, planet, space, star. Loud, quiet, volume, sound.	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, hair, carnivores, herbivores, omnivores, senses, touch, sight, smell, taste, hear. Plants, leaf, flower, petal, fruit, root, seed, trunk, branch, stem, bark, evergreen, deciduous. Seasons, seasonal, Autumn, Winter, Spring, Summer, weather, sunrise, sunset, longest day, shortest day, summer solstice, winter solstice, rain, snow, sleet, wind, breeze, breezy, warm, hot, frosty, icy, freezing, temperature, Common, wild plants, garden plants, tree, deciduous, evergreen, trunk, branches, leaf, root, plant, bud, flowers, blossom, petals, stem, fruit, vegetables, bulb, seed. **Common animals,** fish, amphibian, reptiles, birds, mammals, meat, cat, dog, lion, tiger, fox, shark, whale, herbivores, plants, omnivore, meat, plants, human, neck, arms, elbows, face, knee, ears, eyes, hair, mouth, teeth**.**	Offspring, reproduction, growth, exercise, breathing, hygiene, germs, disease, healthy diet, eat well plate, good hygiene, balanced diet, survive, survival, environment, suitable, shelter. Living, dead, never been alive, habitat, micro-habitat, food chain, producer, predator. Plant, seed, bulb, germinate, seedling, bud, flower, fruit, berry, root, mature plant, light, water, suitable temperature. Materials, properties, transparent, opaque, flexible, rigid, reflective, non-reflective, absorbent, hard, strong, shiny, smooth, waterproof, rough, dull, Water, light, suitable temperature, grow, healthy, germination, reproduction, seeds, bulbs, dispersal, conditions. Offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, egg, chick, chicken, egg, caterpillar, pupa, butterfly, spawn, tadpole, lamb, sheep, baby, toddler, child, teenager, adult. Living, dead, never alive, habitats, micro-habitats, food, food chain, sun, grass, cow,	Skeleton, skull, bones, muscles, movement, support, protection, nutrition. Air, water, transportation, nutrients, soil, reproduction, seed formation, seed dispersal, pollination. Rock, soil , slate, granite, sandstone, marble, crystals, Absorbent, crumble, sedimentary, layer, igneous, metamorphic, change, pressure. Light source, mirror, reflect, reflective, reflection, shadow, blocked, transparent, translucent, opaque. Force, contact, surface, magnetic, attract, repel, poles. Structure, flowering plants, roots, stem, trunk, leaves, flowers. Function, nutrition, support, reproduction, makes own food. Requirements for life, air, light, water, nutrients from the soil, room to grow, fertiliser. Life Cycles, flowers, pollination, seed formation, seed dispersal. Nutrients, vitamins, minerals, fat, protein, carbohydrates, fibre, water, skeleton, support, protection, skull, brain, ribs, heart, lungs, joint, muscles, movement, pull, contract, relax, diet. Light, se, dark, reflect, reflective, surface, natural, star, sun,	Mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, nutrients, absorb, canine, incisor, molar, producer, consumer, apex, predator. Vertebrates, invertebrates, environment, habitat, classification key. Solid, liquid, gas, evaporation, condensation, particle, temperature, freezing , heating Sound, soundwave, vibrate, vibration, pitch, volume, tone, air, insulate, insulation, loud, faint, soundproof, Electricity, electrical appliance, device, mains, plug, complete circuit, component, cell, battery, positive, negative, connect/connection, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-mental, symbol. Research, relevant questions, scientific enquiry, comparative and fair tests, accurate observations, gather, record, classify, present, labelled diagrams, keys, bar charts, tables, oral and written	Mammal, reproduction, insect, amphibian, bird, offspring, asexual, fertilise, gestation, life cycle, metamorphosis, pollination, Prenatal, infancy, childhood, adolescence, Materials, solids, liquids, gases, melting, freezing, evaporation, condensing, conductor, insulator, transparency, soluble, insoluble, dissolve. Sun, star, moon, planet, sphere, spherical bodies, satellite, solar system, orbit, rotate, axis, Forces, gravity, Earth's gravitational pull, weight, mass, Isaac Newton, friction, air resistance, water resistance, buoyancy, streamlined, mechanism, up thrust. Plan, variables, measurements, accuracy, precision, repeated testing, record data, scientifically, diagrams, label, tables, classification keys, bar/line graphs, predications, further comparative and fair tests, report and present,	Classification, vertebrates, invertebrates, micro-organisms, amphibians, reptiles, mammals, insects, crustaceans ,micro-organism, Circulatory, heart, blood, muscles, fibrous, vessels, veins, arteries, capillaries, oxygenated, deoxygenated, volva, exercise, respiration, organs, \breeding, environment, inherit, fossil, offspring, reproduction, variation, adaptation, evolution. Voltage, switch, current, cell, conductor, circuit, buzzer, bull, open, closed, cells, brightness, electrical current, Light source reflection, refraction, spectrum, shadow, light, opaque, transparent, translucent, Plan, variables, measurements, accuracy, precision, repeated testing, record data, scientifically, diagrams, label, tables, classification keys, bar/line graphs, predications, further comparative and fair tests, report and present, conclusions,

		Season, Spring, Summer, Autumn, Winter, weather, hot, warm, cold, cool, sun, sunny, cloud, cloudy, snow, snowy, hail, sleet, frost, fog, mist, ice, icy, rainbow, thunder, lightning, storm, light, dark, day, night, Material, wood, plastic, glass, paper, water, metal rock, hard, soft, bendy, rough, smooth, shiny, dull, waterproof, absorbent, brick, elastic, foil. Question, answer, observe, equipment, identify, classify, sort, group, record, diagram, chart, map, data, compare, contrast, describe.	human, alive, leaf litter, stony path, under bushes, shelter, seashore, woodland, ocean, rainforest, conditions, hot, warm, cold, dry, damp, wet, bright, shade, dark. Wood, metal, plastic, glass, brick, rock, paper, cardboard, squashing, bending, twisting, stretching, Question, answer, observe, equipment, identify, classify, sort, group, diagram, chart, map, data, compare, contrast, describe, biology, chemistry, physics.	moon, artificial, candle, lamp, translucent, transparent, rock, stone, pebble, boulder, soil, fossil, grains, crystals, hard, soft, texture, absorb, water, marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat. Force, push, pull, open, surface, magnet, magnetic, north, south, metal, iron, steel, Research, relevant questions, scientific enquiry, comparative and fair tests, accurate observations, gather, record, classify, present, labelled diagrams, keys, bar charts, tables, oral and written explanation, conclusions, predictions, differences, similarities	explanation, conclusions, predictions, differences, similarities,	conclusions, explanations, casual relationships, degree of trust, oral and written, evidence, systematic, ideas, support, challenge	explanations, casual relationships, degree of trust, oral and written, evidence, systematic, ideas, support, challenge,
End Points	At the end of Nursery children will know that plants have seeds and care for a growing plant. Understand the key features of the life cycle of a plant and animal. Begin to understand the need to respect and care for the natural environment and all living things. Talk about the differences between materials and changes they notice, Explore and talk about the different forces they can feel. At the end of Reception children will be able to explore the natural world around them, making observations and drawing pictures of animals and plants. Understand some important process and changed in the natural world, including the seasons and changing states in matter. Describe what they see, hear and feel whilst outside. 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.						
End Points **KS1 (NC)**	Year 1 and 2 pupils, will be able to ask simple questions, use simple equipment and observe closely, perform simple tests, identify and classify, use their observations to suggest ideas and answer questions. Year 1 will be able to name a variety of common wild and garden plants, know what deciduous and evergreen trees are. Identify and describe the Basic structure of common flowering plants. Identify and name common animals: fish, amphibians, reptiles, birds and mammal, identify and name a variety of common animals that are carnivores, herbivores and omnivores. Draw and label the basic parts of the human body and say which part of the body is associated with each sense. Distinguish between an object and the material from which it is made, name a variety of every day materials, and describe the simple physical properties of a variety of everyday materials. Observe changes across the four seasons, observe and describe the weather associated with the seasons and how day length varies. Year 2 will be able to explore and compare the differences between things that are living, dead and things that have never been alive, identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants. Identify and name a variety of plants and animals in their habitats, including micro-habitats. Describe how animals obtain their food and show an understanding of food chains. 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. Know that animals, including humans have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans for survival. Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. Identify and compare the suitability of a variety of everyday materials and find out how the shapes of solid objects made from some materials con be changed.						

End Points **KS2 (NC)**	During Year 3 and 4, pupils will be able to ask relevant questions, using different types of scientific enquiries. Set up simple practical enquiries, comparative and fair tests, make systematic and careful observations, take accurate measurements, gather, record, classify and present data. Record findings using simple scientific language, make drawings, label diagrams, produce keys, bar charts and tables. Report findings, use results to draw simple conclusions, make predictions and raise further questions. Year 3 – identify and describe the functions of different parts of flowering plants, roots, stem, trunk, leaves and flowers. Know what a plant needs to survive, investigate the way water is transported in plants, explore the life cycle of plants, including pollination, seed formation and seed dispersal. Identify that animal, including humans, need the right amount of nutrition and they cannot make their own food. Know that humans and some animals have skeletons and muscles for support, protection and movement. Pupils will be able to compare and group together rocks on appearance and simple physical properties, describe how fossils are formed, recognise that soils are made from rocks and organic matter. Recognise that they need light in order to see, notice that light is reflected form surfaces, recognise that shadows are formed when the light from a light source is blocked by an opaque object, find patterns in the way that the size of shadows change. Compare how things move on different surfaces, notice that some forces need contact between two objects, know magnets, repel and attract, describe magnets as having two poles. Year 4 – recognise that living things are grouped in a variety of ways, use classification keys, recognise that some environments may change. 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 food chains. Compare and group materials together, according to solid, liquid of gas. Observe that some materials change state, identify the part played by evaporation and condensation in the water cycle. Identify how sounds are made, recognise that vibrations from sounds travel through a medium to the ear, find patterns between pitch and sound and the volume of sound. Recognise that sounds get fainter as the distance of the sound source increases. Construct a simple circuit, identifying and naming basic parts, recognise that a switch opens and closes a circuit, recognise common conductors and insulators. During Year and 6, pupils will be able to ask relevant questions, plan different types of scientific enquiries, recognising and controlling variables. Set up practical enquiries, comparative and fair tests, make systematic and careful observations, take accurate measurements, using a range of scientific equipment, gather, record, classify and present data. Record data and results of increasing complexity, using simple scientific language, make drawings, classification keys, scatter graphs , produce keys, bar charts and tables. Report findings, use results to draw simple conclusions, make predictions and raise further questions. Identify scientific evidence that has been used to support or refute ideas or arguments. Year 5 – describe the difference in the life cycles of a mammal, an amphibian, an insect and a bird, describe the process of reproduction in some plants and animals. Describe the changes as humans develop to old age, learn about the changes experienced in puberty, research gestation periods of other animals and compare them to humans. Compare and group everyday materials on the basis of their properties, know that some materials will dissolve in liquid to form a solution, use knowledge of solids, liquids and gases to decide how mixtures might be separated, give reasons for the particular uses of everyday materials, take about materials and the formation of new materials. Describe the movement of the Earth and other planets, relative to the Sun, describe the movement of the Moon relative to the Earth, use the term approximately spherical bodies, use the idea of the Earth's rotation to explain day and night. Explain that unsupported objects fall towards the Earth because of the force of the gravity, discuss the effects of air resistance, water resistance and friction, recognise that some mechanisms including pulleys and gears, allow a smaller force to have a greater effect. Year 6 – describe how living things are classified into broad groups according to observable characteristics, give reasons to classify plants and animals. Identify the name and 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. Recognise that living things have changed over time and that fossils provide information about living things, recognise that living things produce offspring, identify how animals and plants are adapted to suit their environment. Recognise that light travels in straight lines and that as light travels in straight lines, explains why shadows have the same shape as the objects that cast them. 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 on/off position of switches, recognise symbols when representing a simple circuit in a diagram.