

Science National Curriculum End of Key Stage expectations

Working Scientifically

	KS1	Lower KS2	Upper KS2
Statutory	asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions	asking relevant questions and using different types of scientific enquiries to answer them 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 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests 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 identifying scientific evidence that has been used to support or refute ideas or arguments
Guidance	Pupils should: experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions use simple features to compare objects, materials and living things and, with help, decide how to sort and group them, observe changes over time, begin to notice patterns and relationships ask people questions and use simple secondary sources to find use simple measurements and equipment (eg hand lenses, egg timers) to gather data, carry out simple tests, record simple data, talk about what they have found out and how they found it out record and communicate their findings in a range of ways and begin to use simple scientific language.	Pupils should: be given a range of scientific experiences to enable them to raise their own questions about the world around them make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions recognise when a simple fair test is necessary and help to decide how to set it up talk about criteria for grouping, sorting and classifying; and use simple keys begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used learn how to use new equipment, eg data loggers, collect data from their own observations and measurements, using notes, simple tables and standard units help to make decisions about how to record and analyse this data look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.	Pupils should: use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.



North Leigh CE Primary School: Progression of Skills in Science

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living Things and their habitats		explore and compare the differences between things that are living, dead, and things that have never been alive identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other identify and name a variety of plants and animals in their habitats, including micro-habitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.		recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things.	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.	describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.
Animals inc humans	Identify and name a variety of common animals incl fish, amphibians, birds & mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of common animals (birds, fish, amphibians, reptiles, mammals, invertebrates (& incl pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	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	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 animals have skeletons and muscles for support, protection and movement.	describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey	Describe the changes as humans develop to old age.	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.
Plants	identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.	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.	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			

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Use of 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 compare and group together a variety of everyday materials on the basis of their simple physical properties	identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.			Properties and changes of materials	
			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 sedimentary rock. recognise that soils are made from rocks and organic matter	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 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.		Evolution and inheritance 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

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Seasonal Changes	observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies.		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 source is blocked by a solid object find patterns in the way that the size of shadows change.	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 recognise that sounds get fainter as the distance from the sound source increases find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases	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 apparent movement of the sun across the sky.	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 shadows have the same shape as the objects that cast them.
			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 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	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 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	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.	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 on/off position of switches use recognised symbols when representing a simple circuit in a diagram.