Long Knowle Primary School	Skills Progression
Key Stage 2	Subject Area: Science

The National Curriculum	**In Lower Key Stage 2** the principal focus of science teaching is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. **In Upper Key Stage 2** the principal focus of science teaching is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. Pupils should read, spell and pronounce scientific vocabulary correctly. **Working scientifically** The opportunities for working scientifically detailed below should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4. Pupils are not expected to cover each aspect for every area of study. The opportunities for working scientifically detailed below should be provided across years 5 and 6 so that the expectations in the programme of study can be met by the end of year 6. Pupils are not expected to cover each aspect for every area of study.

	Year 3	Year 4	Year 5	Year 6
Working Scientifically	I can ask relevant questions and use different types of scientific enquiry to answer them. • I can set up practical enquiries, comparative and fair tests. • I can make systematic and careful observations, and, where appropriate, take accurate. measurements in 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 answer questions. • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • I can identify 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.		• I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • I can take measurements, using 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 line and bar graphs. • I can use test results to make predictions to set up further comparative and fair tests. • I can report and present findings from enquiries, including conclusions, casual 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 arguments.	
Animals including humans	I can identify that animals, including humans, need the right types of nutrition, and they cannot make their own food; they get nutrition from what they eat . • I can identify that humans and some animals have skeletons and muscles for support, protection and movement . *(Spring 1)*	• I can describe the simple functions of the basic parts of the digestive system in humans . • I can identify the different types of teeth in humans and describe their simple functions . • I can construct and interpret a variety of food chains, identifying producers, predators and prey *(Summer 1)*	. • I can describe the changes as humans develop from birth to old age in detail. *(Summer 2)*	• 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 their bodies function. • I can describe the ways in which nutrients and water are transported within animals, including humans. *(Summer 1)*

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Plants/Living things and their habitats	**Plants** • I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • I can 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. • I can investigate the 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. *(Summer 2)*	**Living things and their habitats** • I can recognise that living things can be grouped in a variety of ways • I can explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment. • I can recognise that environments can change and that this can sometimes pose dangers to living things . *(Spring 1)*	**Living things and their habitats** • I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • I can describe the life process of reproduction in some plants and animals. *(Summer 1)*	**Living things and their habitats** • I can 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. • I can give reasons for classifying plants and animals based on specific characteristics. *(Autumn 1)*

	Year 3	Year 4	Year 5	Year 6
Materials			I can group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity and response to magnets . • I know that some materials will dissolve in liquid to form a solution and can 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 through 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, woods and plastics . • 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 *(Autumn 1)*	

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Rocks	I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties . • I can describe how fossils are formed when things that have lived are trapped within rocks . • I can recognise that soils are made from rocks and organic matter *(Autumn 1)*			
Light or Sound	**Light** I can recognise that I need light in order to see things and that dark is the absence of light . • I can notice light is reflected from surfaces . • I can recognise that light from the sun can be dangerous and that there are ways to protect my eyes . • I can recognise that shadows are formed when the light from a light source is blocked by an opaque object . • I can find patterns in the way that the size of shadows change . *(Summer 1)*	**Sound** • I can identify how sounds are made, associating some of them with something vibrating . • I can recognise 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 find patterns between the volume of a sound and the strength of the vibrations that produced it . • I can recognise that sounds get fainter as the distance from the sound source increases . *(Summer 2)*		**Light** I can recognise that light appears to travel in straight lines. • I can 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. • I 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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. *(Spring 1)*

	Year 3	Year 4	Year 5	Year 6
Forces and Magnets	• I can compare how things move on different surfaces . • I can notice that some 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 together a variety of everyday materials on the basis of whether 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 . *(Autumn 2)*		I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. • I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. *(Spring 1)*	

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States of Matter		• I can compare and group materials together according the whether they are solids, liquids or gases . • I can observe that some materials look different or appear to disappear when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius. • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. *(Autumn 1)*		
Earth and Space			• I can describe the movement of the Earth and other planets in relation to the sun in the solar system. • I can describe the movement of the moon in relation to the Earth. • I can describe the sun, Earth and moon as approximately spherical bodies. • I can use the idea of Earth's rotation to explain day and night and the apparent movement of the sun across the sky. *(Spring 2)*	

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Electricity		I can identify common appliance that run on electricity . • I can construct a simple series circuit and name its basic parts including cells, wires, bulbs, switches and buzzers . • I can 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. • I can recognise that switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • I can recognise some common conductors and insulators and associate metals with being good conductors . *(Autumn 2)*		• I can associate the brightness of a lamp or volume of a buzzer with the number and voltage of cells used in the circuit. I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness or buzzers and the on/off position of switches. • I can use the recognised symbols when representing a simple circuit in a diagram. *(Spring 2)*
Evolution and Inheritance				I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. *(Autumn 2)*