



Learning Journey (Intent)

Lower KS2	Working Scientifically	Plants	Animals including humans	Materials (and their uses)	Living Things and their habitats	Other
Year 3	<ul style="list-style-type: none"> Use different ideas and suggest how to find something out Plan a fair test and explain why it was fair Set up simple practical enquiries, comparative and fair tests Explain why they need to collect information to answer a question Make systematic and careful observations and, where appropriate, take accurate measurements using standard units Record their observations in different ways, for example, labelled diagrams, charts etc. Explain what they have found out and use their measurements to say whether it helps to answer their question Use a range of equipment, (including a thermometer and data-logger) 	<ul style="list-style-type: none"> 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 <p>Key vocabulary Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints</p>	<p>Forces and magnets</p> <ul style="list-style-type: none"> 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 <p>Key vocabulary Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole</p>	<p>Rocks</p> <ul style="list-style-type: none"> 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 from rocks and organic matter <p>Key vocabulary Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p>	<p>Light</p> <ul style="list-style-type: none"> 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 an opaque object Find patterns in the way that the size of shadows change <p>Key vocabulary Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p>
	Year 4	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Decide which information needs to be collected and decide which is the best way for collecting it Take measurements using different equipment and units of measure and record what they have found in a range of ways Make accurate measurements using standard units Explain their findings in different ways, for example, display, presentation, writing Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Make predictions based on something they have found out Record and present what they have found using scientific language, drawings, labelled diagrams, keys, bar charts and tables 		<ul style="list-style-type: none"> 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. <p>Key vocabulary Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain</p>	<p>States of matter</p> <ul style="list-style-type: none"> 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 <p>Key vocabulary Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>
<p>Lower KS2 Pupils are expected to know, apply and understand the matters, skills and processes specified in the programme of study (above). The principal focus of science teaching in Lower KS2 is to...</p> <ul style="list-style-type: none"> enable pupils to broaden their scientific view of the world around them. explore, talk about, test and develop ideas about everyday phenomena and the relationships between living things and familiar environments develop their ideas about functions, relationships and interactions. Enable pupils to 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. 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 draw simple conclusions and use some scientific language and, later, to write about what they have found out. read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. 'Working scientifically' is described separately study, but must always be taught through and clearly related to the teaching of substantive science content. 						

Science

Learning Journey (Intent)



Great Moor Junior School

“Learning Together”

Respect, Kindness, Tolerance, Responsibility, Co-operation

Upper KS2	Working Scientifically	Evolution and Inheritance	Animals including humans	Materials (and their uses)	Living Things and their habitats	Other
Year 5	<ul style="list-style-type: none"> Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests 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 Identify scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> 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 <p>Key vocabulary Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>	<ul style="list-style-type: none"> describe the changes as humans develop to old age <p>Key vocabulary Puberty: the vocabulary to describe sexual characteristics</p>	<ul style="list-style-type: none"> 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 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 <p>Key vocabulary Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets</p> <p style="text-align: center;">Forces</p> <ul style="list-style-type: none"> 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 <p>Key vocabulary Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears</p>
Year 6	<ul style="list-style-type: none"> Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests 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 Identify scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> 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 <p>Key vocabulary Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering</p>	<ul style="list-style-type: none"> 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 <p>Key vocabulary Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering</p>	<p style="text-align: center;">Light</p> <ul style="list-style-type: none"> 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 <p>Key vocabulary As for year 3 plus straight lines, light rays.</p> <p style="text-align: center;">Electricity</p> <ul style="list-style-type: none"> 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 <p>Key Vocabulary Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably</p>
<p>Upper KS2 Pupils are expected to know, apply and understand the matters, skills and processes specified in the programme of study (above). The principal focus of science teaching in Upper KS2 is to...</p> <ul style="list-style-type: none"> enable pupils to develop a deeper understanding of a wide range of scientific ideas. explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. recognise that scientific ideas change and develop over time. 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. 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. read, spell and pronounce scientific vocabulary correctly. 'Working scientifically' is described separately study, but must always be taught through and clearly related to the teaching of substantive science content. 						

