Church Preen KS2 Science – Progression mapping

Knowledge	**LKS2 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.	**LKS2 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.	**LKS2 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 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.
	UKS2 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.	**UKS2 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.	**UKS2 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.
Skills	**LKS2** • I can raise my own and other relevant questions about world around me. • I can begin to make my own decisions about the most appropriate types of scientific enquiry. • I can set up simple fair test. • I can look for patterns and relationships. • I can collect and record data from my own	**LKS2** • I can raise my own and other relevant questions about world around me. • I can begin to make my own decisions about the most appropriate types of scientific enquiry. • I can use criteria for grouping sorting and classifying. • I can make careful observations. • I can record data in simple labelled diagrams.	**LKS2** • I can raise my own and other relevant questions about world around me. • I can begin to make my own decisions about the most appropriate types of scientific enquiry. • I can use secondary sources to help answer questions that can't be answered through practical investigations.

<table>
<tr><td></td><td colspan="2">observations and measurements.
• I can present data in tables and bar charts.
• I can draw simple conclusions and answer questions.
• I can use relevant simple scientific language to discuss ideas and communicate findings.
• I can identify new questions arising from collected data.</td><td colspan="2"></td><td colspan="2">• I can set up simple fair test.
• I can identify new questions arising from collected data.</td></tr>
<tr><td></td><td colspan="2">Scientific Enquiry focus: IC PS FT R</td><td colspan="2">Scientific Enquiry focus: PS IC FT</td><td colspan="2">Scientific Enquiry focus: PS FT</td></tr>
<tr><td></td><td colspan="2">UKS2
• I can use scientific knowledge and experience to raise new questions.
• I can select and plan most appropriate type of scientific enquiry to answer scientific questions.
• I can talk about how scientific ideas have developed over time.
• I can plan a fair test and explain which variable need to be controlled.
• I can look for causal relationships in the collected data.
• I can choose appropriate equipment to make measurements.
• I can present data in tables and bar line graphs.
• I can use the collected data to draw conclusions.</td><td colspan="2">UKS2
• I can use scientific knowledge and experience to raise new questions.
• I can select and plan most appropriate type of scientific enquiry to answer scientific questions.
• I can record results using scientific diagrams.
• I can look for causal relationships in the collected data.
• I can use relevant scientific language to communicate causal relationships.</td><td colspan="2">UKS2
• I can use scientific knowledge and experience to raise new questions.
• I can select and plan most appropriate type of scientific enquiry to answer scientific questions.
• I can use secondary sources to help answer questions through research.
• I can use the collected data to draw conclusions and ask new questions.</td></tr>
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<tr><td>Vocabulary</td><td>LKS2
compare
surface
force
magnetic
attract
repel
magnetic
materials</td><td>UKS2
force
gravity
air resistance
friction
levers
pulleys
gears
smaller
greater</td><td>LKS2
common
appliances
electricity
simple series
circuit
cells
wires
bulbs
switches
buzzers
lamp
switch
open
closed
conductors
insulators</td><td>UKS2
brightness
lamp
volume
voltage
variation
loudness
symbols
diagram</td><td>LKS2
vibrate
ear
pitch
sound
volume
pattern
strength
feint
source</td><td>UKS2
movement
earth
planets
sun
solar system
moon
spherical
rotation
day
night</td></tr>
</table>

Knowledge	**LKS2 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 an opaque object • find patterns in the way that the size of shadows change.	**LKS2 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.	**LKS2 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. • 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/ interpret a variety of food chains, identifying producers, predators and prey.
	UKS2 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.	**UKS2 Materials and their Properties** • 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	**UKS2 Animals, including Humans** • 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.

<table>
<tr><td></td><td colspan="2"></td><td colspan="2">the action of acid on bicarbonate of soda.
•</td><td colspan="2"></td></tr>
<tr><td rowspan="4">Skills</td><td colspan="2">LKS2
• I can raise my own and other relevant questions about world around me.
• I can begin to make my own decisions about the most appropriate types of scientific enquiry.
• I can use secondary sources to help answer questions that can't be answered through practical investigations.
• I can set up simple fair test.
• I can identify new questions arising from collected data.</td><td colspan="2">LKS2
• I can talk about criteria for grouping, sorting and classifying.
• I can make systematic and careful observations.
• I can take accurate measurements using standard units and use a range of equipment appropriately.
• I can collect and record data from my own observations and measurement in a variety of ways.
• I can set up simple fair test.
• I can identify new questions arising from collected data.
• I can look for changes, patterns, similarities and differences in my data and communicate my findings in appropriate ways.</td><td colspan="2">LKS2
• I can raise my own and other relevant questions about world around me.
• I can use secondary sources to help answer questions that can't be answered through practical investigations.
• I can look for naturally occurring patterns and relationships and decide what data to collect to identify them.
• I can look for changes, patterns, similarities and differences in my data and communicate my findings in appropriate ways.</td></tr>
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• I can use scientific knowledge and experience to raise new questions.
• I can select and plan most appropriate type of scientific enquiry to answer scientific questions.
• I can use secondary sources to help answer questions through research.
• I can plan a fair test and explain which variable need to be controlled.
• I can use the collected data to draw conclusions and ask new questions.</td><td colspan="2">UKS2
• I can use scientific knowledge and experience to raise new questions.
• I can select and plan most appropriate type of scientific enquiry to answer scientific questions.
• I can plan a fair test and explain which variable need to be controlled.
• I can make decision about what to observe, measure and how long.
• I can record data and results of increasing complexity.
• I can use the collected data to draw conclusions and ask new questions.</td><td colspan="2">UKS2
• I can use scientific knowledge and experience to raise new questions.
• I can talk about how scientific ideas have developed over time.
• I can use and develop keys and other information, records to identify/classify and describe living things.
• I can use secondary sources to help answer questions through research, separating opinion from fact.
• I can identify scientific evidence that has been used to support or refute ideas or arguments.
• I can use relevant scientific language and illustrations to discuss, communicate and justify my scientific ideas.</td></tr>
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<tr><td>Vocabulary</td><td>LKS2
light
dark
surfaces
reflected</td><td>UKS2
light
travel
straight lines
reflect</td><td>LKS2
liquids
gases
heated
cooled</td><td>UKS2
hardness
solubility
transparency</td><td>LKS2
skeleton
muscles
support
protection</td><td>UKS2
old age
develop
circulatory system</td></tr>
</table>

	danger shadows light source blocked change	eye shadows light source	temperature degrees Celsius (°C) evaporation condensation	electrical conductivity thermal conductivity response to magnets dissolve solution recover from solution separated filtering sieving evaporating dissolving mixing changes of state reversible changes burning bicarbonate of soda	movement digestive system construct interpret producers predators prey	heart blood vessels blood drugs lifestyle nutrients transported

Knowledge	**LKS2 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 from rocks and organic matter	**LKS2 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 formation and seed dispersal. **LKS2 Living Things and Their 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 dangers to living things
	UKS2 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.	**UKS2 Living Things and Their 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. • 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.
Skills	**LKS2** • I can raise my own and other relevant questions about world around me. • I can begin to make my own decisions about the most appropriate types of scientific enquiry.	**LKS2** • I can raise my own and other relevant questions about world around me. • I can begin to make my own decisions about the most appropriate types of scientific enquiry.

	• I can use secondary sources to help answer questions that can't be answered through practical investigations.		• I can begin to make decisions about what/how long/how to observe change over time • I can use criteria for grouping sorting and classifying. • I can use secondary sources to help answer questions that can't be answered through practical investigations.
	Scientific Enquiry focus: **IC R**		Scientific Enquiry focus: **OT PS IC**
	UKS2 • I can use scientific knowledge and experience to raise new questions. • I can select and plan most appropriate type of scientific enquiry to answer scientific questions. • I can use secondary sources to help answer questions through research.		**UKS2** • I can use scientific knowledge and experience to raise new questions. • I can select and plan most appropriate type of scientific enquiry to answer scientific questions. • I can use secondary sources to help answer questions through research. • I can use and create keys to classify and describe living things. • I can identify patterns that might be found in the natural environment.
	Scientific Enquiry focus: **IC R**		Scientific Enquiry focus: **OT IC**
Vocabulary	**LKS2** rocks appearances physical properties fossils soil organic matter	**UKS2** inhabited changed produce vary not identical parents adopted adaptation evolution	**LKS2** function trunk nutrients transported life cycle pollination seed formation seed dispersal living things classification keys local environment wider environment

Scientific Enquiry – Observation over Time **OT** / Pattern Seeking **PS** / Identifying and Classifying **IC** / Fair Testing **FT** / Researching **R**