

## Our Lady Star of the Sea Science Programme of study (PoS) Year 3

Living Things	Physical Processes
<p><b>Animals– Skeletons and movement</b></p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Identify animals (vertebrates) which have a skeleton which supports their body, aids movement &amp; protects vital organs (e.g. name and locate skull, backbone, ribs, bones for movement/limbs, pelvis and be able to name some of the vital organs protected).</p> <p>Identify animals without internal skeletons/backbones (invertebrates) and describe how they have adapted other ways to support themselves, move &amp; protect their vital organs.</p> <p>Know how the skeletons of birds, mammals, fish, amphibians or reptiles are similar (backbone, ribs, skull, bones used for movement) and the differences in their skeletons.</p> <p>Know that muscles, which are attached to the skeleton, help animals move parts of their body.</p> <p>Explore how humans grow bigger as they reach maturity by making comparisons linked to body proportions and skeleton growth – e.g. do people with longer legs have longer arm spans?</p> <p>Recognise that animals are alive; they move, feed, grow, use their senses and reproduce.</p>	<p><b>Forces and magnets</b></p> <p>Compare how some things move on different surfaces.</p> <p>Notice that some forces need contact between two objects but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles (like and unlike poles).</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button, horseshoe)</p>
<p><b>Animals Teeth Eating and Digestion</b></p> <p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey (<i>NB Link with types of teeth and eating in this unit but this concept could be developed further in the yr4 Environment / habitats unit</i>).</p> <p>Describe how teeth and gums have to be cared for in order to keep them healthy.</p> <p>Investigate the main body parts associated with the digestive system, for example, mouth, tongue, teeth, esophagus, stomach and small and large intestine and explore questions that help them understand their special functions.</p> <p><b>Environment—living things and their environment</b></p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Use and make identification keys for plants and animals.</p>	<p><b>Light Reflections and Shadows</b></p> <p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows can change.</p> <p>Explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure shadows and find out how they are formed and what might cause shadows to change.</p> <p><b>Note:</b> Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.</p>

## Electricity

### **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.

Electricity can be dangerous.

Electricity sources can be mains or battery.

Batteries 'push' electricity round a circuit and can make bulbs, buzzers and motors work.

Faults in circuits can be found by methodically testing connections.

Drawings, photographs and diagrams can be used to represent circuits (although standard symbols need not be introduced until UKS2).

# Our Lady Star of the Sea SCIENCE KEY SKILLS YEAR 3

	Exploring and observing	Grouping and classifying	Questioning	Research	Modelling	Collaborating
	<p><b>UKS2</b> - developing a deeper understanding of a wide range of scientific ideas and encountering more abstract ideas</p> <p><b>LKS2</b> - developing their own ideas and their understanding of the world around them</p>	<p><b>UKS2</b> - Compare and contrast a variety of examples linked to UKS2 PoS</p> <p><b>LKS2</b> - Compare and contrast a variety of examples linked to LKS2 PoS</p>	<p><b>UKS2</b> - asking their own questions about scientific phenomena</p> <p><b>LKS2</b> - asking relevant questions</p>	<p><b>UKS2</b> - summarise research from a wide variety of sources and recognising that scientific ideas change and develop over time</p> <p><b>LKS2</b> - finding things out using a wide range of secondary sources of information</p>	<p>using dance, drama or a visual aid to represent science in the real world</p>	<p>interacting effectively as part of a group</p>
Year 4	<p>Suggest their own ideas on a concept and compare these with what they observe / find out.</p> <p>Use observations to suggest what to do next</p> <p>Discuss ideas and develop descriptions from their observations using relevant scientific language and vocabulary (from Y4 PoS)</p> <p>Observe and record relationships between structure and function or between different parts of a processes (linked to Y4 PoS)</p> <p>Observe and record changes /stages over time (linked to Y4 PoS)</p>	<p>Make a simple guide to local living things.</p> <p>Use guides or simple keys to classify / identify [animals, flowering plants and non-flowering plants].</p> <p>Use their observations to identify and classify</p> <p>Begin to give reasons for these similarities and differences.</p> <p>Record similarities as well as differences and/or changes related to simple scientific ideas or processes or more complex groups of objects/living things/ events</p> <p><i>(e.g. evaporation and condensation, different food chains, different electrical circuits)</i></p>	<p>Ask/raise their own relevant questions with increasing confidence and independence that can be explored, observed, tested or investigated further</p> <p>Ask questions such as ‘What will happen if...?’ or ‘What if we changed...?’ ( linked with Y4 PoS)</p> <p>Choose/select a relevant question that can be answered [by research or experiment / test].</p>	<p>Make decisions about which information to use from a wide range of sources and make decisions about how to present their research</p> <p>Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.</p>	<p>Make a visual representation or a model of something to represent something they have seen or a process that is difficult to see.</p> <p>Suggest their own ideas on a concept and compare these with models or images.</p>	<p>Make some decisions about an idea within a group <i>(e.g. I think we should find out by testing..)</i></p> <p>Increasingly support, listen to and acknowledge others in the group</p> <p>Build on / add to someone else’s idea to improve a plan.</p> <p>Understand that it is okay to disagree with their peers and offer reasons for their opinion</p>
Year 3	<p>Observe and record relationships between structure and function (linked to Y3 PoS)</p> <p>Observe and record changes /stages over time (linked to Y3 PoS)</p> <p>Explore / observe things in the local environment / real contexts and record observations (linked to Y3 PoS) – see ‘Communicating’ section also re links to vocabulary</p>	<p>Decide ways and give reasons for sorting, grouping, classifying, identifying things/objects, living things, processes or events based on specific characteristics</p> <p>Compare and contrast and begin to consider the relationships between different things</p> <p><i>(e.g. structures of plants, functions of plant parts, diets, skeletons of humans and other animals, changes over time, etc.)</i></p> <p>Record similarities as well as differences <i>(e.g. what do all skeletons have? as well as the differences between skeletons)</i></p>	<p>Explore their own ideas about ‘what if...?’ scenarios e.g. humans did not have skeletons.</p> <p>Ask questions such as ‘What if we tried...?’ or ‘What if we changed...?’</p> <p>Begin to understand that some questions can be tested in the classroom and some cannot.</p> <p>Within a group suggest questions that can be explored, observed, tested or investigated further</p> <p>Within a group suggest relevant questions about what they observe and about the world around them.</p>	<p>Find things out using a range of secondary sources of information <i>(e.g. books, photographs, videos and other technology)</i></p>	<p>Act out or make a model of something to represent something in the real world using appropriate scientific vocabulary verbally.</p>	<p>Begin to make some decisions about an idea within a group from a list of choices <i>(e.g. let’s put them all in a pile first OR I think we should try ...)</i></p> <p>With help; support, listen to and acknowledge others in the group <i>(e.g. Yes. I prefer that one too)</i></p> <p>Build on / add to someone else’s idea. <i>(e.g. we could use x and as well as y)</i></p> <p>Begin to understand that it is okay to disagree with their peers and offer a reason for their opinion</p>
Year 2	<p>Use simple scientific language from the year 2 PoS to talk about / <b>record</b> what they have noticed</p> <p>Use observations to make suggestions and/or ask questions</p> <p><b>Observe</b> and describe simple processes/ cycles/changes with several steps <i>(e.g. growth cycle, simple food chain, saying how living things depend on one another)</i></p> <p><b>Observe</b> closely and communicate with increasing accuracy the features or properties of things in the real world</p>	<p><b>Name / Identify</b> common examples, some common features or different uses</p> <p><b>Sort</b> and <b>group</b> objects, materials or living things by observable and/or behavioural features</p> <p><b>Compare</b> and contrast... a variety of things [objects, materials or living things] - focusing on the similarities as well as the differences</p>	<p>Raise their own logical questions based on or linked to things they have observed</p> <p>With help / scaffolds, begin to ask questions such as ‘What will happen if...?’</p>	<p>Talk about how useful the information source was and express opinion about findings</p> <p>Make suggestions about who to ask or where to look for information.</p> <p>Ask people questions to help them answer their questions</p> <p>Use simple and appropriate secondary sources (such as books, photographs, videos and other technology) to find things out / find answers</p>	<p>Act out something to represent something else about the world around us <i>(e.g a life cycle)</i></p>	<p>Share ideas in a group and listen to the ideas of others</p> <p>Work cooperatively with others on a science task making some choices</p>

	Planning and testing	Using equipment and measure	Communicating	Describing results and looking for patterns	Explaining Results	Trusting Results
	UKS2 - using different types of scientific enquiry making decisions about and explaining choices for testing LKS2 - making decisions about and setting up simple practical enquiries, comparative tests and fair tests	UKS2 - increasing complexity and increasing accuracy and precision make their own decisions about the data to collect LKS2 - making accurate measurements and gathering data	Reporting findings, recording data, presenting findings Read, spell and pronounce scientific vocabulary correctly linked to the relevant Yr Grp	UKS2 - Looking for patterns analysing functions, relationships and interactions more systematically LKS2 - Describing their findings/ results	UKS2 - draw conclusions based on / supported by evidence LKS2 - reporting on findings saying why something happened	UKS2 - comment on how reliable the data is LKS2 - suggest improvements for further tests
Year 4	Carry out simple <b>fair tests</b> with increasing confidence investigating the effect of something on something else (linked to Y4 PoS). Start to make their own decisions about the most appropriate type of science enquiry they might use to answer scientific questions ( <i>is a fair test the best way to investigate their question?</i> ). Make a <b>prediction</b> based on the knowledge acquired from previous explorations / observations and apply it to a new situation. Explain their planning decisions and choices. Make some of the planning decisions about what to change and measure/observe. Begin to recognise when a <b>fair test</b> is necessary.	Begin to identify where patterns might be found and use this to begin to identify what data to collect. Make more of the decisions about what observations to make, how long to make them for and the type of equipment that might be used. Recognise obvious risks and how to keep themselves and others safe. Learn how to use new equipment, such as data loggers & measure temperature in degrees Celsius (°C) using a thermometer. Collect data from their own observations and measurements, using notes/simple tables/standard <b>units</b> . Make <b>accurate</b> measurements using standard <b>units</b> [and more complex units and parts of units] using a range of equipment and scales.	Record findings using relevant scientific language and vocabulary (from Y4 PoS), including discussions, oral and written explanations, notes, drawings (annotated), pictorial representations, labelled diagrams, tables and bar charts [where intervals and ranges agreed through discussion], displays or presentations. Begin to select the most useful ways to collect, record, classify and present data from a range of choices. Make decisions on how best to communicate their findings in ways that are appropriate for different audiences.	Notice/find patterns in their observations and data. (Describe the effect of something on something else) <i>(e.g. as I lengthen the ruler I notice that the pitch gets lower)</i> With some independence, analyse results / observations by writing a sentence that matches the <b>evidence</b> i.e. deciding the important aspect of the result and summarising in a <b>conclusion</b> <i>(e.g. metals tend to be good conductors of electricity)</i>	Begin to develop their ideas about relationships and interactions between things and explain them. Use relevant scientific language and vocabulary (from Y4 PoS) to begin to say/explain <i>why</i> something happened.	Use results to suggest improvements, new questions and/or predictions for setting up further tests. Compare their results with others and give reasons why results might be different.
Year 3	Help to decide about how to set up a simple <b>fair test</b> and begin to recognise when a test is not <b>fair</b> . Make a <b>prediction</b> based on everyday experience. With support/as a group, set up simple practical enquiries incl. comparative and <b>fair tests</b> e.g. make a choice from a list of a things (variables) to change when conducting a <b>fair test</b> . <i>(e.g. choose which magnets to compare and which method to use to test their strength)</i> . As a group, begin to make some decisions about the best way of answering their qs. Find/suggest a practical way to compare things <i>e.g. rocks, magnets</i>	Collect data from their own observations and measurements using notes/ simple tables/standard units. Help to make some decisions about what observations to make, how long to make them for, the type of simple equipment that might be used and how to work safely. Make simple <b>accurate</b> measurements using whole number standard <b>units</b> , using a range of equipment. Gather data in a variety of ways to help in answering questions. Use equipment <b>accurately</b> to improve the detail of their measurements/observations <i>(e.g. microscopes, measuring syringes, measuring cylinders, hand lenses)</i>	Record and present findings using simple scientific language and vocabulary from the year 3 PoS, including discussions, oral and written explanations, notes, annotated drawings, pictorial representations, labelled diagrams, simple tables, bar charts (using scales chosen for them), displays or presentations. With scaffold / support record, and present data in a variety of ways to help in answering questions. Communicate their findings in ways that are appropriate for different audiences. (linked to Y3 PoS)	With scaffold/support, describe and compare the effect of different factors on something. <i>(e.g. we noticed that larger magnets are not always stronger)</i> With help, look for changes and simple patterns in their observations, data, chart or graph. Use their results to consider whether they met their <b>predictions</b> .	Use their experience and some <b>evidence</b> or results to draw a simple <b>conclusion</b> to answer their original question. Write a simple explanation of why things happened (using the word 'because') and using simple scientific language and vocabulary from the year 3 PoS	Say whether what happened was what they expected and notice any results that seem odd. Begin to recognise when a test is not <b>fair</b> and suggest improvements.
Year 2	Carry out simple comparative tests as part of a group, following a <b>method</b> with some independence. Make a simple prediction about what might happen and try to give a vague reason (even though it might not be correct). With support, make suggestions on a <b>method</b> for setting up a simple comparative test. Talk about a practical way to find answers to their questions.	<b>Measure</b> using non-standard and simple standard measures (e.g. cm, time) with increasing accuracy. Begin to make decisions about which equipment to use. Correctly and safely use <b>equipment</b> provided to make observations and/or take simple measurements.	<b>Record</b> and communicate their findings in a range of ways to a variety of audiences. Use simple scientific language with increasing accuracy (from year 2 PoS). <b>Record</b> simple data with some accuracy to help in answering questions; With support or using frameworks, make decisions about how to complete a variety of tables/charts <i>(e.g. a 2 column table, tally charts, Venn diagram, pictograms, block graphs with 1:1 scale)</i> . <i>Present findings in a class displays</i> <i>Sequence / annotate photographs of change over time</i> <i>Produced increasingly detailed drawings which are labelled/annotated</i>	With guidance, begin to notice <b>patterns</b> in their data e.g. order their findings, sequence best to worst, say what happened over time, etc. Recognise if <b>results</b> matched <b>predictions</b> . (say if results were what they expected) Use their recordings to talk about and describe what has happened.	Begin to use simple scientific language (from year 2 PoS) to explain what they have found out.  Give a simple, logical reason why something happened <i>(e.g. I think ... because ...)</i>	Begin to discuss if the test was <b>unfair</b> .