

Skills	Year 3	Year 4	Year 5	Year 6
Biology	<p>Plants</p> <ul style="list-style-type: none"> Pupils can describe the function of different parts of flowering plants and trees. Pupils 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- build in prior knowledge from KS1 Pupils can explore and describe the needs of different plants for survival (seasonality and where food comes from). Pupils can explore and describe how water is transported within plants. Pupils can describe the plant life cycle, especially the importance of flowers. Pupils can describe the life process of reproduction in some plants <p>Animals, including humans</p> <ul style="list-style-type: none"> Pupils can explain the importance of a nutritious, balanced diet. Pupils can understand that humans cannot make their own food but get their nutrition from what they eat (Non-statutory) Pupils should be introduced to the main body parts finding out how different parts of the body have special functions. 	<p>Animals, including humans</p> <ul style="list-style-type: none"> Pupils can describe and explain the skeletal system of a human. Pupils can describe and explain the muscular system of a human. Pupils can describe the purpose of the skeleton in humans and animals (for support, protection and movement). Pupils can identify the different types of teeth in humans and their simple functions (dental nurse) <p>Living things and their habitats</p> <ul style="list-style-type: none"> Pupils can create a food chain to demonstrate energy flow (identifying producers, predators and prey). Pupils can group living things in different ways. Pupils can use classification keys to group, identify and name living things. Pupils can create classification keys to group, identify and name living things (for others to use). 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> Pupils can describe the life cycle of different living things, e.g. mammal, amphibian, insect bird. Pupils can describe the differences between different animal life cycles. Pupils can explain how animals and plants are adapted to suit their environment. Pupils can describe how changes to an environment could endanger living things. <p>Animals, including humans</p> <ul style="list-style-type: none"> Pupils can identify and name the parts of the human digestive system. Pupils can describe the functions of the organs in the human digestive system. Pupils can explain how nutrients, water and oxygen are transported within animals and humans. Pupils can identify and name the main parts of the human circulatory system. Pupils can describe the function of the heart, blood vessels and blood. Pupils can discuss the impact of diet, exercise, drugs and life style on health. Pupils can describe the changes as humans develop to old age 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> Pupils can classify living things into broad groups according to observable characteristics and based on similarities & differences (including micro-organisms, plants and animals). Pupils can describe how living things have been classified. Pupils can give reasons for classifying plants and animals in a specific way Pupils can describe the life process of reproduction in some plants and animals- build on prior knowledge <p>Evolution and inheritance</p> <ul style="list-style-type: none"> Pupils can describe how the earth and living things have changed over time. Pupils can explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents). Pupils can link adaptation over time to evolution. Pupils can explain evolution.

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	<p><u>Evolution and Inheritance</u></p> <ul style="list-style-type: none"> Pupils recognise that living things have changed over time and can explain how fossils can be used to provide information about living things that inhabited the earth millions of years ago. 			
<p>Chemistry</p>	<p><u>States of matter</u></p> <ul style="list-style-type: none"> Pupils can compare and group materials based on their properties (e.g. hardness, transparency, and response to magnets). Pupils can give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic. <p><u>Rocks</u></p> <ul style="list-style-type: none"> Pupils can compare and group rocks based on their appearance and physical properties, giving a reason. Pupils can describe how fossils are formed. Pupils can describe how soil is made. Pupils can describe and explain the difference between sedimentary and igneous rock. 	<p><u>States of matter</u></p> <ul style="list-style-type: none"> Pupils can group materials based on their state of matter (solid, liquid, gas). Pupils can describe how some materials can change state when they are heated or cooled. Pupils can associate the rate of evaporation with temperature. Pupils can measure the temperature at which materials change state. Pupils can compare and group materials based on their properties (electrical & thermal e.g. conductivity) Pupils can give reasons based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic. 	<p><u>States of matter</u></p> <ul style="list-style-type: none"> Pupils can describe the water cycle. Pupils can explain the part played by evaporation (covered briefly in Year 4) and condensation in the water cycle. 	<p><u>Properties and changes of materials</u></p> <ul style="list-style-type: none"> Pupils can compare and group materials based on their solubility. Pupils can describe how a material dissolves to form a solution; explaining the process of dissolving. Pupils can describe and show how to recover a substance from a solution. Pupils can demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating). Pupils 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 Pupils can demonstrate that dissolving, mixing and changes of state are reversible changes.

Physics

Light

- Pupils can describe what dark is (the absence of light).
- Pupils can explain that light is needed in order to see.
- Pupils can explain that light is reflected from a surface.
- Pupils can explain and demonstrate how a shadow is formed.
- Pupils can explore shadow size and explain why shadows have the same shape as the object that casts them.
- Pupils can explain the danger of direct sunlight and describe how to keep protected.

Forces and magnets

- Pupils can explore and explain how objects attract and repel in relation to objects and other magnets.
- Pupils can predict whether everyday objects will be magnetic and carry out an enquiry to test this out.
- Pupils can describe how magnets have two poles.
- Pupils can predict whether magnets will attract or repel and give a reason.
- Pupils can notice that some forces need contact between two objects but magnetic forces can operate at a distance.

Forces and magnets

- Pupils can explore and describe how objects move on different surfaces.
- Pupils can explain how some forces require contact and some do not, giving examples.
- Pupils can identify and explain the effect of friction.
- Pupils can identify and explain the effect of air resistance.
- Pupils can identify and explain the effect of water resistance.

Electricity

- Pupils can identify and name common appliances that require electricity to function.
- Pupils can construct a series circuit.
- Pupils can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).
- Pupils can draw a circuit diagram.
- Pupils can predict and test whether a lamp will light within a circuit.
- Pupils can describe the function of a switch in a circuit.
- Pupils can describe the difference between a conductor and insulators; giving examples of each e.g. metals are good conductors.

Earth and space

- Pupils can describe and explain the movement of the Earth and other planets relative to the Sun including seasons.
- Pupils can describe and explain the movement of the Moon relative to the Earth.
- Pupils can explain and demonstrate how night and day are created.
- Pupils can describe the Sun, Earth and Moon (using the term spherical).

Forces

- Pupils can explain what gravity is and its impact on our lives.
- Pupils can explain how levers, pulleys and gears allow a smaller force to have a greater effect.

Sound

- Pupils can describe how sound is made e.g. something vibrating.
- Pupils can explain how sound travels from a source, through a medium to our ears.
- Pupils can explain the place of vibration in hearing.
- Pupils can explore the correlation between pitch and features of the object producing a sound.
- Pupils can explore the correlation between the volume of a sound and the strength of the vibrations that produced it.
- Pupils can describe what happens to a sound as it travels away from its source

Electricity (Check Year 4 planning to avoid overlap)

- Pupils can explain how the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.
- Pupils can 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.
- Pupils can draw circuit diagrams using correct symbols (recap of Year 4).

Light

- Pupils can explain how light travels e.g. appears to travel in straight lines.
- Pupils 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
- Pupils can 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.
- Pupils can explain how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.

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Working Scientifically – UKS2										
UKS2	To ask scientific questions	To plan an enquiry	To observe closely	To take measurements	To gather/record results	To present results	To interpret results	To draw conclusions	To make a prediction	To evaluate an enquiry
Classifying	Be able to ask a range of Yes/No questions to aid sorting and decide which ways of sorting will give useful information	Identify specific clear questions that will help to sort without ambiguity	Be able to compare not only based on physical properties but also on knowledge gained through previous enquiry			Create branching databases (tree diagrams) and keys to enable others to name living things and objects	Be able to talk about the features that objects and living things share and do not share based on the information in the key etc.	Be able to use data to show that living things and materials that are grouped together have more things in common than with things in other groups		Be able to explain using evidence that the branching database or classification key will only work for the living things or materials it was created for
Researching	Ask a range of questions recognising that some can be answered through research and others may not	Choose suitable sources to use				Present what they learnt in a range of ways e.g. different graphic organisers	Be able to answer their questions using scientific evidence gained from a range of sources			Be able to talk about their degree of trust in the sources they used
Comparative/fair testing	Ask a range of questions and identify the type of enquiry that will help to answer the questions. Ask further questions based on results.	Recognise and control variables where necessary	As for KS1 Make observations linked to answering the question	Measure using standard units using equipment that has scales involving decimals	Prepare own tables to record data, including columns for taking repeat readings	Choose an appropriate form of presentation, including line graphs	Be able to answer their question, describing causal relationships	Provide oral or written explanations for their findings	Use test results to make predictions for further investigations	Explain their degree of trust in their results e.g. precision in taking measurements, variables that may not have been controlled, and accuracy of results
Observing over time					As for LKS2 Measure using standard units where not all the numbers are marked on the scale. Use dataloggers to measure over time.		Be able to answer their questions, describing the change over time			

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Pattern seeking					As for LKS2 Measure using standard units where not all the numbers are marked on the scale.	Choose an appropriate form of presentation, including scatter graphs	Be able to answer their questions identifying patterns			
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