



## SCIENCE PROGRESSION IN SKILLS AND KNOWLEDGE YEAR 3 STATUTORY REQUIREMENTS



### THE 5 ENQUIRY TYPES:

Research using secondary sources.

Comparative and fair testing.

Observing over time.

Pattern seeking.

Identifying, classifying, and grouping

AUTUMN	SPRING	SUMMER
<p><b><u>AUTUMN 1: CHEMISTRY - ROCKS</u></b></p> <ul style="list-style-type: none"> <li>-Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>-Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>-Recognise that soils are made from rocks and organic matter.</li> </ul> <p><b>Main Enquiry Types</b></p> <p>Research using secondary sources.</p> <p>Identifying, classifying and grouping</p> <p><b><u>WORKING SCIENTIFICALLY</u></b></p> <ul style="list-style-type: none"> <li>-Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>-Setting up simple practical enquiries, comparative and fair tests</li> <li>-Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>-Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> </ul>	<p><b><u>SPRING 1: PHYSICS – FORCES AND MAGNETS</u></b></p> <ul style="list-style-type: none"> <li>-Compare how things move on different surfaces</li> <li>-Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>-Observe how magnets attract or repel each other and attract some materials and not others</li> <li>-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</li> <li>-Describe magnets as having two poles</li> <li>-Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p><b>Main Enquiry Types</b></p> <p>Comparative and fair testing.</p> <p>Identifying, classifying and grouping</p> <p><b><u>WORKING SCIENTIFICALLY</u></b></p> <ul style="list-style-type: none"> <li>-Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>-Setting up simple practical enquiries, comparative and fair tests</li> <li>-Making systematic and careful observations and, where appropriate, taking accurate measurements using standard</li> </ul>	<p><b><u>SUMMER 1 AND 2: BIOLOGY – PLANTS</u></b></p> <ul style="list-style-type: none"> <li>-Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>-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</li> <li>-Investigate the way in which water is transported within plants</li> <li>-Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul> <p><b>Main Enquiry Types</b></p> <p>Identifying, classifying and grouping</p> <p><b><u>WORKING SCIENTIFICALLY</u></b></p> <ul style="list-style-type: none"> <li>-Asking relevant questions and using different types of scientific enquiries to answer them</li> <li>-Setting up simple practical enquiries</li> <li>-Making systematic and careful observations</li> <li>-Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> </ul>



## SCIENCE PROGRESSION IN SKILLS AND KNOWLEDGE YEAR 3 STATUTORY REQUIREMENTS

-Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  
-Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  
using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions  
-Identifying differences, similarities or changes related to simple scientific ideas and processes  
-Using straightforward scientific evidence to answer questions or to support their findings.

### **AUTUMN 2: PHYSICS – LIGHT**

- Recognise that we 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.

#### **Main Enquiry Types**

**Observing over time.**

**Pattern seeking.**

### **WORKING SCIENTIFICALLY**

-Asking relevant questions and using different types of scientific enquiries to answer them  
-Setting up simple practical enquiries, comparative and fair tests

units, using a range of equipment, including thermometers and data loggers  
-Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions  
-Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  
-Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  
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-Using straightforward scientific evidence to answer questions or to support their findings.

### **SPRING 2: BIOLOGY – 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.

#### **Main Enquiry Types**

**Research using secondary sources.**

### **WORKING SCIENTIFICALLY**

-Asking relevant questions and using different types of scientific enquiries to answer them  
-Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  
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<p><i>-Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</i></p> <p><i>-Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</i></p> <p><i>-Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</i></p> <p><i>-Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</i></p> <p><i>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</i></p> <p><i>-Identifying differences, similarities or changes related to simple scientific ideas and processes</i></p> <p><i>-Using straightforward scientific evidence to answer questions or to support their findings.</i></p>	<p><i>-Using straightforward scientific evidence to answer questions or to support their findings.</i></p>	
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SCIENCE PROGRESSION IN SKILLS AND KNOWLEDGE  
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SUBSTANTIVE KNOWLEDGE TO BE LEARNED BY THE END OF EACH UNIT (WHAT DO WE WANT THE CHILDREN TO KNOW AND REMEMBER?)

AUTUMN TERM	SPRING TERM	SUMMER TERM
<p><u><b>Rocks</b></u></p> <ul style="list-style-type: none"><li>• Fossils are formed when things that have lived (plants or animals) are trapped within rock</li><li>• Soils are made from rocks and organic matter.</li><li>• <b>Magma</b> is hot liquid rock</li><li>• There are three types of rock: <b>sedimentary</b> (made from sediment), <b>igneous</b> (formed from magma) and <b>metamorphic</b> (rock changed by heat or pressure).</li><li>• A <b>mineral</b> is a natural substance that makes up rock.</li><li>• A rock is made from one or more minerals.</li><li>• <b>Permeable</b> means it allows water to pass through.</li><li>• <b>Impermeable</b> means it doesn't allow water to pass through.</li><li>• <b>Crystals</b> are minerals that join together to make igneous rock.</li><li>• A <b>palaeontologist</b> is a person who studies the history of life on Earth through fossils</li><li>• <b>Erosion</b> is the gradual wearing away of rocks and soils often by the action of water or wind.</li></ul> <p><u><b>Light</b></u></p> <ul style="list-style-type: none"><li>• Light is needed in order to see things and dark is the absence of light</li><li>• Light is <b>reflected</b> from surfaces</li><li>• Light from the sun can be dangerous and there are ways to protect your eyes</li></ul>	<p><u><b>Forces and Magnets</b></u></p> <ul style="list-style-type: none"><li>• Magnets are an object which produces a <b>magnetic force</b> that pulls certain objects towards it.</li><li>• <b>Forces</b> – Pushes and Pulls</li><li>• <b>Friction</b> is a force that acts between two surfaces or objects that are moving or trying to move</li><li>• Different surfaces create different amounts of friction</li><li>• Forces will change the motion of an object</li><li>• They will either make it move, speed up, slow it down or even make it stop.</li><li>• <b>Like poles repel and opposite poles attract</b></li><li>• A <b>magnetic field</b> is the object around a magnet where there is a magnetic force</li><li>• <b>North and South poles</b> are found at different ends of a magnet.</li><li>• <b>Attract</b> brings objects together and <b>repel</b> pushes them away.</li></ul> <p><u><b>Animals including humans</b></u></p> <ul style="list-style-type: none"><li>• <b>Healthy</b> means to be in a good physical and mental condition</li><li>• <b>Nutrients</b> are substances that living things need to stay alive and healthy</li><li>• Living things need food to grow and be strong and healthy</li><li>• Plants can make their own food but animals can not</li></ul>	<p><u><b>Biology – Plants</b></u></p> <ul style="list-style-type: none"><li>• The <b>root absorbs</b> water and nutrients from the soil</li><li>• The <b>stem holds the plant up</b> and <b>transports water</b> to the leaves</li><li>• Water <b>evaporates</b> from the leaves</li><li>• Leaves make food for the plant using the sunlight and <b>carbon dioxide</b> from the air</li><li>• Plants need <b>water, air, light, room</b> to grow and food and nutrients from the soil to grow well.</li><li>• Flowers make seeds to grow into new plants</li><li>• Petals attract <b>pollinators</b> like bees to the plant</li><li>• Seeds can be <b>dispersed</b> (moved away) by water, <b>shaking, dropping, carrying, eating</b> and <b>bursting</b>.</li><li>• A flowering plant goes through a life cycle</li><li>• A pollinator is an animal or insect that carries pollen from one place to another.</li><li>• <b>Germination</b> is when a seed starts to grow</li><li>• The <b>male</b> part of the flowering plant is the <b>stamen</b></li><li>• The <b>female</b> part of the flowering plant is the <b>stigma</b></li><li>• Petals are often bright to attract the pollinators</li><li>• Fertilisation is when the female and male parts of the flower have mixed in order to make new seeds for the plant.</li></ul>



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- **Shadows** are formed when the light from a light source is blocked by an opaque object
- **Dull** is a surface that scatters light and does not look shiny.
- **Shiny** are surfaces that reflect lots of light.
- **Reflect** means to change the direction of light using a shiny surface.
- Light originates from a light source.
- A **shadow** is darkness caused by light being blocked.
- **Transparent** means it lets most or all light through.
- **Translucent** means it lets some light through.
- **Opaque** means it does not let light pass through.

- Humans need to exercise to stay healthy, eat a healthy diet and be hygienic
- Animals including humans need food, water and air to stay alive.
- **Carbohydrates** and **fats** provide energy
- **Protein** helps growth and repair
- **Fibre** helps you to digest the food you have eaten
- **Vitamins** and minerals keep you healthy
- **Water** helps to get rid of waste
- **Skeletons** protect the internal organs, allow movement and support the body and stop it from falling.
- Skeletal muscles work in pairs to contract and relax
- A **Vertebrate** is an animal with a backbone and an **invertebrate** is an animal without one
- **Muscles** are soft tissue in the body that contract and relax to cause movement.
- **Joints** are where two or more bones are fitted together.

Children working at below Age Related Expectations in SCIENCE at the end of Year 3: