

# SOMERVILLE PRIMARY SCHOOL

## SCIENCE 2022-2023

### NATIONAL CURRICULUM COVERAGE

YEAR 1 & 2	<b>WORKING SCIENTIFICALLY</b> During year 1 and 2 the children will cover the following <b>working scientifically</b> statements: <ul style="list-style-type: none"> <li>✓ asking simple questions and recognising that they can be answered in different ways</li> <li>✓ observing closely, using simple equipment</li> <li>✓ performing simple tests</li> <li>✓ identifying and classifying</li> <li>✓ using their observations and ideas to suggest answers to questions</li> <li>✓ gather and record data to help in answering questions.</li> </ul>		
AUTUMN		SPRING	SUMMER
YEAR 1	<b>INVESTIGATION TABLE</b> Investigation table activities – Practical science (Observe seasonal change across four seasons) <i>VISIT TO THE PARK – Autumn Walk SEPTEMBER</i>  <u>Type of Enquiry:</u> <b>OBSERVATION OVER TIME – seasons</b> <b>IDENTIFYING AND CLASSIFYING ACTIVITIES</b>	<b>MATERIALS</b> -Distinguish between an object and the material from what it is made. -Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock -Describe the simple physical properties of a variety of everyday materials. -Compare and group together a variety of everyday materials on the basis of their simple physical properties. <u>Types of Enquiry:</u> <b>FAIR TESTING - materials investigation</b> <b>RESEARCH – John McAdam</b> <b>IDENTIFYING AND CLASSIFYING – different materials</b>	<b>PLANTS</b> - Identify and name common wild and garden plants including deciduous and evergreen trees - Identify and describe the basic structure of a variety of common flowering plants including trees.  <u>Types of Enquiry:</u> <b>IDENTIFYING AND CLASSIFYING - leaves</b> <b>COMPARATIVE – comparing leaves</b>

	<p><b>ANIMALS INCLUDING HUMANS</b></p> <ul style="list-style-type: none"> <li>-Identify and name the variety of common animals including fish, amphibians, birds and mammals</li> <li>-Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>-Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles , birds and mammals including pets)</li> <li>-Identify, name and draw the basic parts of the body and say which part is associated with each sense.</li> </ul> <p>VISIT TO THE PARK – Autumn Walk- DECEMBER)</p> <p><u>Type of Enquiry:</u>  <b>IDENTIFYING, CLASSIFYING AND GROUPING</b>  <b>PATTERN SEEKING</b>  <b>RESEARCH</b></p>	<p><b>SEASONAL CHANGE – SPRING WALK</b></p> <p><i>Plant and grow seeds in the Science garden</i></p> <p>(Observe seasonal change across four seasons.  <b>VISIT TO THE PARK – Spring walk- APRIL)</b></p>	<p><b>SEASONAL CHANGE</b></p> <ul style="list-style-type: none"> <li>-Observe change across 4 seasons.</li> </ul> <p><b>PATTERN SEEKING</b></p> <ul style="list-style-type: none"> <li>-Observe and describe weather associated with the seasons and how day length varies</li> </ul> <p><i>(Observe seasonal change across four seasons.</i>  <b>VISIT TO THE PARK – Summer walk)</b></p> <p><u>Type of Enquiry:</u>  <b>OBSERVATION OVER TIME – seasons</b>  <b>IDENTIFY AND CLASSIFY – leaves</b>  <b>PATTERN SEEKING – seasonal changes</b></p>
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	AUTUMN	SPRING	SUMMER
YEAR 2	<b>LIVING THINGS AND HABITATS</b>  - Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Trip to Ness Gardens  <u>Types of Enquiry:</u> <b>IDENTIFYING, CLASSIFYING AND GROUPING – living and non-living</b> <b>PATTERN SEEKING – woodlice investigation</b>  <b>ANIMALS INCLUDING HUMANS</b> -Know the lifecycles of animals including humans Describe the basic needs of animals, including humans, for survival (water, food and air) -Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.  <u>Types of Enquiry:</u> <b>OBSERVATION OVER TIME – life cycles of humans and animals</b> <b>IDENTIFYING AND CLASSIFYING – animals and their offspring</b> <b>CLASSIFYING – food groups</b>	<b>MATERIALS</b> -Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses -Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <i>Plant and grow seeds in the Science garden</i> <u>Types of Enquiry:</u> <b>RESEARCH SCIENTISTS</b> <b>FAIR TESTING - raincoat investigation</b> <b>IDENTIFYING AND CLASSIFYING – uses and properties of different materials</b>	<b>PLANTS</b>  -Observe and describe how seeds and bulbs grow into mature plants -Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.  <u>Types of Enquiry:</u> <b>OBSERVATION OVER TIME - plants</b> <b>IDENTIFYING AND CLASSIFYING – seeds and bulbs</b>

<b>YEAR 3 &amp; 4</b>	<b>WORKING SCIENTIFICALLY</b> During year 3 and 4 the children will cover the following working scientifically statements: <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> <li>✓ recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>✓ reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>✓ using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>✓ identifying differences, similarities or changes related to simple scientific ideas and processes</li> </ul>		
<b>YEAR 3</b>	<b>ROCKS</b> -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.  <u>Types of Enquiry:</u> <b>IDENTIFYING, CLASSIFYING AND GROUPING – rocks and soils.</b> <b>OBSERVATIONS OVER TIME: -permeability of soils/ rocks changing over time</b> <b>RESEARCH – Mary Anning</b>	<b>ANIMALS INCLUDING HUMANS</b>  -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.  <u>Types of Enquiry:</u> <b>PATTERN SEEKING – humans investigation</b> <b>IDENTIFY AND CLASSIFY - food groups/ compare animal skeletons</b>	<b>PLANTS</b> -Identify and describe the functions of different parts of flowering plants -Explore the requirements of plants for life and growth -investigate the way in which water is transported within plants -Explore the part that flowers play in the life cycle of flowering plants.  <u>Types of Enquiry:</u> <b>OBSERVATION OVER TIME – celery experiment</b> <b>RESEARCH - seed dispersal</b> <b>COMPARATIVE – conditions for growth</b>

	<p><b>FORCES AND MAGNETS</b></p> <ul style="list-style-type: none"> <li>-Compare how things move on different surfaces</li> <li>- Know that some forces need contact between two objects</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>-Know magnets as having two Poles</li> <li>- Predict whether two magnets will attract or repel each other</li> </ul> <p><u>Types of Enquiry:</u></p> <p><b>COMPARATIVE TESTING –ramp investigation</b></p> <p><b>IDENTIFY AND CLASSIFY- magnets</b></p> <p><b>PATTERN SEEKING – magnets investigation</b></p> <p><b>RESEARCH – magnets in everyday life</b></p>		<p><b>LIGHT</b></p> <ul style="list-style-type: none"> <li>-Know that dark is the absence of light</li> <li>-That light is reflected from surfaces</li> <li>-Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>-Recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>-Find patterns in the way that the size of shadows changes.</li> </ul> <p><u>Types of Enquiry:</u></p> <p><b>PATTERN SEEKING – shadows</b></p> <p><b>OBSERVATION OVER TIME –when is the classroom the darkest?</b></p> <p><b>IDENTIFYING AND CLASSIFYING: light sources</b></p>
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# Year 4

## ANIMALS INCLUDING HUMANS

- 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

### Types of Enquiry:

**IDENTIFYING, CLASSIFYING AND GROUPING -teeth**  
**OBSERVATION OVER TIME – teeth disclosing tablet**

## ALL LIVING THINGS AND HABITATS

- Recognise that living things can be grouped in a variety of ways
- 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.

*Trip to Burton Mere RSPB*

### Types of Enquiry:

**IDENTIFYING, CLASSIFYING AND GROUPING - keys**

## MATERIALS

- 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.

### Types of Enquiry:

**OBSERVATION OVER TIME – water cycle**  
**FAIR TESTING - rates of evaporation**  
**CLASSIFYING – materials into solid, liquids and gases.**

## SOUND

- Identify how sounds are made
- Recognise that vibrations from sounds travel through a medium to the ear
- Find patterns between the pitch of 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.

### Types of Enquiry:

**PATTERN SEEKING – pitch**  
**RESEARCH- how sound is produced**

## ELECTRICITY

- Identify common appliances that run on electricity
- Construct a simple series electrical circuit, identifying and naming its basic parts
- Identify whether or not a lamp will light in a simple series circuit
- Know how a switch works
- Recognise some common conductors and insulators,

### Types of Enquiry:

**CLASSIFYING – insulators and conductors**  
**IDENTIFY – how to make circuits and incorporate a switch.**

<b>YEAR 5 &amp; 6</b>	<b>WORKING SCIENTIFICALLY</b> <b>During year 5 and 6 the children will cover the following working scientifically statements:</b> <ul style="list-style-type: none"> <li>✓ planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>✓ taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>✓ recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>✓ using test results to make predictions to set up further comparative and fair tests</li> <li>✓ reporting and presenting 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</li> <li>✓ identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>		
<b>YEAR 5</b>	<b>EARTH AND SPACE</b> <ul style="list-style-type: none"> <li>-Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</li> <li>-Describe the movement of the Moon relative to the Earth</li> <li>-Describe the Sun, Earth and Moon as approximately spherical bodies</li> <li>-Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul> <p><b>Types of Enquiry:</b>  <b>PATTERN SEEKING – orbits, sizes of planets</b>  <b>RESEARCH – SCIENTIST Maggie Pocock</b></p>	<b>MATERIALS</b> <ul style="list-style-type: none"> <li>-Compare and group together everyday materials on the basis of their properties,</li> <li>-Know that some materials will dissolve in liquid to form a solution and hoe to recover from a solution</li> <li>-Use knowledge of solids, liquids and gases to decide how mixtures might be separated</li> <li>-Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials</li> <li>-Demonstrate that dissolving, mixing and changes of state are reversible changes</li> </ul>	<b>ANIMALS INCLUDING HUMANS</b> <ul style="list-style-type: none"> <li>-Describe the changes as humans develop to old age.</li> </ul> <p><b>Types of Enquiry:</b>  <b>PATTERN SEEKING – sound</b>  <b>KNOWLEDGE ORGANISER – SCIENTIST</b></p>

	<p><b>FORCES</b></p> <ul style="list-style-type: none"> <li>-Explain that unsupported objects fall towards the Earth because of the force of gravity</li> <li>-Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul> <p><u>Types of Enquiry:</u>  <b>RESEARCH SCIENTISTS : Isaac Newton</b>  <b>FAIR TESTING - investigation spinners</b></p>	<p>-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> <p><u>Types of Enquiry:</u>  <b>COMPARATIVE: insulator investigation</b>  <b>OBSERVATION OVER TIME – materials dissolving</b></p>	<p><b>HABITATS</b></p> <ul style="list-style-type: none"> <li>-Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>-Describe the life process of reproduction in some plants and animals.</li> </ul> <p><u>Types of Enquiry:</u>  <b>PATTERN SEEKING: Compare the gestation times for mammals</b>  <b>RESEARCH – lifecycle research</b></p>
<p><b>YEAR 6</b></p>	<p><b>ELECTRICITY</b></p> <ul style="list-style-type: none"> <li>-Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>-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</li> <li>-Use recognised symbols when representing a simple circuit in a diagram.</li> </ul> <p><u>Types of Enquiry:</u>  <b>FAIR TESTING - investigation brightness of bulb</b>  <b>RESEARCH – Scientist Peter Rawlinson</b></p>	<p><b>HUMANS</b></p> <ul style="list-style-type: none"> <li>-Identify and name the main parts of the human circulatory system, and describe</li> <li>-The functions of the heart, blood vessels and blood</li> <li>-Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>-Describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul> <p><u>Types of Enquiry:</u>  <b>OBSERVATION OF TIME: investigate pulse rates during exercise</b>  <b>IDENTIFY AND CLASSIFY – organs in the circulatory system</b></p>	<p><b>LIGHT</b></p> <ul style="list-style-type: none"> <li>-Recognise that light appears to travel in straight lines</li> <li>-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</li> <li>-Explain that we see things because light travels from light sources to our eyes</li> <li>-Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul> <p><u>Types of Enquiry:</u>  <b>OBSERVATION OVER TIME AND PATTERN SEEKING – shadows change during day</b></p>



	<p><b>LIVING THINGS AND THEIR HABITATS</b></p> <ul style="list-style-type: none"> <li>-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</li> <li>-Give reasons for classifying plants and animals based on specific characteristics.</li> </ul> <p><u>Types of Enquiry:</u>  <b>IDENTIFYING, CLASSIFYING AND GROUPING – types of plants, keys</b>  <b>OBSERVATION OVER TIME – microbes – mouldy bread</b></p>	<p><b>EVOLUTION AND INHERITANCE</b></p> <ul style="list-style-type: none"> <li>-Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>-Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>-Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul> <p><u>Types of Enquiry:</u>  <b>OBSERVATION OVER TIME- peppered moths changes</b>  <b>RESEARCH - Charles darwin</b></p>	
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