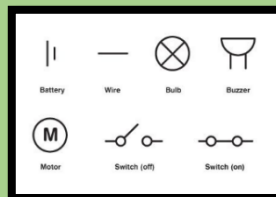
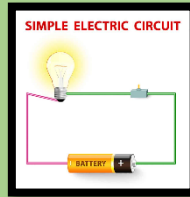
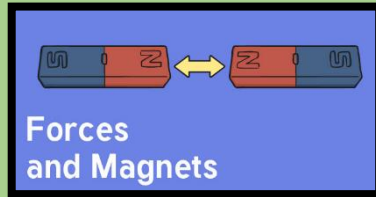




# How can science educate and entertain us?



Learning Journey

Engaging

Authentic

Rigorous

Nova Curriculum

Year 3

Terms 3 - 4

Big concept: Cause & Effect

## Overview:



This enquiry enables Year 3 learners to consider the way science influences our daily lives by facilitating education and entertainment. The children will engage in the scientific enquiry process when learning about forces, magnets and electricity. As Engineers, Year 3 children will apply their scientific knowledge of forces, magnets and electricity to research, design and evaluate their own entertaining toy/ game. At the conclusion of the unit, Year 3 children will host an exhibition where others can be entertained by their magnetic and simple electrical circuit toys/games.

As Readers, class texts have been carefully selected to enrich children’s learning. Children will read *The Wild Robot* (Peter Brown) and *Women in Science* (Rachel Ignotofsky). As Writers, Year 3 children will develop their skills by innovating and inventing a range of fiction and non-fiction texts. There are also several meaningful opportunities for cross-curricular writing.

As Artists, Year 3 children will be inspired by significant artists to draw and paint portraits using form, line, pattern, geometry and tonal shading/ tints and shades.

## Learning links (previous learning):

Year 3 children know that scientists ask questions about the world and conduct scientific enquiries to discover factual information. They know that materials have different properties and can identify and compare the suitability of everyday materials for particular uses.

As Engineers, Year 3 children know that they can find solutions to different problems using the D&T process. They know ways to make a structures more stable for example, widening the base.

As Artists, Year 3 children can draw from direct observation and apply colour, line, pattern, tone, shape and form.

## Celebrating diversity and inspirational People:

Through the enquiry, Year 3 children will explore a diverse range of significant scientists including Marie Curie, Percy Julian and Nikola Tesla.

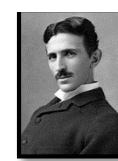
Marie Curie



Percy Julian



Nikola Tesla



## Launch and Landings

**Launch:** Year 3 children will engage in a games day where they are entertained by a range of magnetic and simple electrical circuit games.

**Landing:** Year 3 children will host a games exhibition where others can be entertained by their magnetic and simple electrical circuit toys/games.

## Experiential learning opportunities:

Year 3 children will engage in a Forces and Magnets workshop at *We the Curious*.

## NC Objectives – Skills, knowledge and vocabulary taught through Line of Enquiry

### Science

As Scientists we will investigate how magnetic and simple electrical circuit toys/games function.

#### Forces & 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.

**Key vocabulary:** push, pull, gravity, magnetic, attract, repel, magnetic pole, friction, resistance

#### 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.

**Key vocabulary:** appliance, circuit, battery, cell, bulb, wire, motor, buzzer, switch, conductor, insulator

Through scientific enquiry, we will be:

#### Pattern seeking

- 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

#### Comparative and fair testing

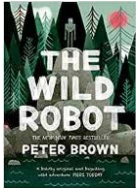
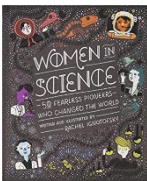
- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up practical enquires, comparative and fair tests
- Reporting on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

#### Researching using secondary sources

- Using straightforward scientific evidence to answer questions or to support their findings

Design & Technology	Art
<p>As Designers and Engineers we will <b>research, design and evaluate their own magnetic and simple electrical circuit toys/games.</b></p> <p><b><u>Design, Make, Evaluate And Improve</u></b></p> <ul style="list-style-type: none"> <li>Investigate existing products, including drawing them to analyse and understand how they are made.</li> <li>Gather info about the needs &amp; wants of particular groups.</li> <li>Plan a sequence of actions to make a product.</li> <li>Develop more than one design.</li> <li>Develop prototypes.</li> <li>Generate designs with annotated sketches</li> <li>Refine work and techniques as work progresses, continually evaluating the product design.</li> <li>Identify strengths and weaknesses of their design ideas. Talk about how closely their finished product meets their design criteria and meets the need of the user</li> </ul> <p><b><u>Construction – Electronics</u></b></p> <ul style="list-style-type: none"> <li>Create series and parallel circuits.</li> <li>Strengthen frames using diagonal struts.</li> </ul> <p><b><u>Construction - Materials</u></b></p> <ul style="list-style-type: none"> <li>Cut materials accurately and safely by selecting appropriate tools.</li> <li>Measure and mark out to the nearest mm.</li> </ul> <p><b><u>Take inspiration from design throughout history:</u></b></p> <ul style="list-style-type: none"> <li>Disassemble products to understand how they work.</li> <li>Improve on existing designs, giving reasons for choices.</li> <li>Identify some of the great designers in different areas of study to generate ideas from their designs</li> </ul> <p><b>Key vocabulary:</b> series, parallel, circuit, strengthen, diagonal, strut</p>	<p>As Artists we will <b>draw portraits of significant, diverse scientists.</b></p> <p><b><u>Art &amp; Design Skills:</u></b></p> <ul style="list-style-type: none"> <li>Draw from direct observation applying geometry and tonal shading</li> <li>Paint from direct observation applying greater expression and creativity</li> </ul> <p><b><u>Formal elements of Art</u></b></p> <ul style="list-style-type: none"> <li>Colour - mix and apply colour (including natural pigment)</li> <li>Colour - use aspects of colour such as tints and shades</li> <li>Form - represent 3D forms</li> <li>Line: - draw and describe organic and geometric forms through different types of line</li> <li>Pattern - construct a variety of patterns through different methods</li> <li>Shape - identify, draw and label shapes within images and objects</li> <li>Texture - analyse and describe texture within artists' work</li> <li>Tone - apply skill and control when using tone</li> <li>Tone - use simple shading rules</li> </ul> <p><b><u>Generating Ideas</u></b></p> <ul style="list-style-type: none"> <li>Use my sketchbooks to generate ideas, record thoughts and observations as well as artistic experiments</li> <li>Create personal artwork using the artwork of others to as a stimulus</li> </ul> <p><b>Key artists:</b> Cueva De Las Manos, Louis Masai, Jane Perkins, Danai Gkoni, Ka Van Haasteren</p> <p><b>Key vocabulary:</b> colour, line, pattern, tone, shape, form, tone, shading, shading grip, wire techniques, bending, shaping, geometry, 3D, sketch</p>
	<b>History</b>
	<p>As Historians we will:</p> <p><b><u>Chronological Awareness</u></b></p> <ul style="list-style-type: none"> <li>Continue to develop chronologically secure knowledge of history time periods studied.</li> </ul>
	<b>Geography</b>
	<p>As Geographers we will:</p> <p><b><u>Human &amp; Physical Geography</u></b></p> <ul style="list-style-type: none"> <li>Identify how the human features of a landscape have changed over time</li> </ul>

### Opportunities for core subject learning across the curriculum

Reading & Writing	Mathematics		
<p><b>As Readers we will read:</b></p> <p>Shared fiction text: <i>The Wild Robot</i> (Peter Brown)</p> <p>Shared non-fiction text: <i>Women in Science – 50 Fearless Pioneers who Changed the World</i> (Rachel Ignotofsky)</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p><b>As Writers we will write:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>Fiction:</b> Elf Road</p> <p><b>Story Type:</b> Portal Story</p> <p><b>Focus:</b> Character</p>   <p><b>Fiction:</b> King of the Fishes</p> <p><b>Story Type:</b> Wishing</p> <p><b>Focus:</b> Action</p> </td> <td style="width: 50%; vertical-align: top;"> <p><b>Non-Fiction Recount:</b></p> <p>The New World</p>   <p><b>Non-Fiction Recount:</b></p> <p>Fantastic Fish for Sale</p> </td> </tr> </table> <p><b>Cross curricular writing:</b></p> <p>Year 3 children will write a scientific report as well as a fact files and advertisements.</p>	<p><b>Fiction:</b> Elf Road</p> <p><b>Story Type:</b> Portal Story</p> <p><b>Focus:</b> Character</p> <p><b>Fiction:</b> King of the Fishes</p> <p><b>Story Type:</b> Wishing</p> <p><b>Focus:</b> Action</p>	<p><b>Non-Fiction Recount:</b></p> <p>The New World</p> <p><b>Non-Fiction Recount:</b></p> <p>Fantastic Fish for Sale</p>	<p><b>As Mathematicians we will develop our understanding of:</b></p> <ul style="list-style-type: none"> <li>Number: Multiplication and Division</li> <li>Measurement: Money</li> <li>Statistics</li> <li>Measurement: Length &amp; Perimeter</li> <li>Number: Fractions</li> </ul>
<p><b>Fiction:</b> Elf Road</p> <p><b>Story Type:</b> Portal Story</p> <p><b>Focus:</b> Character</p> <p><b>Fiction:</b> King of the Fishes</p> <p><b>Story Type:</b> Wishing</p> <p><b>Focus:</b> Action</p>	<p><b>Non-Fiction Recount:</b></p> <p>The New World</p> <p><b>Non-Fiction Recount:</b></p> <p>Fantastic Fish for Sale</p>		

### Discrete subject teaching - Skills, knowledge and vocabulary taught discretely

Physical Education	PSHE
<p><b>As fit and healthy citizens we will develop our skills through the <i>Get Set 4 PE</i> scheme:</b></p> <ul style="list-style-type: none"> <li>Ultimate Frisbee</li> <li>Yoga</li> <li>Basketball</li> <li>Dance</li> </ul>	<p><b>As fit and healthy citizens we will develop our knowledge through the <i>SCARF</i> scheme:</b></p> <ul style="list-style-type: none"> <li>Keeping Myself Safe</li> <li>Rights and Responsibilities</li> </ul>
Computing	French
<p><b>In computing we will develop skills through the <i>Teach Computing</i> scheme:</b></p> <ul style="list-style-type: none"> <li>Desktop Publishing</li> <li>Branching Databases</li> </ul>	<p><b>As Linguists we will develop skills through the <i>Language Angles</i> scheme:</b></p> <ul style="list-style-type: none"> <li>Fruit</li> <li>Instruments</li> </ul>
RE	Music
<p><b>As Philosophers we will explore the question:</b></p> <ul style="list-style-type: none"> <li>Why are festivals important to religious communities? <i>e.g. Passover</i></li> </ul>	<p><b>As Musicians we will develop our musical skills and knowledge through <i>Beacon Bristol</i> scheme:</b></p> <ul style="list-style-type: none"> <li>Composition unit - Unit 1 Air</li> </ul>