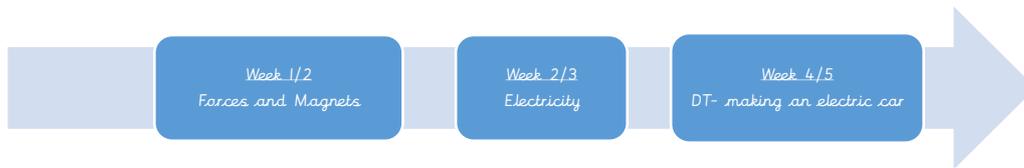


Year 3 Science Based topic – Electric Vehicles (5 weeks)



Topic overview – This unit focuses on an understanding of the science of magnets, friction, magnetism and electricity. Children explore components of an electrical circuit. They investigate different types of circuit, making them to match drawn circuits and drawing the ones they have made themselves. They investigate conductors and insulators by making a circuit. They also compare the effect of different components within a circuits – for example how to make bulbs brighter or dimmer. They record these findings and draw scientific conclusions. They then apply their knowledge of electrical circuits and friction to construct an electric car.

Science skills

<u>Thinking scientifically skills</u>	<u>Science knowledge skills</u>
<ul style="list-style-type: none"> • Pupils can, with support, develop relevant & testable questions • Pupils can plan enquiry such as a fair test or a comparative test • Pupils can use various equipment as instructed • Pupils can use standard measurements and recognise the importance of being accurate • Pupils can, with some support, use words and diagrams to record findings • Pupils can answer various questions based on the data collected • Pupils can use evidence to write a conclusion referring to the evidence specifically and data more accurately • Pupils can suggest how an experiment could be extended 	<p><u>Forces and Magnets</u></p> <ul style="list-style-type: none"> • 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. • Know that forces push and pull and know types of forces: gravitational, magnetic and friction. • Know that iron, nickel and cobalt are magnetic and that other metals are not • Know that magnets have two poles and that like poles attract and opposite poles repel. • Pupils should observe that magnetic forces can act without direct contact,

Vocabulary:

- enquiry
- testable
- investigate
- experiment
- comparative test
- fair test
- record
- gather
- data
- classify

Previous knowledge

- asking simple questions and recognising that they can be answered in different ways
- observing closely using simple equipment
- performing simple tests
- identify and classifying
- use observations and ideas to suggest answers to questions
- Gathering and recording data to help in answering questions

unlike most forces, where direct contact is necessary.

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.

Science Big Questions:

Which materials are insulators and which are conductors?

(Identifying and classifying)

How far does a magnetic field reach?

(Comparative and fair testing)

Vocabulary:

- magnet
- force
- friction
- attract
- repel
- pole
- circuit
- series circuit
- parallel circuit
- conductor
- insulator
- switch

DT skills

Making

- Order the main stages of making.
- Select from and use appropriate tools with some accuracy to cut and join materials and components.
- Select from and use finishing techniques suitable for the product they are creating.

Evaluating

- Investigate and evaluate a range of existing shell structures including the

materials, components and techniques that have been used.

- Test and evaluate their own products against design criteria and the intended user needs and purpose as they design and make.

Vocabulary

- product
- user
- purpose
- design brief
- prototype
- joining techniques
- cutting techniques

Previous Knowledge:

- Know that construction is the act of building something together.
- Know that the Product is the final outcome