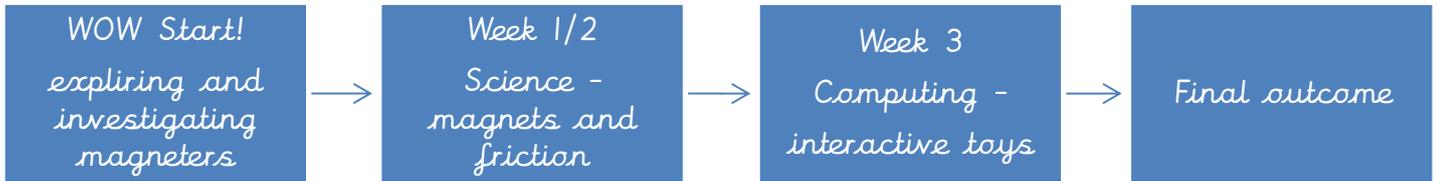


## Year 3/4 Science based unit Opposites Attract (3 weeks)

**Topic overview** - This unit focuses on an understanding of the science magnets, friction and magnetism. They will revisit their prior learning about coding, using Scratch to make and programme a toy.



### Science skills

<u>Working scientifically skills</u>	<u>Science knowledge for this unit</u>
<ul style="list-style-type: none"> <li>• Ask relevant questions.</li> <li>• Set up simple practical enquiries and comparative and fair tests.</li> <li>• Make accurate measurements using standard units, using a range of equipment.</li> <li>• Gather, record, classify and present data in a variety of ways to help in answering questions.</li> <li>• Use straightforward, scientific evidence to answer questions or to support their findings.</li> <li>• Identify differences, similarities or changes related to simple, scientific ideas and processes.</li> </ul> <p><b>Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• practical enquiries</li> <li>• fair test</li> <li>• record</li> <li>• classify</li> <li>• scientific evidence</li> </ul>	<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</li> <li>• 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>Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• surfaces</li> <li>• forces</li> <li>• magnet</li> <li>• attract</li> <li>• repel</li> <li>• poles (of magnets)</li> </ul> <p><i>Previous knowledge: New learning</i></p>

### Computing skills

<ul style="list-style-type: none"> <li>• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</li> </ul> <p>Basic skills to be taught alongside.</p> <p><b>Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• debug</li> <li>• controlling</li> <li>• simulating</li> <li>• decomposing</li> </ul> <p><i>Previous knowledge:</i> <i>We are game testers - programming on screen. (Toys)</i></p>
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### Knowledge

- 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, unlike most forces, where direct contact is necessary.
- Understand that Scratch is a coding programme and that the individual blocks each cause different actions.

## Planning

Use the *wow* for the investigation.

Need to carry out a scientific investigation, here are some ideas: (taken from non-statutory national curriculum)

comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.

Computing: should be building on the skills and knowledge learnt about Scratch in the Funky Flintstones unit - the first lesson could be a recap on this and children seeing what they can remember/reteach each other.

Use bee bots to begin exploring (controlling or simulating physical systems).

Not sure how we link the toys to magnets? Could we compare toys with magnets to those with other ways of moving? (ie the beebots)