Science – Forces and magnets (Year 3)

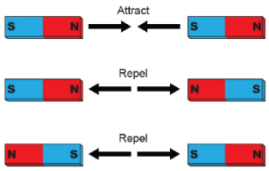
Outcome: Conduct an investigation to identify magnetic objects in the environment.

Physics

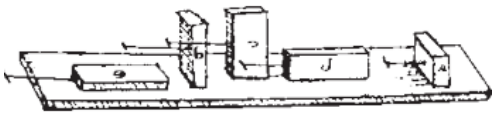
Prior Knowledge and Skills
Explore the natural world around them. (EYFS – Three Little Pigs)
Use all their senses in hands-on exploration of materials. (EYFS - Ourselves)
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

Ideas and inspiration:

William Gilbert (Doctor who developed the theory of magnetism) .



Leonardo Da Vinci (First person to plan and carry out tests on friction).



Enquiries		
Identifying, grouping and classifying -. Sort materials (leading towards metal/non-metal and magnetic/not magnetic) •Sort toys (leading to what makes them move e.g. push/pull).	Identifying, grouping and classifying -Test how objects move on different surfaces e.g. cars, spinning tops, wind-up/clockwork toys. -Test the strength of different magnets.	Identifying, grouping and classifying - Find out how magnets are used in everyday life.

Vocabulary:

How things move:
move, movement, surface, distance, strength.

Types of forces:
push, pull, contact force, non-contact force, friction.

Magnets:
magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass.

Magnetic and non-magnetic materials:
e.g. iron, nickel, cobalt.

Previously introduced vocabulary:
metal, names of materials.

Developing Knowledge and Skills

Scientific Knowledge:	Working Towards	Within	Expected	Above
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.				

Working Scientifically (Skills): Plan: :	Working Towards	Within	Expected	Above

	• Set up simple practical enquiries, comparative and fair tests.				
Working Scientifically (Skills): Do:		Working Towards	Within	Expected	Above
	• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.				
Working Scientifically (Skills): Record:		Working Towards	Within	Expected	Above
	• Gather, record, classify and present data in a variety of ways to help in answering questions.				
Working Scientifically (Skills): Review:		Working Towards	Within	Expected	Above
	• Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.				

Is there anything else you would like to know about forces and magnets?_____

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Highlights: _____

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