Science Unit Planner Year: 3 Title: Forces and Magnets

Unit Overview	Pupils will gain a basic knowledge of forces and what they do and that forces need contact, except when using magnetic force. Pupils will explore magnetic forces and materials, how magnets attract and repel and will compare how things move on different surfaces and the forces that are inaction when using these surfaces.	
Prior Learning/ Links	EY – Children have explored different matieraisl and have experimented with them and described them. KS1 – Children have grouped and classified materials based on their properties. They investigate liquids and look at how materials can changed shape. They have thought about what materials would be suitable for a particular purpose and in particular have looked at absorbency/ waterproof.	
Unit Title:	**Substantive Knowledge**	**Disciplinary Knowledge**
Key Questions: What is a force? What is a magnet? What is magnetic? Why are materials attracted to magnets? Why do magnets attract/repel? How do different objects move on different surfaces?	• Children know a force is either a push or a pull. • Children can explain that forces can make things speed up, slow down, change shape, change direction. • Examples they may give: - A force to speed up: the child is pushing the car to speed it up - A force to slow down: the girl is pulling the dog to slow it down. - A force that changes the shape of something: The can is being squeezed and it changes shape - When the ball is hit, it changes direction; • Children describe a magnetic force as being different- All forces need contact between two objects for them to happen. Magnetic force can act at a distance. • Children describe magnets as having two poles (North and South). • Magnets attract or repel each other, opposites attract. North and South poles attract each other, North and North and South and South repel each other. • There are different types of magnet; bell/button, bar, ring, horseshoe. • Children know that magnets do not just attract each other, they can attract other things too. Magnets only attract magnetic metals, materials like wood, plastic and glass are not attracted. Metals such as iron, cobalt and nickel are magnetic. • Children know most metals however are not attracted to magnets, these include; aluminium, copper, silver, gold, platinum and magnesium.	**<u>Questioning and Planning</u>** • To make simple predictions: Predict whether two magnets will attract or repel each other depending on which poles are facing, predict which materials will be attracted to the magnet, predict which materials will have an effect on the movement of a toy car, predict how many paperclips a magnet will hold. • To ask relevant questions and set up simple scientific enquiries. **<u>Observation and Measurement</u>** • Testing and grouping for magnetic and non-magnetic materials/ objects. • Compare how things move on different surfaces by measuring how far a toy car travels using ramps covered with different materials • Observe how magnets are used in our everyday lives e.g. fridge seals • Experiment with the strength of different magnets • To collect and use the correct equipment in order to complete a test. • To make careful observations when conducting a test - ensuring accuracy of results. • To set up a fair test – stating the variable. **<u>Recording and Presenting</u>** • Present findings clearly to others using the correct scientific language and terminology. • Use charts, diagrams, graphs and tables to communicate information clearly. • Use written explanations to present findings and conclusions

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	• Children can talk about how to conduct a simple investigation using magnets. They can include what results were collected and what this showed.	**Analysing and Evaluating** • Group and compare together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. • Use results to draw conclusions and to evaluate the effectiveness of the enquiry. • Use evidence to support findings.
Vocabulary	**Trips/ Visits/Useful Websites/ Resources**	**Key Misconceptions:**
Substantive: Squeezed Contact Magnetic Attract Repel **Disciplinary:** Relevant questions Enquiry Equipment Accurate Results Fair test variable Diagram Table Chart Conclusion Evaluate Evidence	• Visit recycling plant to look at use of magnets Year 3: Forces and Magnets | STEM Investigating magnets Year 3 fores and magnets - Bing video Forces – Year 3-4 / P4-5 Science Collection - Home Learning with BBC Bitesize - BBC Bitesize	• All metals are magnetic