Science – Year 3

Spring 2	Year 3 – Forces and magnets					
Prior learning	Forces and Magnets - EYFS					
Lesson objective	Explore contact and noncontact forces	Compare how things move on different surfaces	Explore different types of magnets	Explore the properties of magnets and everyday objects that are magnetic	Understand that magnetic forces can act at a distance	Explore the everyday uses of magnets
Key vocabulary	force contact force non-contact forces air resistance friction	motion surface resistance texture tilt	magnet attract repel bar magnet Horseshoe magnet	magnetism magnetic magnetic field iron steel	non-contact forces magnetism attract non-magnetic materials recycle	compass magnetic needle magnetic north direction orienteering
Creative context						
Substantive knowledge	Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Compare how things move on different surfaces	Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing	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	Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Describe magnets as having two poles
Disciplinary knowledge	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment,	Setting up simple practical enquiries, comparative and fair tests	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment,

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		including thermometers and data loggers				including thermometers and data loggers
Recorded learning	Carousel of activities to investigate contact and non-contact forces. Use the handout and ask the children to explain what happens at each activity. Example activities: Throwing and catching Slide Tug of war Sanding wood Using scissors	Investigation to discover how objects move on different sloping surfaces. Record measurements in a table and then write a conclusion explaining what they have found out.	Look at pictures on handout and predict if the magnets will attract or repel each other. Then, set up the magnets to match the picture and test if prediction was correct. Record observations and write a conclusion to explain what they learned. Challenge Task: Can the children think of some everyday uses for magnets? They can record these as a mind map.	Investigate a range of materials to find out which classroom objects are magnetic. Test which classroom objects are magnetic and record results on the handout. Transfer their results to a Carroll diagram, showing which objects were magnetic/nonmagnetic and which were made of metal/not made of metal. Challenge Task: Can the children find a pattern in their results? They can record this on the stretch handout.	Investigate how powerful five different magnets are. Set up the experiment as outlined in the Mission Assignment film on Developing Experts. Predict which magnet is the strongest. Measure the distance at which each magnet will attract a paperclip, recording results in a table. Place the magnets in order of strength.	Create a treasure hunt by providing directions using a compass, or to find the treasure on the pre-made map using the directions given. Use compasses to make the treasure hunt and navigate way around partner's treasure hunt.
Future learning	Y5 Forces, gravity, resistance, friction					