Forces and Magnets : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore what forces are and notice that some forces need contact between two objects.	In this initial lesson the children will identify forces as a push or a pull that will create, or stop a movement. They will identify the forces in different situations noting that many need contact in order for the force to be applied. The children will be challenged to identify forces using an arrow or to discuss how forces can create movement in different situations.	• Can children explain what a force is? • Do children know that some forces need contact between two objects? • Can children identify pushes and pulls and explain the forces in action?	• Slides • Forces Cards 1A/1B • Worksheet 1A • Close Slip 1A • Question Cards 1A (FSD? activity only)
Lesson 2	To compare how things move on different surfaces.	In this lesson the children will investigate how the texture of a surface affects how things move across them. They will be show how to use and read a force meter and conduct an experiment to measure the force it takes to move different objects. Alternatively, they can conduct a similar experiment, testing how far a toy car can travel across different surfaces.	• Do children know that forces can be measured in newtons using a force meter? • Can children set up and carry out an investigation to explore how objects move on different surfaces? • Can children draw conclusions from their observations?	• Slides • Worksheet 2A/2B/2C • Force meters • Access to a variety of surfaces, e.g. carpet, concrete, grass, wood, bubble wrap, etc. • Ramp and toy car (FSD? activity only) • Metre rulers/tape measures (FSD? activity only) • Class Results Sheet 2A (FSD? activity only) • Pre/Post-investigation Cards 2A (FSD? activity only)
Lesson 3	To explore how magnetic forces work.	Children will be introduced to magnets, and how they can exert a force on certain objects without touching them. They will explore the different forces a magnetic field can exert, depending on which poles are facing each other. In their independent activities, they will show their understanding of this by using the correct scientific vocabulary.	• Do children understand that a magnet does not need contact with an object for the force to be applied? • Can children explain what happens when the opposite poles of two magnets are placed close together? • Can children explain what happens when the same poles of two magnets are placed close together?	• Slides • Bar magnets • Worksheet 3A/3B/3C • Word Bank • Exploration Cards (FSD? activity) • Magnets of varying strengths and sizes, paper clips, string, tape (FSD? activity only) • Worksheet 3D (FSD? activity only)
Lesson 4	To be able to identify magnetic materials.	In this lesson, children recap on what they already know about magnets, before beginning to discuss and predict what other materials could be attracted to magnets. In their independent activities, children test a variety of materials, and are encouraged to notice what the magnetic materials have in common.	• Can children make and test predictions about whether materials are magnetic or not? • Can children make careful observations? • Can children group objects on the basis of whether or not they are magnetic?	• Slides • Worksheet 4A/4B/4C/4D • Magnets • Variety of materials to test (e.g. paper clips, rubbers, metal and wooden spoons, safety pins, aluminium cans, coins, pencils, scissors, keys etc.)
Lesson 5	To investigate uses for magnets.	In this final lesson the children will be challenged to discuss how magnets are used in everyday places as well as some more specific ways. They will then be asked to think about the strength of magnets and how this might affect the use of that magnet. They will conduct an investigation into the strength of magnets or, alternatively, they can make their own compasses using magnets.	• Can children name some uses for magnets? • Are children able to suggest ways in which magnets can be used to solve common problems? • Can children briefly describe how a compass works?	• Slides • Strength Experiment Sheet 5A • Worksheet 5A/5B/5C • Challenge Cards 5A/5B (FSD? activity only) • Worksheet 5D (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan