Forces in Action : Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Children will consider what weight is, and how the impact caused by falling objects can vary, depending on their size, shape, mass, and the height they fall from.	• Can children explain why objects fall towards the centre of the Earth? • Do children understand the causal link between the mass of an object and the amount of force with which gravity acts on it?	• Slides • Worksheets 1A/1B/1C • Large trays, flour, cocoa/chocolate powder, marbles, ball bearings, golf balls etc. • Challenge Cards (FSD? activity only) • Books, internet etc. (FSD? activity only)
Lesson 2	To identify the effects of friction acting between moving surfaces.	Children will learn about what friction is and some ways in which it can be measured. They will also identify instances of high and low friction and conduct friction investigations.	• Can children define friction? • Do children know that friction can be useful and give some examples? • Can children carry out an investigation, making sure that it is a fair test?	• Slides • Worksheets 2A/2B/2C/2D • Forcemeters • Variety of surfaces to test • Rubbers (FSD? activity only) • Challenge Sheet (FSD? activity only)
Lesson 3	To identify and explain the effects of air resistance.	Children will learn about ways in which air resistance affects moving objects, then plan and conduct investigations where they will determine how air resistance affects falling objects.	• Do children know that air resistance is a force that slows objects moving through the air? • Can children plan, carry out and assess experiments to investigate air resistance? • Can children draws conclusions from their investigations?	• Slides • Worksheets 3A/3B/3C/3D • Plastic Bag Parachute sheet • Plastic bags, string/wool, paper clips, rubber bands • Spinner Template (FSD? activity only)
Lesson 4	To identify and explain the effects of water resistance.	Children will learn about water resistance and how it affects objects moving through water. They will then conduct water resistance investigations.	• Do children know that water resistance slows an object moving through water? • Can children plan and carry out an experiment, making sure it is a fair test? • Can children identify trends in results and draw conclusions?	• Slides • Worksheets 4A/4B/4C/4D • Measuring cylinders or equivalent • Water • Plasticine • Stopwatches • Results Sheet (FSD? activity only)
Lesson 5	To recognise that levers and pulleys allow a smaller force to have a greater effect.	Children will learn how simple machines can make it easier to move objects. They will then make and test models which have pulleys or levers.	• Do children recognise that that levers and pulleys allow a small force to have a greater effect? • Can children make and improve models that use pulleys or levers? • Can children explore the effects of changing parts of their model?	• Slides • Worksheets 5A/5B/5C • Lollipop sticks, rubber bands (FSD? activity only) • Lolly Stick Catapult sheet (FSD? activity only) • Marshmallows or play dough (FSD? activity only) • Milk/water bottles with handles • String, cord or thin rope • Broomsticks or thick dowel rods
Lesson 6	To recognise that gears allow a smaller force to have a greater effect.	Children will learn about how gears work together in transmissions and look at a variety of transmission. They will then make models to explore in greater depth how gears work.	• Do children recognise that the speed or amount of force transmitted is affected by changing the size of the gears in a transmission? • Can children make transmissions where two or more gears work together?	• Slides • Worksheets 6A/6B/6C • Cut-out Gears • Types of Transmission sheet (FSD? activity only)

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