

Pentecost 1
Science Year 5: Forces (Physics)

Scripture Link: *Matthew 11:28–30*

National Curriculum Objective

Enquiry Question: What more can we learn about forces?

	Lesson 1	Lesson 2	Lesson 3
Learning intention for each lesson	To know why objects fall	To know about gravity on the moon.	Know what air resistance is and how it works
Recall and Retrieval	know what a force is and that there are different types. Know the difference between an object and a material. know what magnets are and what they do. know that magnets attract or repel materials and sort a range of objects accordingly	know that friction and gravity are forces and what they do. know that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object	know that the Solar System consists of the Sun and everything that orbits, or travels around, the Sun. know the names of the main 8 planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus. know that there are 4 rocky, terrestrial planets and 4 gas giant planets.
Sequence of substantive knowledge throughout the lesson	I know that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object.	The gravity on the moon is 1/6 of Earth's. This is why astronauts seem more bouncy.	That air resistance is a kind of friction that occurs between air and another object. Air resistance is one of the two fixed forces of nature. Air resistance is the opposing force that an object experiences as it passes through the air.
Key Skills/disciplinary knowledge	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; 	<ul style="list-style-type: none"> reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; identifying differences, similarities or changes related to simple scientific ideas and processes; identifying scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a

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Key Vocabulary	Force, Gravity, Earth, air resistance, water resistance, friction, Newton, up thrust, opposing, streamline, brake, cog, weight, mass.	Force, Gravity, Earth, air resistance, water resistance, friction,	Force, Gravity, Earth, air resistance, friction,
Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>			
Scaffolding			
Challenge			
Diversity Links			
Catholic Social Teaching Principles			
British Values			
Wider links			

Pentecost 1
Science Year 5: Forces (Physics)

	Lesson 4	Lesson 5	Lesson 6
Learning intention for each lesson	Know what water resistance is and how it works	Know what friction is and how it works	Know what levers, pulleys and gears are and how they work in relation to forces.
Recall and Retrieval	That air resistance is a kind of friction that occurs between air and another object. Air resistance is one of the two fixed forces of nature. Air resistance is the opposing force that an object experiences as it passes through the air. know that there are different road surfaces and that vehicles may move differently on them.	That water resistance is a type of force that uses friction to slow things down that are moving through water Can explain day and night using Earth's rotation	That friction is a force between 2 surfaces that are sliding, or trying to slide, across each other. Friction always works in the direction opposite to the direction in which the object is moving, or trying to move. Friction always slows a moving object down.
Sequence of substantive knowledge throughout the lesson	That water resistance is a type of force that uses friction to slow things down that are moving through water	That friction is a force between 2 surfaces that are sliding, or trying to slide, across each other. Friction always works in the direction opposite to the direction in which the object is moving, or trying to move. Friction always slows a moving object down.	That levers, pulleys and gears make heavy jobs easier to do by taking care of some of the weight. Levers make objects easier to lift
Key Skills/disciplinary knowledge	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; 	<ul style="list-style-type: none"> reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations; identifying differences, similarities or changes related to simple scientific ideas and processes;

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Key Vocabulary	Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms,	Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, up thrust, opposing, streamline, brake, cog, weight, mass.	Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, up thrust, opposing, streamline, brake, cog, weight, mass
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