



Year 5 – Forces



Working Scientifically	Sticky Knowledge	Linked Texts	Key Scientists
- Recall and use specific scientific vocabulary accurately (year group key vocabulary) - Plan different types of scientific enquiries to answer questions, include recognise and control variables where necessary - Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why - Take measurements, use a range of scientific equipment, with increasing accuracy and precision, take repeat readings when appropriate - Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - Use test results to make predictions to set up further comparative and fair tests - Report and present findings from enquiries, include conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations - Identify scientific evidence that has been used to support or refute ideas or arguments. - Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas	- Air resistance and water resistance are forces against motion caused by objects having to move air and water out of their way. - Friction is a force against motion caused by two surfaces rubbing against each other. Some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move This is the first time Forces are taught in the curriculum. Forces through magnets are taught in Yr 3. -Magnets exert attractive and repulsive forces on each other. -Magnets exert non-contact forces, which work through some materials. -Magnets exert attractive forces on some materials. Magnet forces are affected by magnet strength, object mass, distance from object and object material.	The Enormous Turnip (Katie Daynes) Leonardo's Dream (Hans de Beer) The Aerodynamics of Biscuits (Clare Helen Welsh)	Galileo Galilei (Gravity and Acceleration) Isaac Newton (Gravitation) Archimedes of Syracuse (Levers) John Walker (The Match)
Key Question(s):	Key Question(s):	WS vocabulary	
What is gravity and how does it work? How can you improve water resistance? Can you give an example of when a high amount of air resistance is needed? Explain why. How do some mechanisms allow a smaller force to have a greater effect? How does the surface area and weight of an object affect the gravitational attraction? Why is Isaac Newton significant in the field of forces? What is the most effective way to move an object? Can you create a pulley system to lift a given load?	What actually is a force? How can a force act on an object? How can we see forces? How can we measure forces? How does the saltiness (salinity) of water affect the water resistance? How does the length of a piece of a paper helicopter's wings affect the time it takes to fall? How does the changing the shape of a piece of plasticine affect water resistance? How does adding holes to a parachute affect the time it takes to fall? How does the amount/depth of tread affect the friction between a shoe and a surface? How can we use levers to lift more?	Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion, graph, patterns, distance, data, theory, fair test, reasoning	

Teaching suggestions in Enquiry types

<u>Comparative tests</u>	<u>Identify & Classify</u>	<u>Observation over time</u>	<u>Pattern Seeking</u>	<u>Research</u>	<u>BIG Question - Problem solving</u>
How does the angle of launch affect how far a paper rocket will go? How does the surface area of an object affect the time it takes to sink? 	Can you label and name all the forces acting on the objects in each of these situations? 	How long does a pendulum swing for before it stops? 	Do all objects fall through water in the same way? How does surface area of parachute affect the time it takes to fall? 	How do submarines sink if they are full of air? 	How do submarines sink if they are full of air? (Also use EXPLORIFY) <u>Assessment Opportunity</u> 