

Name:

Class:

Teacher:

Forces and friction (information and facts)

ARE	NAPS	Forces and friction	Magnets	Gravity	DT (knowledge)
Pre-K S1	S4	Explore movement by pushing and pulling to move things or knock things over Communicate an awareness of a change (e.g. a toy has moved)	-	-	-
	S5	Indicate before and after a force has had an effect Explore how different objects move	-	-	
	S6	Make generalisations, predictions and connections e.g. a wheeled vehicle will roll down a hill Recognise that applying forces will have predictable results	Start to be aware that some objects are attracted to magnets	-	Recognise familiar products and explore the different parts they are made from
	S7	Demonstrate different properties of movement such as fast and slow Suggest how to find out whether an object will sink or float. Observe closely the changes caused by different forces	Be aware that two magnets pull towards each other		Operate familiar products with support and explore how they work
	S8	Can talk about why some surfaces are harder to move things on. Notice that objects fall downwards	-	-	-
	S9	Know that pushes and pulls can move things	-	-	Identify and explore basic mechanisms in existing products and in isolation (sliders, wheels, axles)

	S10	Start to be aware that air is a force that can move things Now about objects that move by different means - wind, water, wind-up	-	-	Identify and explore more complex mechanisms in existing products and isolation (slides, levers, wheels, axles)
KS1	S11	Aware that objects move different distances on rough and smooth surfaces	Know that magnets can move things without touching them	Know that unsupported objects will fall towards the Earth because of the force of gravity acting between the Earth and the falling object	Explore and use mechanisms including sliders, levers, wheels, axles in their products
	S12	Aware that the air significantly slows objects with large surfaces. Know that friction is a force between two surfaces that can slow things down	Aware that opposite ends of a magnet are different	-	With support use mechanical and electrical systems in the products including some of the following: gears, pulleys, cams, levers, and linkages, <i>series circuits incorporating switches, blubs, buzzers and motors</i>
Lower KS2	S13	Start to understand how levers work. Compare how things move on different surfaces	Observe how magnets attract some materials and not others. 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. Observe how magnets attract or repel each other	-	Use mechanical and electrical systems in the products including some of the following: gears, pulleys, cams, levers, and linkages, <i>series circuits incorporating switches, blubs, buzzers and motors</i>
	S14	Notice that some forces need contact between two objects but magnetic forces can act at a distance	Predict whether two magnets will attract or repel each other depending on which poles are facing Describe magnets as having two poles	-	-
Upper KS2	S15	Understand forces as pushes or pulls arising from the interaction between two objects	Know about non-contact forces: gravity forces acting at a distance on Earth and in space, forces between magnets and forces due to static electricity	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	Understand and use mechanical systems e.g. gears, levers, pulleys, cams and linkages
	S16	Recognise that some mechanisms including levers, pulleys, gears allow a smaller force to have a greater	-	-	-

		impact Identify the effects of air resistance, water resistance and friction that act between moving surfaces			
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