Holmer C E Academy - Science

Topic: Forces	Year: 5	Strand: Physics

What should I already know?

- That forces are pushes and pulls
- How different surfaces affect the motion of an object
- How magnets work
- What materials are magnetic and why
- How magnetic poles work
- Some details about what friction and gravity are.

Vocabulary

Air resistance	A type of friction caused by air pushing against any moving object.
buoyancy	An object is buoyant if it floats. This is because the weight of the object is equal to the upthrust.
Earth's gravitational pull	the pull that Earth exerts on an object, pulling it towards Earth's centre. It is the Earth's gravitational pull which keeps us on the ground.
Friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
forces	the **pulling** or **pushing** effect that something has on something else
gravity	the **force** which causes things to drop to the ground
mechanism	Mechanisms are simple machines with moving parts that change input forces and movement into a set of useful output forces. Examples of mechanisms are pulleys, gears and levers.
streamlined	When an object is shaped to minimise the effects of air or water resistance.
upthrust	A force that pushes objects up, usually in water.
Mass	A measure of how much matter (or 'stuff') is inside an object.
Water resistance	A type of friction caused by water pushing against any moving object.
Weight	The measure of the force of gravity on an object

Practical Investigation:

- Investigate the amount of **friction** created by different **surfaces**. Use measures (such as length and time) to show how far or fast and object travels.
- Investigate air resistance using weighted paper helicopters.
- Use newton meters to look at gravity
- Investigate water resistance by making model boats.
- Understand how mechanisms work by making our own model.

What will I know by the end of the unit?

What are **forces?**	• To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by identifying forces acting on objects. • To identify the effects of air resistance, water resistance and friction by identifying forces acting on objects. • • To identify forces acting on objects
To explore Gravity, Air resistance, Water resistance and Friction	• To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by measuring the force of gravity pulling on objects. • To explore the effect gravity has on objects and how gravity was discovered. • To identify the effects of air resistance, water resistance and friction by identifying forces acting on objects.
Mechanisms	• To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect by exploring and designing a simple mechanism. • To explore and design mechanisms.
Related Reads:	• Forces and magnets, forces and movements • Forces: Physical Science for Kids (Picture Book Science) Hardcover – Picture Book, 15 Mar. 2018 by Andi Diehn • Forces and motion by Colleen Kessler

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