



Knowledge Organiser

Y5 PHYSICS

Topic: Forces

Key Knowledge

What knowledge do I need to know by the end of this topic?

1. Forces act on objects. Forces of air resistance, water resistance and friction act on moving objects.
2. Objects fall towards earth because of the Earth's gravitational pull.
3. Air resistance will slow objects falling through air.
4. Water resistance acts on objects travelling in water. The shape of objects effects the amount of air and water resistance that will act upon them, smooth,, pointy, sleek shapes will have less resistance. .
5. Friction is the force that acts between surfaces moving. The material effects the amount of friction that will act between surfaces, smooth, hard surfaces have less friction than soft, bumpy ones. .
6. Levers, pulleys, gears and cogs enable a smaller force to have a greater effect.

Key Vocabulary

What vocabulary do I need to know and be able to use?

Forces: pushes or pulls. Gravity: pulling force exerted by the Earth. Earth's gravitational pull: force pulling objects towards Earth's centre - keeps us on the ground. Weight: measure of the force of gravity on an object. Mass: measure of matter (or 'stuff') is inside an object. Friction: force between two surfaces or objects moving across each other. Air resistance: friction caused by air pushing against any moving object. Water resistance: friction caused by water pushing against any moving object. Buoyancy: if something floats because the weight of the object is equal to the upthrust. Streamlined: shape to minimise the effects of air or water resistance. Mechanism: machines with moving parts that change input forces into output forces e.g. pulleys, gears and levers. Upthrust: force that pushes objects up, usually in water

Key Skills

What skills do I need to show by the end of this topic?

Plan: make predictions based on scientific knowledge independently. Decide what variables to control.
Do: set up a range of comparative and fair tests.
Id and classify: I am beginning to identify changes related to scientific phenomena.
Understand: I am beginning to see how Science is useful in lots of ways.

Key Questions

What questions do I need to be able to answer by the end of this topic?

- What forces act on objects that are moving?
- What is the force that the earth exerts over objects?
- How can the forces of air and water resistance be minimised or increased?
- How can the force of friction be increased or reduced?
- What do mechanisms do? Can you give an example of how that is helpful for us?

Curriculum Links

What links will this topic have with other areas of the curriculum?

DT links to levers and pulleys and moving vehicles, design choices and streamlining.

Wider Reading

Where might I find out more about this topic?

Lego activities using gears and pulleys.
Books about inventions and inventors.

