



Shadsworth Junior School



Curriculum

Year 5 Scheme of Work

Term: Autumn 1

Topic: Science - Forces

Key Skills and Knowledge:

Forces

Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

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

Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Working Scientifically

Explore falling paper cones or cup-cake cases, and design and make a variety of parachutes, carry out fair tests to determine which designs are the most effective. Explore resistance in water by making and testing boats of different shapes. Design and make simple levers, pulleys, gears and/or springs and explore their effects. Make predictions and take accurate measurements using a range of equipment. Record findings using diagrams, graphs and written conclusions.

Reading and Writing Opportunities (Long and Short Activities)

Creative Ideas and Hooks

Explanation text – what is gravity

Fact page – Who is Isaac Newton

Newspaper report – about Philippe walking between the twin towers

Experiment Write up using thinking metacognitively sheet

WOW - Find a hill to run up and down (School field) and consider the question: “Why does it take longer to run up rather than downhill?”

Learning Challenge Question – “How do builders get heavy objects to the top of tall buildings?”

Design a pulley to lift an object off the floor.

Balance and counterbalance in a PE lesson, with a partner practise balancing

Make a parachute (air resistance)

Juggling with three tennis balls (circus tricks)

Links to PSHCE, Equality and British Values Work

Breaking the law, right and wrong.

Respecting different cultures.

Keeping safe, especially around construction sites.

Key Vocabulary:

Crane, steeple, construction, wheel, counterbalance, balance, fulcrum, pivot, pulley, force, gravity, air resistance,

Resources Available / Visits/Visitors

Text – The Man Who Walked Between the Towers by Mordicai Gerstein.
Stop watches, tape measures.
Cotton reels, string, yoghurt pots to make pulley system.
Pictures of cranes and twin towers being built.

Useful Websites:

<https://youtube.com/watch?v=RB91Sm-kGJ8>
<https://www.youtube.com/watch?v=LiBcur1aqcg>
Previous Knowledge:
Forces – Magnets, what materials are attracted to magnets? What is a pole? When would you use a magnet?