



## Sacred Heart Primary School Curriculum Theme Plan

### Forces: Year 5-Terms 1 and 2



**Rationale:** In order to address the skills and knowledge as outlined in the national curriculum. The topic of Forces is age appropriate for Year 5. The work fits with the humanities unit of Ancient Greeks. There are opportunities for investigative work to enthuse the children.

**Pre-Unit task:** Class brainstorming session - "What we know about Forces"

#### **Learning Objectives:**

- To explain why unsupported objects fall to earth. (gravity)
- To identify scientific evidence that has been used to support/ refute arguments. (Isaac Newton)
- To take accurate measurements using appropriate equipment. (Newton metres)
- To investigate the effects of air resistance.
- To make predictions and give justifications for these.
- To plan an investigation and control variables
- To investigate the effects of friction on different materials.
- To investigate the effects of air and water resistance.
- To explain how mechanisms work (levers and pulleys)

**Curriculum Links:** Writing opportunities, Greek architecture and weaponry

**Overview:**

Lesson 1: To identify the range of different forces that act on objects.  
Lesson 2: To investigate the force gravity and know about Sir Isaac Newton.  
Lesson 3: To measure the force of gravity using Newton metres, to relate mass and weight.  
Lesson 4/5: To investigate air resistance by making and testing parachutes.  
Lesson 6/7: To investigate the effects of friction – plan and conduct “shoe investigation”  
Lesson 8/9: To investigate water resistance by designing and testing boats.  
Lesson 10: To find out about mechanisms that make work easier.  
Lesson 11: To explain how a lever works.  
Lesson 12: To explain how a pulley works.

**SMSVC Links**

Co operative learning, patience

**Resources (found in Forces Topic Box and Science store)**

Newton metres, magnets, pulleys, materials for parachutes, tubing and toy boats  
Copies of fiction/non-fiction books

**Opportunities for enrichment:**

Links to Greek architecture.

**Impact/Assessment**

**Most Children will:**

- identify and explain different forces.
- Explain Newton’s role in the discovery of gravity.
- Accurately use a Newton metre
- Recognise a streamline shape
- Know how to increase air resistance in a parachute.
- Explain how and why friction slows objects
- Identify variables in an investigation.
- Make and record observations.

**Less Able Children will:**

- Identify some forces
- Explain that gravity is a force that pulls things down.
- Know that Newton discovered gravity.
- Explain what air resistance, friction and water resistance are in investigative settings.
- Recognise that there are variables in an investigation.
- Make and justify predictions.

**More Able Children will:**

- Identify and explain balanced and unbalanced forces.
- Explain the difference between weight and mass.
- Make generalisations about how to increase air resistance.
- Explain how to minimise the effects of water resistance.
- Make generalisations about materials and friction.
- Identify and control variables.
- Make and explain predictions
- Use scientific language.