BRABIN'S ENDOWED PRIMARY SCHOOL



Class: Sycamore Year 3/4 Term: Summer 1 Curriculum Unit – The Iron Man

Key Learning Overview:-

Science: the children will learn about forces such as magnetism and air resistance. DT: the children will learn all about mechanical levers and linkages.

History: the children will learn about Persia and Greece.

Geography: the children will learn about farming and agriculture.

Music: a listening and appraising unit focussing on film scores.

<u>Writing Opportunities</u>- we will write: playscripts based on the Iron Man and explanation texts as well as poems with a structure.

Class Novel, key texts and extracts-

The Iron Man

Curriculum Shapers

- Be Curious: engage in first-hand experiences and experience contrasts between periods of history.
- Be Knowledgeable: nurture a thirst for knowledge and apply cross -curricular skills
- Be Adventurous: develop problem solving skills
- Be Ambitious: develop an open outlook
- Be Creative: develop creative thinking skills and question why
- Be Collaborative: Develop Empathy and social skills.
- Be Reflective: listen to and act on advice
- Be Positive: develop self-esteem

Key Questions

When and where are magnets useful? How strong are magnets? Are all magnets the same strength? Will a magnet attract plastic covered paperclips? What if everything was magnetic? How can we make objects move? How can we stop things moving? How can we change the movement? How can we slow down a moving object? Do different surfaces make a difference? What if we could only push but not pull?

Key Skills Coverage - Science

Prior Knowledge

In KS1:

Pupils should be taught to:

- distinguish between an object and the material from which it is made <u>(1-Everyday materials)</u>
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (1-Everyday materials)
- describe the simple physical properties of a variety of everyday materials (1-Everyday materials)
- compare and group together a variety of everyday materials on the basis of their simple physical

properties <u>(1-Everyday materials)</u>

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (2-Everyday materials)
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (2-Everyday materials)

Key Scientific Skills

Knowledge:

Pupils should be taught to:

- compare how things move on different surfaces (3-Forces)
- notice that some forces need contact between two objects, but magnetic forces can act at a distance <u>(3-Forces)</u>
- observe how magnets attract or repel each other and attract some materials and not others (<u>3-Forces</u>)
- 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 (<u>3-Forces</u>)
- describe magnets as having two poles (3-Forces)
- predict whether two magnets will attract or repel each other, depending on which poles are facing <u>(3-Forces)</u>

Working Scientifically:

Review:

Evaluate: Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings.

Forces: balloon rockets (Y3)

Key Vocabulary

Force- the strength or energy of a movement (this could be a push, pull or twist).

contact force- when two objects are in contact experiencing the same amount of force.

non-contact force- a force that doesn't require contact with another object for example gravity.

magnetic force- a non contact force that attracts or repels magnetic objects.

Magnet- an object that produces a magnetic field (here are some types of magnet- bar magnet, ring magnet, button magnet, horseshoe magnet).

Strength- the force that an object can resist or give out. Attract-pull something towards it.

Repel- push something away.

magnetic material, metal, iron, steel,

poles- two locations at the opposite positions of a magnet that help create the magnetic force.

north pole- the northern pole in the artic circle. south pole- the southern pole in Antarctica.

Prior Knowledge

KS1 – National Curriculum

Design

• Design purposeful, functional, appealing products for themselves and other users based on design criteria • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology

Make

• Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

• Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria Technical knowledge

Technical knowledge

• Build structures, exploring how they can be made stronger, stiffer and more stable • Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products

Cooking and nutrition

 \cdot Use the basic principles of a healthy and varied diet to prepare dishes \cdot Understand where food comes from

Key Design Skills

Design:

 Generate ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose

Making:

- Use mechanical systems such as gears, pulleys, levers and linkages.
- Use lolly sticks/card to make levers.
- Use linkages to make movement larger or more varied.

Evaluating:

• Discuss how well the finished product meets the design criteria of the user.

Technical Knowledge:

• Have a secure understanding of mechanical systems and how they work.

Key Vocabulary

Mechanism- a system of parts working together in a machine.

Lever- a rigid bar resting on a pivot, used to move a heavy or firmly fixed load with one end when pressure is applied to the other.

Linkage- the action of two parts of a machine being connected.

Pivot- the central point, pin, or shaft on which a mechanism turns.

Slot- a long narrow slit in a machine for something to be inserted.

Bridge- a way of connecting two part of a machine to another.

pulleys- a wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord and is used to raise heavy weights.

Gears- a toothed wheel that works with others to alter the relation between the speed of a driving mechanism (such as the engine of a vehicle) and the speed of the driven parts (the wheels).