



BRABIN'S ENDOWED PRIMARY SCHOOL

Class: Oak Year 5/6 Term: Autumn 2024

Curriculum Unit -Inventors and Inventions

Key Learning Overview:-

Science- Through a range of investigations, children will explore falling objects, air resistance, friction and forces that make things begin to move, get faster or slow down.

History- Children will study a non-European society that provides contrasts with British history- 'The Islamic Golden Age' (900AD). Using enquiry skills, they will study this period in depth and make comparisons with other countries. What was happening in Europe at the time?

DT - Children will explore using mechanical systems such as cams, pulleys, gears and motors. They will then design and create their own invention.

Geography: Children will study the region of California with a focus on water.

Writing Opportunities- we will write: a selection of narrative pieces linked to our novel 'Clockwork', newspaper articles and hybrid-texts in the form of a magazine articles on how inventions work (Lego story). They will also write poems inspired by the class narrative poem 'The Highwayman'.

Class Novel, key texts and extracts- Novel: Clockwork and A Christmas Carol
Extracts of: the Incredible Adventures of Professor Branestawm. Magazines e.g 'Amazing' and 'How it Works'. The Raven and the Highwayman poems.

Curriculum Shapers

- Be Curious: invoke a sense of awe and wonder of the Universe
- Be Knowledgeable: develop subject specific language and apply cross-curricular skills
- Be Ambitious: see possibilities and strive for improvement.
- Be Creative: explore alternatives in problem solving situations.
- Be Collaborative: work with others in an interactive process
- Be Positive: listen and respond to advice from peers and adults.

Key Questions

- How do forces affect movement?
- How are forces measured?
- What are levers, pulleys, cams and gears?
- How are they used?
- What was Baghdad like in 900AD?
- What was the House of Wisdom and who studied there?
- How did Baghdad compare to the rest of the World at the time?
- How can Islamic Art be created digitally?

Key Skills Coverage - Science

Prior Knowledge

- Year 1/2: Everyday Materials
- Year 3/4: States of Matter
- Year 3/4 :Famous European Scientists
- Year 3/4 Forces:
 - compare how things move on different surfaces
 - notice that some forces need contact between two objects, but magnetic forces can act at a distance
 - observe how magnets attract or repel each other and attract some materials and not others
 - 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
 - describe magnets as having two poles
 - predict whether two magnets will attract or repel each other, depending on which poles are facing

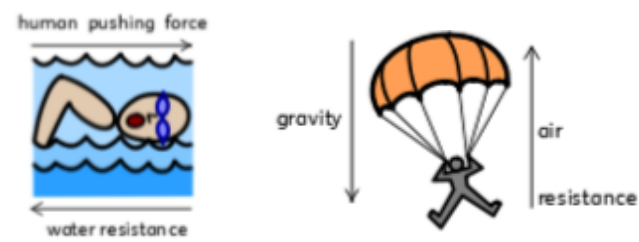
Key Scientific Skills

Knowledge

- 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

- By carrying out fair tests to determine which designs are the most effective.
- By exploring and investigated each force in action through a range of activities e.g parachutes and paper boats in water
- By creating/inventing/designing artefacts that use simple levers, pulleys, gears and/or springs and explore their effects.



Key Vocabulary

Force- the pulling or pushing effect that something has on an object

Gravity- the force which causes objects to fall to the ground

Air resistance- a force which slows down a moving object or vehicle and opposes the force of gravity

Water resistance- friction which is created by water and an object moving through it

Friction -the resistance of motion when one object rubs against another

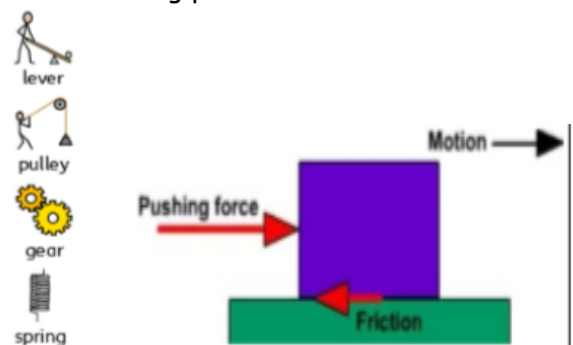
Mechanisms- a system of parts working together in a machine

Newtons- unit used to measure force

Levers-a basic tool used to lift or pry things open

Pulleys- a simple machine that makes lifting something easier. A pulley has a wheel or set of wheels with grooves that a rope or chain can be pulled over

Gears- a part of a machine that causes another part to move because of teeth which connect the two moving parts



Key Skills Coverage - History

Prior Knowledge

- Year 1/2: A study of events beyond living memory- The Great Fire of London
- Year 1/2: A study of significant people including Christopher Columbus
- Year 1/2: Comparative study-The seaside then and now
- Year 1/2: Changes within living memory-
- Year 1/2: Local History- school
- Year 3/4: A theme in British History- the Great Plague
- Year 3/4: A Study of Ancient Egypt
- Year 3/4: Roman Britain
- Year 3/4: Ancient Britain- the Stone Age
- Year 3/4: Local History Study

Key Historical

Chronology

- Identify where periods of studied fit into a chronological framework by noting connections and contrasts over time

Events, People and Changes

- Establish a narrative connection and trends across periods of study

Organisation and Communication

- Understand Historical concepts and use them to make simple connections and draw contrasts.

Enquiry, Interpretation and Sources

- Understand how our knowledge of the past is constructed from a range of different sources and different versions of the past often exist and give some reasons for this



Key Vocabulary

Baghdad- the capital city of Iraq and the centre of learning visited by many scholars in the 10th century AD

The House of Wisdom- also known as the grand library of Baghdad- a centre of learning

Abbasid - a member of the Abbas family, the ruling Caliphs of Baghdad

Caliph - spiritual leader of Islam, any of the former Muslim rulers of Baghdad

Dwelling - a building or place of shelter, living space

Geometric - a figure formed by points, lines, curves or surfaces, made of circles, rectangles, triangles, etc

Scholar - someone who has excellent knowledge of a particular subject

Sultan - ruler of an Islamic country

Anatomy - the scientific study of an animal or plant, or any of its parts

Arabesque - a style associated with Islamic or Arabic qualities

Astronomy - the scientific study of space and the universe



Key Skills Coverage - DT

Prior Knowledge

- Year 1/2: Mechanisms-pop ups and simple card levers
- Year 1/2: Mechanisms- axles and wheels
- Year 3/4: Mechanical Systems- levers and linkages

Key Design Skills

Technical Knowledge

- Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.

Design- generating ideas

- Use models, kits and drawings to help formulate design ideas.
- List tools needed before the start of the activity

Making

- Select from a range of materials/tools. Use mechanical systems such as cams, pulleys and gears.
- Develop understanding of technical vocabulary and can explain to others

Evaluating

- Research and evaluate existing products using ICT/books to compare.
- Discuss how key people have influenced their design.

Key Vocabulary

Cam-Specially shaped wheel, or one with a hole off-centre; when it rotates, anything resting on its edge will bob up and down, as in a pull-along toy.

Pulley-A grooved wheel over which a rope can run.

Gears- a part of a machine that causes another part to move because of teeth which connect the two moving parts

Wheel-Circular frame or disc which rotates about a centre, enabling linear (straight-line) movement from circular motion.

Control-Process of making an action take place; computer control involves programming the computer so it will instruct a device to carry out

Linkage-A means of connecting components together usually so they can move.

Rotation- circular movement of an object around the centre

