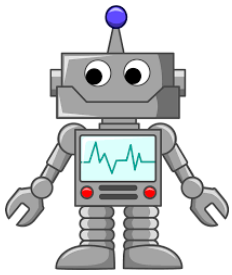
Hill View Primary School – Year 3
Project Overview

The Iron Giant



6 Weeks

Rationale/Intent:

Following on from a robots visit to class and the letter from Smyths, the children will build on their learning from the Year 2 project, The Great Escape, independently researching, designing and engineering their own magnetic robot. Through this project we will be immersing the children in science and focusing on the understanding of forces and magnetism. As budding scientist they will investigate how magnets attract, repel and interact with other materials. The children will be showcasing the ASCENT values of trust when using tools in their design technology lessons. Through the outcome the children will experience success and share this with outside visitors. The will be showing the British values of individual liberty, mutual respect and tolerance.

Hook:
A mischievous robot is seen dancing through the classrooms and leaves behind footprints, nuts, bolts and springs. The children then receive a letter from Smyths toy store asking them to design a new magnetic robot toy.

Outcome:
Parents to come in to see the children's robots and to evaluate their products at the Hill View toy shop. Hill View R Us.

English **Link text: Iron Giant**

Linked texts and extracts are used as 'What a good one looks like' to teach from and are used to enable children in the writing process, using **Talk for Writing**, to successfully achieve the main writing outcomes for the project.

Main writing outcome;

Narrative – fictional story
Innovate the Iron Giant to create their own giant story. Write using subordinating (and coordinating) conjunctions.

Non-fiction – Non-chronological Report
Use technical language to explain scientific concepts, using organizational features such as paragraphing and subheadings.

Writing skills to cover
Range of conjunctions,
Organisational skills (paragraphing and subheadings).

Punctuation and Grammar
Adverbials
Prepositions
Recapping previous learning
Direct speech

Sentence types – questions, statements, exclamations and commands.
Weekly free writes; are used to develop individual targets, re-visit previous learning and offer a range of opportunities and genres to apply previously taught skills.

Focus Subject – DT

Research and explore a range of robots, looking at what the strengths are and what gaps are in the market at the moment.
NC - Use research and develop a criteria to inform the design of an innovative, functional and appealing product.

Carry out market research survey with peers to identify what themes the robot design would best suit based on the audience
NC - Identify who the product is for and ensure it is fit for purpose

Design a magnetic robot based on the brief and market research
NC - Generate, develop, model and communicate ideas through discussion, annotated sketches, cross-sectional and exploded diagrams,

Use saws and sanding paper to cut and smooth pieces of wood for the robot. Then use acrylic paint to create a design for the robot.
NC - MAKE - Use a wide range of tools to cut, shape and join materials
Select materials based on their aesthetic and functional qualities

Use clamps to secure the wood before cutting.
Use hot glue guns to glue on the magnets to finish and complete the robots.
NC - TECHNICAL - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Focus Subject – Science

Complete an investigation relating to pushing and pulling objects.

Complete investigations relating to distance of the object or material (magnetic strength).
NC - Compare how things move on different surfaces

NC - Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance
Complete an investigation relating to how magnets interact with different materials.

NC - 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

Investigate how magnets act around each other. What happens when you get a north and a north or a south and a south?
NC - Describe magnets as having 2 poles
predict whether 2 magnets will attract or repel each other, depending on which poles are facing

Visits and visitors
Geography field work

Cultural capital; Geography
Describe and understand key aspects of human geography, including types of settlement and land use
Use fieldwork to observe, measure, record and present the human and physical features in the local area.

Home Learning
Complete an investigation at home to discover magnetic materials around the house.