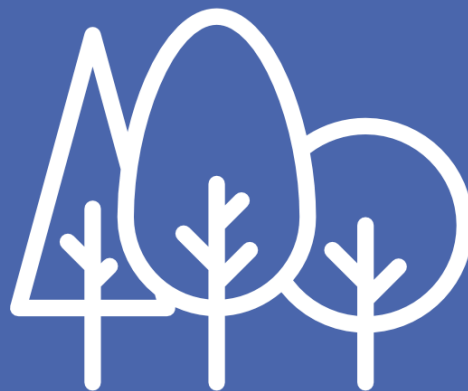


WE ARE ENGINEERS: Appreciating God's Creations

Focus Overview



At Our Lady
and
St. Hubert's,
home, school
and parish
work
together,
knowing that
God is with
us in all we
do



YEAR 4:

We Are Engineers: Appreciating God's Creations

Year 4 – Light



Throughout this focus, children will explore light and learn about how light works.

Through **History** children will learn about the great artists, architects and designers in history. They will create timelines to show the development of electrical technology. Children will recognise different accounts of history and describe how discoveries about electricity have changed our lives.

In **Science** children will learn about how to construct electrical circuits, experiment with switches, bulbs and other components. They will learn about how to be safe around electricity and where it comes from. They will recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

In **Computing** children will be using selection in algorithmic design and using this to design a times table quiz program.

In **D.T.** children will apply their learning about electricity to design, make and evaluate a working night light, incorporating a bulb and a switch into an electrical circuit.

Finally, in **English** children will write dilemma stories and they will draw on their understanding of circuits to design an instruction text based on how to make a circuit.

Theme Impact

Children will develop an appreciation for electricity and its applications. They will come to understand how electrical appliances and inventions have changed and shaped our lives and know some of the key figures and discoveries that have contributed to this. As well as understanding the benefits of electricity, they will appreciate the risks and how to be safe around electricity.

Catholic Social Teaching

Embracing technology to solve problems.

- Looking at the God given talents of scientists and inventors who have enhanced our understanding of difficult concepts
- How have scientists and inventors acted in the image of God?
- How have scientists followed in God's footsteps to contribute towards family and community
- How can we use their examples to become more curious and active?

Curriculum Drivers

History

National Curriculum Objectives

- Learn about the great artists, architects and designers in history.
- To create a timeline to show the development of electrical technology
- To recognise different accounts of history
- To describe how discoveries about electricity have changed our lives

Knowledge and Skills Progression

- C1: Begin to understand that a timeline can be divided into BC (Before Christ) and AD (Anno Domini)
 - C2: Interpret sources to describe things that happened to other people in the past.
 - C3: Chronologically order a set of objects and pictures- and explain how they know.
 - C4: Use a timeline to place historical events in chronological order.
 - C5: Use vocabulary to help them to talk about the past including specific vocabulary from the period.
 - Prior Learning
-
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Science

National Curriculum Objectives

Electricity

- identify common appliances that run on electricity

- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors

Knowledge and Skills Progression

Working Scientifically Suggestions

- observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit
- Report on findings from enquires, including oral and written explanations of results and conclusions

Computing

National Curriculum Objectives

Children will be using selection in algorithmic design and using this to design a times table quiz program.

- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Knowledge and Skills Progression

- CS2 Know that variables are data that can be held and altered in a program
- CS3 Know how to design an algorithm including selection
- CS6 Know how to use variable blocks for assigning and changing variables in Scratch

DT

National Curriculum Objectives

Night Light - The children will apply their learning about electricity to design a working night light incorporating a bulb and a switch.

- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

Knowledge and Skills Progression

- D5- Indicate where electrical components will go and briefly explain how they will function.
- MC2- Joining- Join a range of materials using a variety of methods, usually choosing the method most suited to the task.
- MC5- Extra component- Create a basic electrical circuit/simple mechanical component and incorporate it into their product.
- E4- Improve- Suggest how their product could be improved. Take part in peer evaluation, giving and receiving feedback from fellow pupils.

Prior Learning:

- D5- Indicate where components will go (Pneumatics)
- MC5- Extra component- Create a basic electrical circuit/simple mechanical component (Solar/wind powered mechanisms and Night Lights) and incorporate it into their product.
- E4- Improve- Suggest how their product could be improved. Take part in peer evaluation, giving and receiving feedback from fellow pupils.

Application

Children struggle to sleep in the dark or are scared of the dark. We are going to think about how we can use our homemade night lights to solve this problem. We will write a letter to Smyths Toys to sell our product and persuade them to buy it. We will also make an advertisement to support this.

Wider Curriculum Opportunities

Writing

Dilemma story

Reading

Reading Explorers – The Battle of Misty Mountain

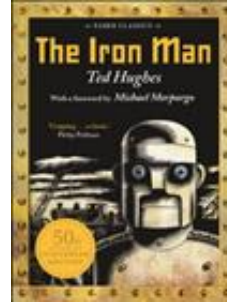
Children will explore the structure of a dilemma story, focusing on the key parts to a dilemma story. They will explore a story about a boy who has got lost on a journey and magpie this to create their own dilemma story focusing on a problem.

Instruction text - how to build an iron man

Children will draw on their understanding of circuits to design an instruction text based on how to make a circuit. They will then explore how an iron man is made and will construct a detailed set of instructions.

Reading Explorers – Robo Dog

Iron Man



Computing – application of previously taught skills

Scratch

Computing Science

Conceptual thinking

Coding and programming

Enrichment

Think Tank

Stand-alone objectives to be covered this term

PE

Music

Samba and Carnival sounds

MFL

Chez Moi

Cooking in the Curriculum

Quesadillas