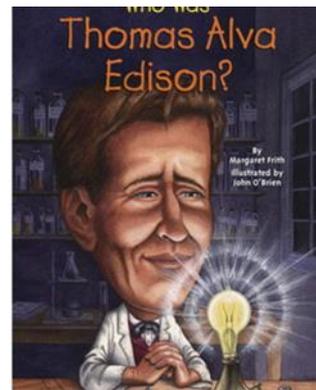
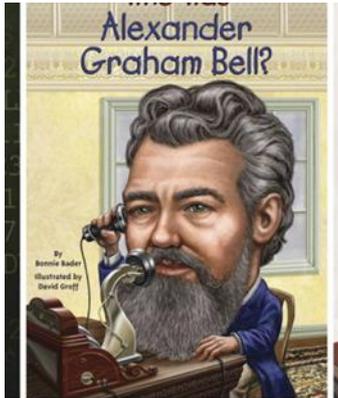




Sacred Heart Primary School Curriculum Theme Plan

Science: Year 4 - Term 6 Scientists & Inventors



Attention Grabber: Make your own lava lamp

Class story time book: *MISTAKES THAT WORKED: 40 FAMILIAR INVENTIONS & HOW THEY CAME TO BE* BY CHARLOTTE FOLTZ JONES, ILLUSTRATED BY JOHN O'BRIEN

Learning Objectives:

1. To recognise that environments can change and that this can sometimes pose dangers to living things by exploring Gerald Durrell's conservation work in Madagascar.
2. To recognise that vibrations from sounds travel through a medium to the ear in the context of Alexander Graham Bell's invention of the telephone.
3. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
4. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
5. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
6. To compare and group materials together according to whether they are solids, liquids or gases by exploring the discovery of oxygen.
7. To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius ($^{\circ}\text{C}$) by exploring Kelvin's discovery of absolute zero.
8. To identify changes related to scientific ideas and processes by exploring Thomas Edison's work with electricity.
9. To identify the different types of teeth in humans and their functions by finding out about the invention of toothpaste.

Overview:

Lesson 1: To set up an enquiry to find out about soil erosion
 Lesson 2: To describe Alexander Graham Bell and his inventions.
 Lesson 3: To build a solar oven and explain how the temperature changes inside it.
 Lesson 4: To build a traffic light using series circuits
 Lesson 5: To describe the properties of oxygen gas.
 Lesson 6: To accurately use a thermometer
 Lesson 7: To identify appliances that run on electricity.
 Lesson 8: To investigate the invention of toothpaste

SMSVC Links

Spiritual - Reflection on the natural world. Environment and human achievement.
 Vocational - Develop them as independent thinkers and learners. Social - provide a range of opportunities and activities for pupils to engage cooperatively and courteously with one another **Curious** about everything; and **active** in their engagement with the world, changing what they can for the better.

Cross Curricular Links

Rainforests topic, sound, electricity, states of matter, teeth.

Resources

Cardboard boxes foil Cling film Glue Sticky tape Thin black card Thermometers
 Stopwatch/timer/clock Light bulbs Wires with crocodile clips Batteries/cells
 Switches Scissors
 4 tea light candles Small glass 3 jars or glasses of different sizes, numbered 1, 2, and 3
 Stopwatch Marbles Tray per pair Bicarbonate of soda Cornflour Salt Glycerine
 Peppermint essence
 Water Beaker and teaspoon per pair 3 different brands of toothpaste Toothbrush per pair
 Unglazed ceramic tile per pair

Opportunities for enrichment:

Practical experiments :

- lava lamps
- electrical circuits
- solar ovens

Visit from a dentist

Impact/Assessment

All Children will be able to: (By the end of this unit)

- investigate and describe the dangers of deforestation in Madagascar;
- name some endangered animals in Madagascar;
- describe Gerald Durrell and his conservation work in Madagascar;
- give five facts about Alexander Graham Bell's life and work;
- present their research into Alexander Graham Bell to an audience;
- identify the achievements of Maria Telkes;

- explain why solar power is a good source of energy;
- discuss the achievements of *Garrett Morgan*;
- create a simple series circuit;
- sort facts about the scientists who discovered oxygen;
- use prompts and key words to explain the effect of oxygen on burning;
- describe absolute zero as the coldest possible temperature;
- sort statements to describe *Lord Kelvin's* life and work;
- identify temperatures on a thermometer;
- identify appliances that run on electricity;
- use given ingredients to invent their own toothpaste; compare the effectiveness of different toothpastes.

Most children will be able to:

- explain the dangers of deforestation in *Madagascar*;
- explain the *Durrell Trust's* conservation program in *Madagascar* and name some of the animals it protects;
- give six facts about *Alexander Graham Bell's* life and work;
- clearly present their research into *Alexander Graham Bell*;
- explain how the sun's energy can be used to heat things;
- draw a simple series circuit;
- explain how a switch works in a circuit;
- use prompts to explain the effect of oxygen on burning;
- demonstrate how particles would behave at absolute zero;
- accurately read the scale on a thermometer;
- describe some of *Thomas Edison's* inventions;
- explain the properties of the toothpaste they invented;
- use their results to form a conclusion when comparing toothpastes.

Some children will be able to:

- give seven facts about *Alexander Graham Bell's* life and work;
- explain the controversy surrounding *Alexander Graham Bell's* invention of the telephone;
- clearly and confidently present their research into *Alexander Graham Bell*;
- explain the difficulties that *Maria Telkes* and *Garrett Morgan* may have faced in being recognised for their work;
- give their own facts to describe the scientists who discovered oxygen;
- use their own words to explain the effect of oxygen on burning;
- explain how the discovery of oxygen changed scientific ideas;
- correct false statements to accurately describe *Lord Kelvin's* life and work;
- convert temperatures between *Kelvin* and *Celsius*;
- explain how *Thomas Edison's* inventions changed people's lives;
- explain the ingredients they chose to give their toothpaste the properties it needs;
- explain their conclusions when comparing toothpastes.