Bright sparks

Rationale:
In this experience, children will learn about electricity and the common appliances that use it. They will spend time exploring circuits and how these work using wires, cells, switches and bulbs and will be able to identify and name these parts.
Building on this knowledge, the children will then design and make a battery-operated light. Children will need to consider who they are making the light for and how they can make it functional and appealing. They will then think about their final product and will evaluate it with others.

Prior Learning:
Children will build on their understanding of light gained in KS1 during their 'Penny for the Guy' experience and 'I want my Mummy' in KS2 in which they learn about basic light and dark. We will build on this to show how we can use electricity when needed and how to make a simple circuit.
Children will continue to develop their knowledge in ICT by designing a computer-controlled toy in Scratch. They will use their knowledge gained in the experiences 'In my heart' and 'Better than a poke in the eye with a sharp stick' in KS1 to do this and will now be able to add more variables as well as various forms of input and output.
Children will use their prior learning from their 'Singing in the rain' experience in KS1 whereby they were required to design and make a functional product for a specific audience. In this experience, the children will design and make a functional and appealing product for their target audience. The children will continue to use the design, make and evaluate the sequence that they used in KS1.

Hook:	**Outcome:**
The children will spend time exploring our science resources to see if they can make the bulb light up with their team!	• Write a character description based on The Iron Man. • Make a working circuit. • Create an electronic toy/light. • Create a computer-controlled toy in Scratch.

CLA (Core Learning Area)

Literacy
- Explore the techniques used for character descriptions in The Iron Man.
- Develop ideas and vocabulary through class discussions, using The Write Stuff techniques.
- Compose and build sentences orally, making deliberate word choices.
- Write sentences in paragraphs using correct punctuation.
- Plan, write and edit own independent work.

Grammar
- Correct use of basic punctuation taught, including full stops, exclamation marks, questions marks and commas in a list.
- Correct use of inverted commas and accompanying speech punctuation.
- Use of subordinating conjunctions to form subordinate clauses.
- Correct use of apostrophe for possession.

Science
- 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.

ICT

- Design and make an on-screen prototype of a computer-controlled toy using Scratch.
- Understand different forms of input and output (such as sensors, switches, motors, lights and speakers).
- Create and correct sequences of instructions using constants and variables.

Design and Technology

- Understand how key events and individuals in design and technology have helped shape the world in the context of looking at technological developments in the way we light our homes
- Understand and use electrical systems in their products (for example, series circuits, incorporating switches, and bulbs) in the context of understanding how a series and parallel circuit can be used to light a bulb.
- Use research and develop design criteria to inform the design of a functional and appealing product and generate their ideas through annotated sketches.
- Select from and use a wide range of materials/components to make the main structure of their light.
- Evaluate their products against design criteria and consider the views of others to improve their work.

Learning Value Focus	
Value: Strategic thinking and resilience	**Skill:** Investigate and explore

How Long? 6 Weeks	**When?** Term 3: Weeks 1-6

Continuous Learning:
SPAG, Maths, Music, PSHE, PE

French focus for Term 3 is “Vegetables”

Parental Involvement:
Continue to read daily and practise times tables.

<u>Homework tasks:</u>

w/c 9th January 2023
Practise building electrical circuits using an interactive website - Topmarks Circuit Construction Kit.
Remember to ask an adult before going onto the internet.

w/c 16th January 2023
Design a poster for younger children to teach them how to keep safe around electricity.

w/c 23rd January 2023
Draw a picture of a toy you have or know of that uses electricity.
What part of the toy is powered by electricity and what does it do?

w/c 30th January 2023
Draw and label the vegetables you have been learning in French. Can you teach someone else in the family the French words for three vegetables?

w/c 6th February 2023
Electricity is produced from different energy sources such as coal, oil, wind, sun and flowing water. Research wind power – where is wind power made locally? What are the advantages and disadvantages of wind power?

Key Questions:

What appliances run on electricity?
What is the difference between mains and battery electricity?
How does a switch work?
What are conductors and insulators?
What are some different types of inputs and outputs of electrical items?