



Batteries and Alternative Circuits Follow Up Activities:

Teachers' Notes:

These two activities aim to follow on from the work covered in the Batteries and Alternative Circuits workshop in a fun and investigative manner. Along with the key message of reducing the number of batteries we use is the importance of how they are correctly disposed; not just thrown in the bin and ending up in landfill sites or an Energy from Waste (EfW) facility. Both activities are independent of each other and help to extend the children's learning.

Activity 1— Build a battery

This activity is to be done in class.

National Curriculum links:

Year 4 construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

recognise some common conductors and insulators, and associate metals with being good conductors

Year 6 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit

compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches

KS3 internal energy stored in materials

Learning Objective:

I can create a battery to power an electrical item as part of a circuit.

Equipment:

Nickel washers, copper coins, cardboard, vinegar, electrical tape, small diameter wire, low energy electrical item such as an LED bulb or calculator.

Activity:

As a class discuss how a battery can be made up of layers in a repeated pattern. For this battery you will need to have a repeated pattern of coin, nickel washer, cardboard soaked in vinegar; one on top of the other. Repeat this pattern several times and secure as a tower with electrical tape attaching a wire to each end. Make sure the cardboard is the same size as the coin and washer so no two similar materials can touch. You now have a working battery—what will it power?

For video support: <https://www.youtube.com/watch?v=rldPfDHeROI>



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Activity 2— Where can my batteries go?

This activity is to be completed as a homework investigation.

National Curriculum links:

KS4 Citizenship: the different ways in which a citizen can contribute to the improvement of their community, to include the opportunity to participate actively in community volunteering, as well as other forms of responsible activity

KS2 use fieldwork to observe, measure record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies

KS3 interpret Ordnance Survey maps in the classroom and the field, including using grid references and scale, topographical and other thematic mapping, and aerial and satellite photographs

Learning Objective:

I can use mapping skills to identify battery collection points in my local area.

Equipment:

Map of area to be included in the survey to display on a wall, identifying markers. Extra support can be given to pupils in the form of photocopied map sections of their particular area.

Activity:

Children to be set the task of investigating their locality for 'Battery Banks'. For densely populated areas this can be done on sections of a street map relating to the area where they live, or covering a wider area to encompass a range of retail areas. It can be completed individually, in groups and even as a competition to see who can find the most! The results can then be shown on the large wall map creating a great display for the school.