



Make a Lighthouse



Preparation

CLASS LEVEL	Third – sixth classes
OBJECTIVES	<p>Content strand and strand unit Energy & forces, Magnetism and electricity</p> <p>Through investigation the child should be enabled to investigate current electricity by constructing simple circuits SESE: Science Curriculum pages 64 and 86. In this activity children apply the knowledge gained and skills learned in making electrical circuits to construct a model of a lighthouse that shines a light.</p> <p>Skill development Experimenting; designing and making.</p>
CURRICULUM LINKS	<p>SESE: History Local studies/explore some feature of local environment/purpose of construction</p> <p>Continuity and change over time/ technological and scientific developments over long periods</p> <p>SESE: Geography Human environment/ features of the built and natural environment</p> <p>Maps, globes and graphical skills/ construction of sketch maps (e.g. location of lighthouses)</p> <p>Visual arts Construction / making constructions / make drawings from observations to analyse the structures of buildings</p> <p>Construction / looking and responding / look at collections or photographs of built structures</p> <p>Language: English/Gaeilge Folklore, sea-tales involving lighthouses.</p>
BACKGROUND	Some classes on electricity and circuit-making should have taken place prior to this activity; so that the children understand the basics of electric circuits (i.e. need a source of electricity, conducting wires and a complete circuit).
MATERIALS/EQUIPMENT	<p>For lighthouse: Cardboard tube (e.g. empty kitchen roll or a long crisps tin), Bulb-holder, 3.5V bulb (flashing or ordinary), Battery (3 V or 4.5 V), Connecting wires, Small plastic jar, Black and white paper, Sellotape, Glue.</p> <p>For switch: Cardboard, 2 paper fasteners, 1 paper clip.</p>
PREPARATION	Collect materials, check batteries and prepare connecting wire.
BACKGROUND INFORMATION	The bulb will light only when there is a complete path for the electricity to flow (i.e. a complete circuit)

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Activity

SETTING THE SCENE

Begin with a brainstorm on finding one's way around – e.g. street names, maps, compasses, etc. Talk about land, sea (and perhaps air if they wish).

Introduce lighthouses. Look at pictures of lighthouses. Visit a lighthouse if possible. Why do we need lighthouses?

Lighthouses send out warning lights. The interval between the flashes identifies the lighthouse; e.g. Dun Laoghaire will have a different interval to the Old Head of Kinsale.

TRIGGER QUESTIONS

How do you find your way safely when travelling?

What about travelling at sea?

How do sailors know if there are dangerous rocks sticking up?

Do you know any lighthouses? Where are they?

Do all lighthouses look the same?

Does the light from a lighthouse shine continuously?

How does a lighthouse tell you where you are (as well as warning you of land/danger)?

How did lighthouses work long ago?

Do you know any stories about lighthouses?

Draw a diagram.

DEVELOPMENT OF ACTIVITY

How could you make a lighthouse? What would you need? Draw a diagram.

How would you design your lighthouse?

SAFETY

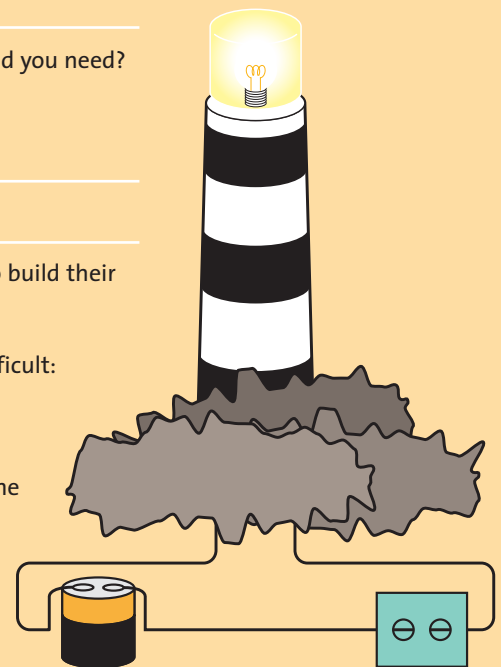
Care with batteries and wire

ACTIVITY

The children could be given the opportunity to build their own designs.

Here are some instructions if they find this difficult:

Glue the black and white paper onto the cardboard. Make an electric circuit using the battery, wires, bulb and bulb-holder. Arrange the circuit so that the bulb is at the top of the tube and the battery at the bottom. Put the jar over the bulb.





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Review

REVIEW

If your lighthouse does not light what do you need to check?
(INCOMPLETE CIRCUIT, SHORT CIRCUIT, DEAD BATTERY, BROKEN BULB)

How could you make a better lighthouse?

What did you like/dislike about this activity?

ASSESSMENT

Children could draw their lighthouse and circuit showing how they made the light work.

Another approach would be to use the models the children have made. They could display their models with annotated notes. They could be asked to show their models to their peers and explain how they work. They could invite other classes to view their displays and they could answer questions that the other children might have.

FOLLOW-UP ACTIVITIES

(1) You can operate the lighthouse by inserting a switch in the circuit as follows:

Insert two paper fasteners into cardboard and join them with a paper-clip on top, so that the latter can swivel. Join the wires from the circuit to each paper fastener at the back of the cardboard.

(2) Rocks made from papier-mâché add a nice touch to this activity, and a link with art.

(3) Research a local lighthouse.

(4) Make a lighthouse quiz e.g. in what counties are various lighthouses.

(5) Design a lighthouse model that includes a sensor switch. When boats sail over a certain point in the 'water' the lighthouse light comes on.

Further information on lighthouses can be obtained from the Commissioners of Irish Lights Information webpage at

<http://www.cil.ie/sh675y.html>.

The children could be asked:

- What else would you like to find out?
- How would you find it out?

This would encourage them to design their own investigation.

