



Year 4 Lighthouses

Key Focus of the Unit

In this topic, children will look at the architecture and developments in lighthouses from the Greek lighthouse at Alexandria to modern day ones. They should design and make a structure which includes a light in an electrical circuit. The structure can utilise something already in existence e.g. lemonade bottle, or they can make it from a frame and card but the key focus is on the electronics and holding and housing them. If able a 'control' element can be incorporated so the light turns on and off.

Objectives

Take inspiration from existing architecture

- Look at lighthouses through history from the Greek lighthouse at Alexandria to modern day examples

Designing and making

- Use existing products to inform choices about materials and designs and develop own design criteria.
- Use annotated sketches and begin to use other styles of drawing- cross-sections/ exploded diagrams/ plan views as well as discussion to communicate ideas. Use CAD where applicable.
- Make models of sections/ pattern pieces or any moving pieces as a trial.
- Know a circuit needs a battery, switch, wires and a bulb in a continuous circuit to function and this is a series circuit
- Understand how reflective materials help magnify and project the light source.
- Make or modify structures to hold the light source at the top and hide the other components inside.
- Use knives, saws, screwdrivers and wire strippers carefully and accurately.
- Make models of sections/ pattern pieces or any moving pieces as a trial.
- Finish the products in ways relevant to the intended use and user.

Vocabulary

Bulb
Battery
Switch
LED- light emitting diode
Wires
Wire strippers
Connection
Reflector
Housing
Positive
Negative
Battery holder
Lighthouse
Magnify
Reflect
Control
Timing
Circuit
Series circuit

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| | <ul style="list-style-type: none"> Evaluate their own work honestly and reflect on what they could do to make it better. Evaluate each other's work in the same way. Attempt to improve their product. | | |
| <p>Prior learning/Understanding</p> | <p>Children will be learning about circuits within science alongside their DT sessions. The children study Ancient Greece in Year 3. They have made a basic frame in their Year 1 shelters topic.</p> | <p>Curriculum links</p> | <p>Spoken language</p> <ul style="list-style-type: none"> Maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments. Develop understanding through speculating, hypothesising, imagining and exploring ideas. <p>Science</p> <ul style="list-style-type: none"> know how to construct simple series circuits and have a basic understanding of conductors, insulators and open and closed switches. |
| <p>Future learning/Understanding</p> | <p>The children will build on this understanding in Year 6 through their science Electricity topic and in the DT project of Electrical systems- Steady Hand Game.</p> | <p>Safety Points and Common Misconceptions:</p> | <p>Pupils should be taught to work safely, using tools, equipment, materials, components and techniques appropriate to the task.</p> |
| <p>Assessment objectives:</p> | <p>Use written, verbal and practical observations of the children to assess the children's understanding of the objectives covered using FFT</p> | | |