

Building a lighthouse

Your task

Working as a group you have **1 hour** to **design** and **make** a lighthouse using the materials provided. When the time is up, the lighthouse will be tested and assessed for the following:

- Design
- Cost
- Strength

Planning

You should spend about **10 minutes** on this stage.

During the planning time you are allowed to handle the materials, measure and draw.

You are **not** allowed to **fold**, **join** or **fix** anything together at this stage.

Each group has:

Materials

1 roll of sellotape
assorted elastic bands
strip of aluminium foil
12 sheets of A4 paper
1 piece of wire, approximately 1m long

1 bulb
1 battery
2 drawing pins
1 clothes peg

Tools 1 ruler, 1 pencil, 1 screwdriver

Building

You should spend about **45 minutes** building your lighthouse.

It must:

- Be free standing
- Be a minimum of 90cm high
- Have a working light at the top
- Have an on/off switch
- Be made so that the battery is no more than 4cm from the base of the lighthouse



Do not waste material!

Teacher Guide for Build a lighthouse

Contents:

Activity notes

Technicians' notes

Activity notes

There is ample sticky tape and paper, so there are only two main problems: making a tall enough tower that will not fall over; and making a circuit from the battery at the bottom to the bulb at the top. The best designs seem to resemble a tripod with legs of rolled paper (these work better if connected together near the base to stop them spreading). Most of our students quickly tumble to the idea of using the foil as one of the conductors in the circuit, and at least three designs of switches can be made from the equipment provided.

Build a lighthouse

Technicians' notes

For each group of students:

- 1 x roll of sticky tape
- 1 x strip of aluminium foil (just over 1m long)
- 12 x sheets of A4 paper
- 1 x piece of insulated electrical wire, approximately 1m long
- 1 x bulb
- 1 x battery
- 2 x drawing pins
- 1 x clothes peg
- 1 x 1m ruler
- 1 x pencil
- 1 x small screwdriver
- assorted elastic bands