TRINITY HOUSE

KEY STAGE 2 // AGES 7–11 // 50–60 MINUTES

Safety at sea
KS2 Teacher notes

TRINITY HOUSE

Safety at sea

Age range:

KS2/7–11 year-olds

Key words:

Navigation, safety, aid, maintain, beacon, fresnel lens, mariner, vessels, hazards, buoys

Lesson objectives:

- Understand the role of a lighthouse in warning mariners about dangers and providing an aid to navigation;
- Identify how Trinity House keeps the sea safe by providing a mix of aids to navigation; specifically lighthouses for this exercise;
- Evaluate their ideas against their own design criteria and consider the views of others to improve their work;
- Apply their understanding of how to modify, heighten or strengthen structures.

Resources:

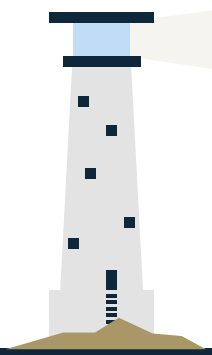
- Slides: Safety at sea;
- Video: Trinity House: Our aids to navigation;
- Worksheet 1: Briefing sheet;
- Worksheet 2: Evaluation.

Starter: What am I?

10 minutes

This session starts by introducing pupils to the role of a lighthouse via a quick 'What am I?' quiz. Use slides 3–5 to deliver this. Using the statements on the slide, pupils need to try to guess what is being described.

Now take pupils through slides 6–9 which explain the history of the lighthouse and provide an explanation of how a lighthouse works. The slides conclude by briefly explaining the role of Trinity House in maintaining lighthouses and other aids to navigation in England, Wales, the Channel Islands and Gibraltar.



Activity 1: Safety at sea

10 minutes

Play 'Trinity House: Our aids to navigation' to your class on slide 11. The video explains how Trinity House's estate of 66 lighthouses and 450 buoys are part of an important mix of aids to navigation that keep the mariner safe at sea.

Check pupils' understanding of the content of the video using the Quick fire quiz questions on slides 12–15.

Use slides 16–21 to explain the role of Trinity House in managing the safety of mariners and ships at sea and the types of aid to navigation that Trinity House provides and maintains.

Activity 2: Construct a lighthouse

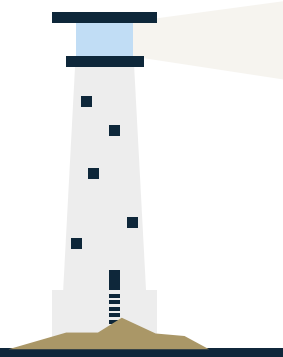
30 minutes

Place the class into small (mixed ability) teams of between 3-4 pupils. Within their teams, pupils should work collaboratively to construct a lighthouse using one of the approaches outlined on Worksheet 1. Two construction options have been provided for you to choose from based on the time and resources available.

Pupils should complete Worksheet 2 to detail their build process, any challenges they faced and how they overcame them.

Curriculum link: Design and technology

- Design: Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;
- Design: Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
- Evaluate: Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- Technical knowledge: Apply their understanding of how to strengthen and reinforce more complex structures.



Worksheet 1: Briefing sheet

Design brief: Working with your group, choose one of the options below to create your own lighthouse.

Use the Evaluation sheet to explain the challenges you faced during your build and how you overcame them.

Option 1

You will need:

- Cardboard tube (e.g. empty kitchen roll);
- Bulb holder for 3.5 volt bulb and a 3.5 volt bulb;
- 1 x 3 or 4.5 volt battery;
- 2 x wires;
- Small plastic jar;
- Sheet of white paper;
- Sticky tape;
- Glue;
- 2 x metal paper fasteners;
- A small piece of cardboard.

Instructions:

1. Make three or four thin black stripes on the white paper to create black and white striped paper and glue the paper to the cardboard tube so the stripes are horizontal.
2. Secure the bulb holder to the top of the tube with sticky tape.
3. Attach two of the wires to the connectors on the bulb holder, and run them through the inside of the tube. Connect one free end of wire to one terminal of the battery.
4. Attach the other free end of wire to one of the paper fasteners. Then attach the paper fastener to the battery terminal.
5. Attach the other paper fastener to a piece of cardboard, so you don't have to hold it directly when you make the fasteners touch.
6. Cut a hole in the cardboard tube, to access the wires.
7. Stand the cardboard tube on a piece of cardboard. Tape it into position with sticky tape, to ensure that it remains upright.
8. Put the bulb in the bulb holder. Place the small jar over the bulb.
9. When you touch the two paper fasteners together, the electric current will flow and the light will go on. You can make it flash by repeatedly touching and separating the fasteners.

Option 2

You will need:

- 20 x sheets of A4 paper;
- 1 x piece of dowel;
- 1 x bulb and bulb holder;
- Wire;
- Sticky tape.

Instructions:

Working in your group, your challenge is to use the equipment to see if you can make the tallest lighthouse structure.

The team with the tallest structure wins!

Worksheet 2: Evaluation

Aim of the project:

What worked well:

Challenges we faced:

How we dealt with these challenges:

What we would change next time: