

Lesson Name: Make your own self-righting boat

National Curriculum Reference: KS1 Science – Sc4, D&T – Vehicles Unit 2A

Aim: To investigate how boats float and self-right

Objectives: To understand that air makes boat float; to explore how boats self-right

Assessment/Success Criteria: Most children will be able to say that air inside a boat helps it float; some will be able to explain that for a boat to be self-righting the bottom needs to be heavier than the top; some will work well in a group to use a trial and error method to make their boat self-righting.

Teacher Notes: You will need to make your own boat and attach a slipway to the water tray in advance of the lesson

Resources: Washing-up bottles, plasticine, water-tray, cardboard hull templates, cardboard slip-way, colouring pencils, sellotape.

Key Vocabulary: Capsize, Self-righting boat, keel

Lesson Plan:

Timing	Section	Activity
10 mins	Introduction	Using the rough sea video on rnli.org.uk/shorething discuss with the children what can happen to a boat in rough seas. Explain that in bad conditions boats can turn over and this is called capsizing. The RNLI have to make sure that their boats are as safe as possible to keep the volunteer crew and people they have rescued safe even in the roughest sea. This is why lifeboats self-right. Watch the video of a Severn class lifeboat self-righting with the class to show this in action. Say that the boat has to be completely sealed for this to work so that it keeps in something very important, ask if anybody knows what this is – air. Explain that in this session, the children will be making their own boats and trying to make them self-righting.
10 mins	Class experiment	Use a pre-prepared boat in the water tray (washing up bottle and cardboard hull). Ask the children if they think it will float and if they can explain why (it is full of air). Launch the boat down a cardboard slipway into the water to check. Ask if the children think the boat will self-right as it is now. Turn it over to check. Explain that the boat needs to be heavier on the bottom (the keel) than on the top for this to work. Place a lump of plasticine on the bottom of the boat and try again. Keep moving the position of the plasticine or changing the size of the lump until the boat self-rights. Keep asking the children whether they think it will work on each attempt.
20 mins	Group work	Divide the class into small groups. Each group will need to cut out their hull and decorate it before taping it onto their washing up bottle. One group at a time can then work with an adult and experiment in the water tray to attach their plasticine keel in the right place. While groups are waiting to work in the water tray they can record their experiment (either by drawing pictures or writing sentences as appropriate).
5 mins	Plenary	Ask groups to talk about how they got on with making their boats; was it easy to make them self-righting? Ask the children if they can explain in their own words why the boats float and then why they self-right.

Extension – this activity can be extended by linking it to the Floating and Sinking lesson or the shout role-play or Poetry lessons.

Resource sheet – Hull template

