

**National Curriculum Reference:** KS3 D&T 3:1h also links to ICT 3a

**Aim:** To use graphic techniques & ICT, including computer aided design to explore, develop and communicate design proposals for a lifeboat.

**Objectives:** To consider design features of a lifeboat. To use a drawing or other CAD package to outline and modify designs.

**Assessment/Success Criteria:** Most pupils will have developed several modified designs and be able to give reasons for their modifications. Some pupils will have developed one or two modified designs and know of some of the features considered in lifeboat design. Some pupils will have developed several modified designs and given both reasons and possible consequences for their modifications.

**Teacher Notes:** Pupils are concentrating on showing their thought processes in the way they change given profiles and in the notes they attach to them. As an extension this initial concept phase could be taken into a second lesson – pupils to develop worked up presentation sheet(s) showing original templates with modifications and design rationale behind them.

**Resources:** RNLI – Virtual tour of a lifeboat and Build a lifeboat on [www.rnli.org.uk/shorething](http://www.rnli.org.uk/shorething)  
Worksheet: Boat Profiles.

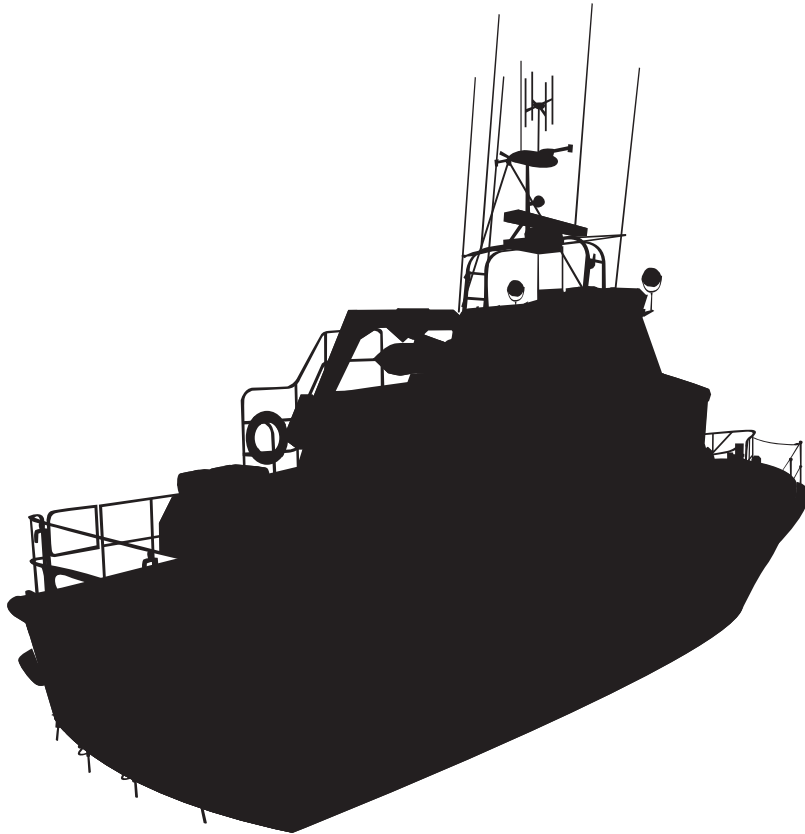
**Key Vocabulary:**

|          |            |            |
|----------|------------|------------|
| Hull     | Wheelhouse | Fore-deck  |
| Aft-deck | Profile    | Horsepower |

**Lesson Plan:**

| Timing  | Section                            | Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 mins  | Introduction                       | Introduce the ideas that the design of lifeboats is a continuous process with new lifeboats building on the positive and negative aspects of previous designs. In addition there is always a compromise between design and costs. Compare this with mobile phones which most young people will have experience of.                                                                                                                                                                                                                                         |
| 15 mins | Class work                         | Brainstorm the kinds of considerations a lifeboat designer might have to take into account; e.g. the number of people able to be rescued, the size of engine needed, how much fuel it is able to carry, safety of the crew etc. Use the brainstorm to itemise possible features of a lifeboat.<br>Distribute the resource sheet: Boat Profiles. Discuss the differences between the boat profiles.                                                                                                                                                         |
| 15 mins | Individual or Paired work          | Pupils can use this as reference either scanning two or more images into their computer, or to copy and draw them directly into a simple drawing package. If opportunity allows view the interactive tour of a lifeboat on the RNLI education website.                                                                                                                                                                                                                                                                                                     |
| 20 mins | Individual work<br><br>Paired work | Use a simple CAD / Drawing package to outline scanned or drawn images. Modify the outlines to alter the profile saving the modifications alongside the original. Make notes to go with each modification showing reason for change; e.g. lengthen the hull to allow for more passengers.<br>Print out initial design ideas and notes to discuss with a partner with a view to agreeing possible consequences of a change to the shape; e.g. increasing length may mean more weight and may need a bigger engine. Make notes about the agreed consequences. |
| 5 mins  | Plenary                            | Discuss the design ideas within the class. Highlighting where pupils have provided considered solutions - those that have taken as many features as possible into their designs and their thinking.                                                                                                                                                                                                                                                                                                                                                        |

**Boat 1**



**Boat 2**



**Boat 3**

