

Trawlers and Arctic Ice (STEM ideas for consultation)

Overview

Hull has a rich heritage relating to the fishing industry and is fortunate to have a sidewinder trawler, the Arctic Corsair, as a museum. This historical programme of study looks at the dangers faced by the trawlers and their crews in the waters of the Arctic, in particular the danger posed by ice forming on the trawler's superstructure, mast and rigging. This threat played a part in the loss of the *Kingston Peridot* and the *Ross Cleveland* in the Triple Trawler tragedy of 1968.

What could be done about these dangers today and how can these skills and techniques improve our lives and the lives of those around us?

Attainment targets (KS2)

History

Pupils should

- gain historical perspective by placing their growing knowledge into different contexts:
- learn about a local history study (Hull's maritime history and the fishing industry of the 20th century)
- A study of an aspect or theme in British history that extends pupils' chronological knowledge beyond 1066.

Cross Curricular Links:

Computing

Pupils should

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
- use sequence, repetition and selection in programs; work with variables and various forms of input and output
- select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

Science

Pupils should

- develop scientific knowledge and conceptual understanding through the specific disciplines of chemistry and physics
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)

Suggestions and ideas for progression of STEM links

KS2 – write code in a code blocks editor for a micro controller, such as the BBC micro:bit, to measure and/or log temperature and warn when temperatures get below a level which could cause danger to the ship. Extensions include using a text-based language and adding sounds to the alert.

KS3 & KS4 – build a simple circuit (possibly using different micro-controllers), using a temperature sensor and wires, to measure and log temperature. This then introduces more science concepts around circuits. Code could be written in a text-based language such as Python, JavaScript or C++. Use the radio functionality of the micro:bit to send temperature data to another micro:bit.

FE/HE – design and build a device to warn of dangerous temperatures, thinking about issues such as waterproofing and battery life. Here the choice of device and/or language used can be part of the design process. Wi-Fi or Bluetooth could be used to allow remote collection of data.

All groups can consider how a similar device could be used to make a difference in their own lives or the lives of their family or community. Examples could be a warning for gardeners about frost.