

Safe at sea

Educational resource for
Key Stage 2 provided by:



Trinity House

Teachers' notes



Safe at sea

Safe at Sea is a range of educational resources, closely linked to the New Primary Curriculum, designed to introduce children to the work of Trinity House. This particular set of online and printed resources is targeted at KS2 and can be used alongside, or independently of, the KS1 pack. Online resources for KS1 and KS2 material can be found on our website: www.trinityhouse.co.uk/safeatsea; other resources are in the Safe at Sea KS1 and KS2 printed packs.

An extended line-up of colourful characters:

At KS1 our colourful characters *Sammy the seal*, *Sarah the seagull* and *Dan the dog* introduced topics such as: the function of lighthouses, buoys and lightvessels; light and dark and coastal habitats. In this KS2 resource we introduce two additional animal characters - *Cromarty the crab* and *Wight the whale*. We look in more detail at topics including navigation, pollution, marking wrecks and energy sources.



Online

There are a number of flexible resources on the website, each designed to be used as part of a lesson, or series of lessons.

- ▶ Worksheets
- ▶ Four interactive games – each with a read/write activity and a puzzle/quiz
- ▶ Two factual videos
- ▶ Two video stories
- ▶ Teachers' Notes (including links to a PDF version of this booklet)

Printed pack

The pack contains elements that can be used in conjunction with the online elements, or on their own.

- ▶ A height chart
- ▶ Teachers' Notes (this booklet)
- ▶ The folder itself – which doubles as a board game
- ▶ A pack of Reward and Challenge cards – for use with the game
- ▶ A spinner – numbered from 1-6
- ▶ A pencil
- ▶ Trinity Toppers card game

The following pages give more details of each resource, with suggestions for extension activities. There are also some **helpful hints** that explain how the elements of the pack may be used together to explore a topic. The resource has been developed with the National Curriculum in mind and each element is labelled to show which specific National Attainment Targets it meets. We hope that you and your pupils have fun using these resources and are inspired to find out more!

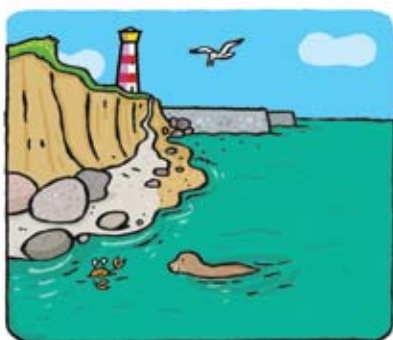
Worksheets

The worksheets are PDF files on the website, www.trinityhouse.co.uk/safeatsea. They are designed to be printed and copied. Each worksheet has brief instructions at the top of the page, as well as a space in which children can write their name and the date. Note that some worksheets extend over two pages.

Maths: Handling data

The worksheet contains a tide timetable which shows the times of low and high tides over a seven-day period. The activity requires pupils to use the timetable to answer ten questions about highest and lowest tides.

SPECIFIC CURRICULUM LINKS: MATHS 4 (HANDLING DATA) 1C, 1D, 2A, 2B



Suggested extension or follow-up activities:

- Calculate the average low and high tides over the week.

Name: _____ Date: _____

Finding data in a tide timetable

Did you know that the seas and rivers in our country are not always at the same level? The gravitational pull of the moon causes the water level to rise and fall twice a day. When the water level is high this is called High Tide (or High Water) when it is low it is called Low Tide (or Low Water). Depending on the position of the moon, there can be very high tides and very low tides. Severe storms can also cause very high tides which can lead to flooding. In Europe the biggest variation, or difference between high and low tides is found in the west of England in the Severn Estuary, where differences of 12 metres are common.

Using tide tables it is possible to see where, and when, a high tide will occur on any date at a particular location. Look at the table, which shows times and heights for a week in the Severn Estuary. Then answer the questions on the following page.

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Time	02:33	09:23	03:22	10:06	04:22	11:05	05:40	12:22	07:34	13:51	08:43	15:03	09:41	16:02
Water	25m	87m	29m	83m	34m	79m	39m	78m	38m	85m	33m	88m	24m	95m

Maths: Calculating percentages

The worksheet has drawings of 60 buoys, divided into five different types. To complete this activity, pupils must calculate the percentage of each type of buoy from the total of 60. The answers are all in multiples of 5%, from 10% (six buoys) up to 30% (18 buoys). A calculator may be used for this activity. Children may wish to colour in the buoys to help them count the different types, or may simply enjoy colouring them in after they have completed the calculations.

SPECIFIC CURRICULUM LINKS: MATHS 2 (NUMBER AND ALGEBRA) 1A, 1B, 1F, 2C, 2F, 2G, 3A, 3K



Suggested extension or follow-up activities:

- Convert the percentages for each type of buoy into fractions and decimals.

Name: _____ Date: _____

Percentages %

The symbol % means 'per cent'. 'Per cent' simply means 'for each hundred'. Below are drawings of buoys there are 60 buoys altogether, divided into five different types. To complete this activity you must calculate the percentage of each type of buoy from the total of 60. For example: if all 60 buoys were the same, it would be 100%. If there were three buoys of one type the answer would be 5%.

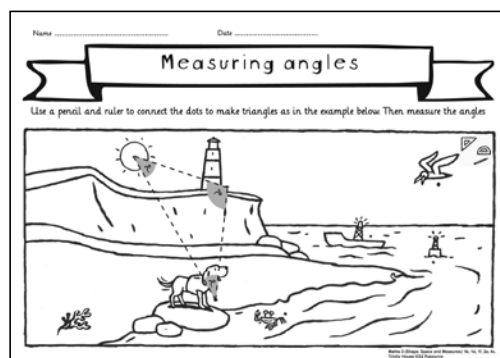
Perhaps you could colour the buoys in to help you count them. Here is a key to guide you.

Port (red)	Starboard (green)	Safe water (red & white)	New wreck markers (blue & yellow)	Class 1 deep water (yellow)

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Maths: Measuring angles

The worksheet shows an illustration of a seaside scene with a number of features including a lighthouse, a buoy and the sun. A large dot is placed by each feature. One triangle is already marked with a broken line between three large dots: using a protractor, children should measure these angles. Pupils can then draw additional triangles between the other dots and measure the angles in those, too.



SPECIFIC CURRICULUM LINKS: MATHS 3 (SHAPE, SPACE AND MEASURES) 1B, 1D, 1F, 2A, 4C



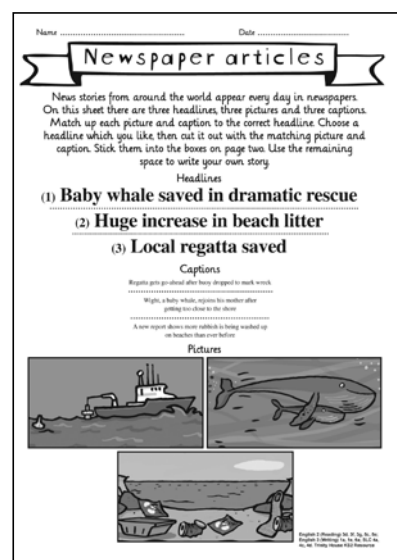
Suggested extension or follow-up activities:

- Use a new copy of the worksheet to draw irregular shapes and measure the angles.

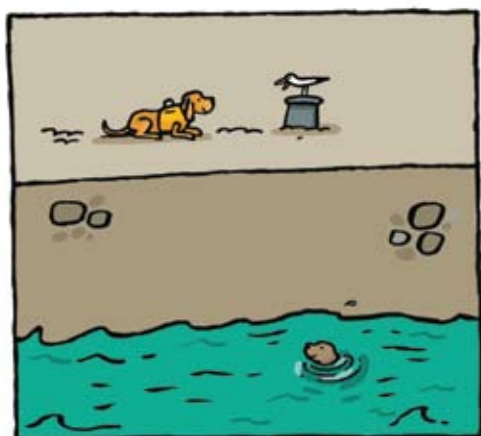
Literacy: Newspaper article

The first page contains three headlines, three images and three captions. Children should match the headlines to the appropriate images and captions. The second page has a newspaper template. Children should cut out one of the headlines with its matching image and caption and stick them in place on the template. They should use the lines to write their own news story based on the headline and picture they have chosen.

Helpful hint: The video stories *Wight the whale gets into trouble* and *A job well done* both contain information that will help children to plan and write their own newspaper stories.



SPECIFIC CURRICULUM LINKS: ENGLISH 2 (READING) 3D, 3F, 3G, 5C, 5E; ENGLISH 3 (WRITING) 1A, 1E, 6A; SLC 4A, 4C, 4D



Suggested extension or follow-up activities:

- Look at local and national newspapers and identify the different elements and techniques used to tell a story.

Geography: Wind farms

The first page contains a series of statements either *for* or *against* wind farms. Children should cut the statements out, then stick them in either the *for* or *against* columns on the second page. At the bottom of the page, there is space for children to write their own conclusion about the benefits of wind farms.

SPECIFIC CURRICULUM LINKS: GEOGRAPHY 1D, 2A, 2F, 5A, 5B; ENGLISH 2 (READING)

3C, 3G, 5B, 5C; ENGLISH 3 (WRITING) 2A, 2E, 6A, 8C; SLC 1A, 1B, 1C, 1D, 1E, 3A, 3B, 3C, 3D, 3E, 3F



Suggested extension or follow-up activities:

- Research local wind farms using Google Maps. Use Google Earth to view offshore wind farms.



All of the interactive online games feature information on the topic given in the title. Each also has linked extension activities, including quizzes and wordsearches.

Geography: Navigation

Using the *left*, *right*, *up* and *down* cursor keys, children navigate their boat along a channel, keeping between the red and green buoys. They have to avoid the hazards of rocks, sandbanks, other boats and swimmers. They score 10 points for each hazard avoided, but lose 10 points if they miss a buoy or hit a hazard. The duration of the game is two minutes. The aim is to score as many points as possible.



Online extension activities: read & quiz

Helpful hint: Children should read the passage about navigation and hazards, then try the multiple-choice quiz to see how much they have remembered.

SPECIFIC CURRICULUM LINKS: GEOGRAPHY 2D, 2G, 4A, 4B; SCIENCE 1 (SCIENTIFIC ENQUIRY) 2B; PSHE 3E, 3G

Geography: Pollution

This is a drag-and-drop game in which items of pollution are picked up and dropped into a skip. As each item goes into the skip, a box pops up with facts about pollution.



Online extension activities: read & quiz

Helpful hint: Pupils should first play the game AND read the passage of writing about pollution. They can then try the multiple-choice quiz to see how much they have remembered.

SPECIFIC CURRICULUM LINKS: MATHS 2 (NUMBER AND ALGEBRA) 1E, 2F, 2G;

SCIENCE 2 (LIFE PROCESSES AND LIVING THINGS) 4B, 5A; PSHE 2A, 2H, 2J; GEOGRAPHY 4B, 5A, 5B



Literacy: Formal and informal writing

The game involves dragging and dropping a picture and blocks of text to create a postcard. The text is a mixture of formal and informal writing. Children must be consistent in their choice of style to complete the game.

Online extension activities: write & seaside wordsearch

Children should choose one of the pictures, then write 100 words about a visit to that place. There is also a wordsearch with words relating to the seaside. The wordsearch can be completed online, or it can be printed.



SPECIFIC CURRICULUM LINKS: ENGLISH 3 (WRITING) 1A, 1C, 1E, 6A, 6B, 9A, 9B

Science: Renewable energy

In this game, children help *Sarah the seagull* fly to the lightvessel as quickly as possible to replace the solar panel, using the X and Y keys to make *Sarah* fly.

Online extension activities: read and energy sources wordsearch



Helpful hint: Children should read the passage about renewable and non-renewable energy sources and then try the wordsearch. The wordsearch can be completed online, or it can be printed.

SPECIFIC CURRICULUM LINKS: SCIENCE 4 (PHYSICAL PROCESSES); GEOGRAPHY 5A

Videos

This resource includes four specially filmed videos. There are two factual films, which feature topics including a brief history of lighthouses and an outline of the day-to-day work of Trinity House. They include short interviews with the crew of Trinity House Vessel (THV) Galatea. There are also two colourful video stories, interspersed with original illustrations, which tell the adventures of *Sammy the seal* and his friends *Dan the dog*, *Sarah the seagull*, *Cromarty the crab*, *Wight the whale*, *Larry the lighthouse attendant* and *Alex, the captain of THV Alert*.

Factual film 1: Keeping ships safe at sea

Synopsis

The film asks the question “why do ships come to our country?” It sets out some of the day-to-day items we take for granted that are imported from other countries. The video explains the need to keep ships safe at sea and gives a brief outline of the role of Trinity House vessels in maintaining lighthouses. There is also information about the first-ever lighthouse.



SPECIFIC CURRICULUM LINKS: GEOGRAPHY 2A, 2D, 3G, 4B, 6C; HISTORY 1A, 2C, 8A, 8B; ENGLISH 1 (SPEAKING AND LISTENING) 2C

Factual film 2: Marking safe channels

Synopsis

The film outlines the importance of marking safe channels for ships into harbour. It gives a simple explanation of the meaning of the different coloured buoys and the role of *THV Alert* in locating and marking new wrecks. It also explains how buoys are attached to the seabed and the purpose of lightvessels.



SPECIFIC CURRICULUM LINKS: GEOGRAPHY 1A, 1C, 2A, 2D, 3B, 4A; PSHE 1E, 2A

Video story 1: Wight the whale gets into trouble

Synopsis

Wight the whale gets into trouble when he swims up the estuary to say goodbye to his friend *Sammy the seal*. Working together, *Sammy*, *Cromarty*, *Sarah* and *Dan* are able to get *Alex, the captain of THV Alert*, and his friend *Larry the lighthouse attendant* to stop *Wight* from beaching and help him to swim back out to sea.



SPECIFIC CURRICULUM LINKS: GEOGRAPHY 4A; SCIENCE 2 (LIFE PROCESSES AND LIVING THINGS) 1A, 1C, 2E, 5A, 5B, 5C, 5D; PSHE 1C, 4A

Video story 2: A job well done

Synopsis

On the night before the regatta, a storm blows up and a small boat goes missing. *Cromarty the crab* and his friend *Sammy the seal* see that the boat has sunk. They lead *Alex of THV Alert* to the spot, so he can drop a buoy to mark the wreck. This stops other boats from crashing into it and allows the regatta to go ahead.



SPECIFIC CURRICULUM LINKS: ENGLISH 1 (SPEAKING AND LISTENING) 9B; ENGLISH 2 (READING) 2A, 2C, 3G, 4G, 4I, 5G

Trinity Toppers card game

Trinity Toppers is a card game. The 32 cards each show a sea creature with four ratings: life-span; length; endangerment (conservation status) and the depth to which it can swim. The conversation status is based on the International Union for Conservation of Nature (IUCN) Red List. It sets out seven categories, from *Least Concern*, which scores 1 in Trinity Toppers, to *Extinct*, which scores 7. These categories were correct at time of printing.

To play the game, children should share the cards equally between them. The child to the left of the dealer picks one of the categories and reads out the rating - the child with the card with the highest score wins that round of cards. In the event of a draw, the cards are placed on the table for the next go. The game proceeds until one child has won all the cards.

SPECIFIC CURRICULUM LINKS: SCIENCE 2 (LIFE PROCESSES AND LIVING THINGS) 1A, 1C, 4B, 5A, 5C; GEOGRAPHY 2D, 5B

Suggested extension or follow-up activities:

- Choose one of the creatures from a card and research its life cycle and habitat in more detail.



Trinity Trekkers board game

The KS2 Safe at Sea resource folder can be laid flat to make a board for a game. To play the game, children will also need the pack of 32 game cards (16 pink reward cards and 16 blue challenge cards), a spinner and a pencil, all of which are included as part of the resource. Players use a counter and travel round the coast of England and Wales, starting from Heugh Hill, a lighthouse off the North East coast, and finishing at St Bees on the North West coast. Children use the spinner and pencil in place of a die. They must spin a six to start, then follow the trail of white, pink and blue stepping stones/circles. When players land on a pink stepping stone, they pick up a pink card; when they land on a blue stone, they pick up a blue card. In each case, they should follow the instructions on the card.



Reward cards

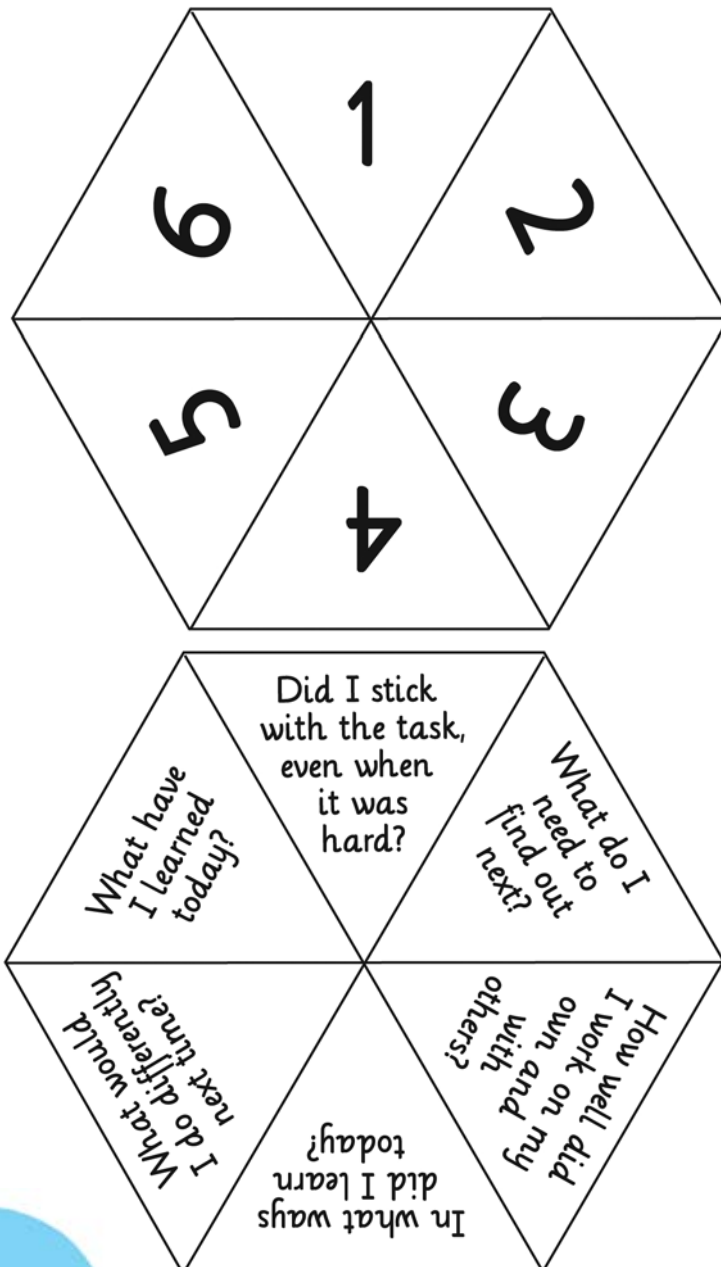
SPECIFIC CURRICULUM LINKS: GEOGRAPHY 2D, 4B; PSHE 3E

Challenge cards

SPECIFIC CURRICULUM LINKS: HISTORY 1A; GEOGRAPHY 3D, 4B, 5B

Spinner

One side of the spinner has the numbers 1-6. On the other side are six learning outcomes that can be used in a wide range of classroom scenarios. These outcomes reflect the five Rs of learning: Resilience; Responsibility; Reflection; Readiness and Reciprocity. (The website also includes a template - in the Games menu - so that additional spinners can be printed.)



Poster

Height chart

The poster is a height chart with a lighthouse up the centre. It should be affixed to a wall with the bottom positioned 90cm from the floor. The chart is marked in 5cm sections. There is space in which children can write their names, or attach a sticky note with their name on it, to show how tall they are.



Suggested extension or follow-up activities:

- Measure the children at the start of the school year, then enter the data on to a spreadsheet. This data can be used to produce a height graph. Measure the children throughout the year to track growth.



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