SEARCH RESCUE
Exploring the maths behind HM Coastguard

LONDON GRID FOR LEARNING | HM Coastguard

Speed, Distance, Time Worksheet for KS2-4

These resources are based on real-life challenges faced daily by HM Coastguard. Each problem has been assigned a coastguard rank according to its challenge level to enable easy differentiation.

Maritime Operations Officer
(one rescue vessel)

Senior Maritime Operations Officer
(three rescue vessels)

Commander
(re-fuelling and route plotting)

Chief Coastguard
(hypothermia)

The four levels vary in terms of scaffolding and challenge, but are all based on the same scenario.

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Speed, Distance, Time Worksheet for KS2-4

Resource sheet

Sikorsky S-92 	• Air Speed: 145 knots (165 mph) • Range: 250 nautical miles • Normal flight crew: 4 • Capacity: 21 persons as required – 3 stretchers, 10 seated persons, additional standing persons • Endurance: over 4 hours • Twin hoist
Atlantic 85 B-Class 	• Crew: 4 • Max Speed: 35 knots (40 mph) • Fuel Capacity: 210 litres • Range/Endurance: 2.5 hours • Engines: 2 x Yamaha 115hp • Survivor Capacity: 20 • Length: 8.44m • Beam/Width: 2.85m

Water Temperature (°C)	Expected Time Before Exhaustion or Unconsciousness	Expected Time of Survival
< 0.3°	< 15 minutes	45 minutes
0.3–4.4°	15 – 30 minutes	30 – 90 minutes
4.4–10°	30 – 60 minutes	1 – 3 hours
10–15.6°	1 – 2 hours	1 – 6 hours
15.6–21.1°	2 – 7 hours	2 – 40 hours
21.1–26.7°	3 – 12 hours	3 hours – indefinite
> 26.7°	Indefinite	Indefinite

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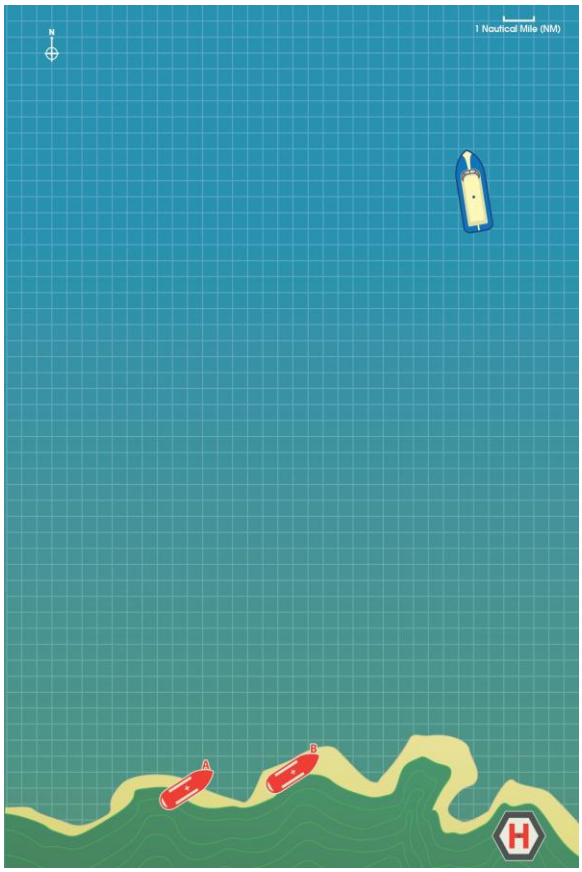
Scenario 1

A small passenger ferry has experienced engine failure. There are **40** passengers on board. All passengers are on board - none have fallen overboard.

Unfortunately, the boats at station **A and B are out of action** as they are being repaired. We only have the helicopter in action today!

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.



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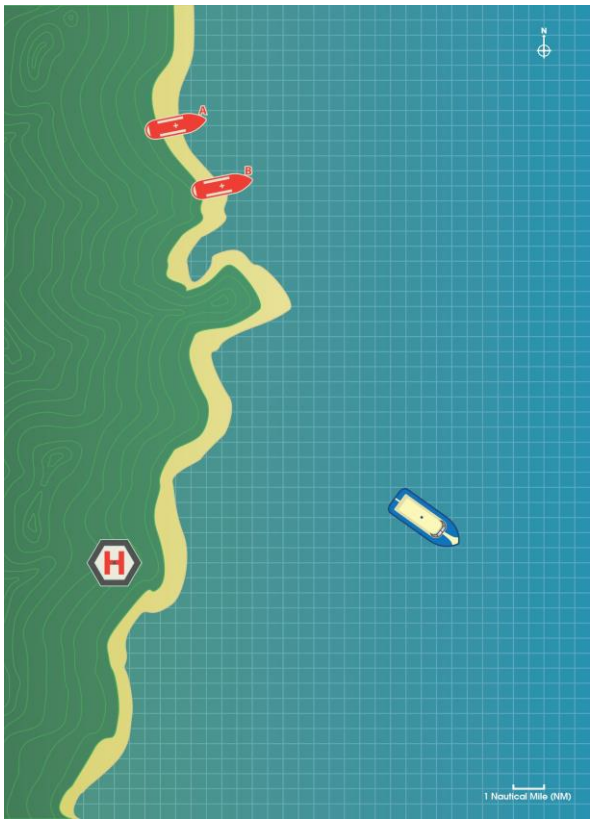
Scenario 2

A small passenger ferry has experienced engine failure. There are **65** passengers on board. All passengers are on board - none have fallen overboard.

Unfortunately, the boats at station **A and B are out of action** as they are being repaired. We only have the helicopter in action today!

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.



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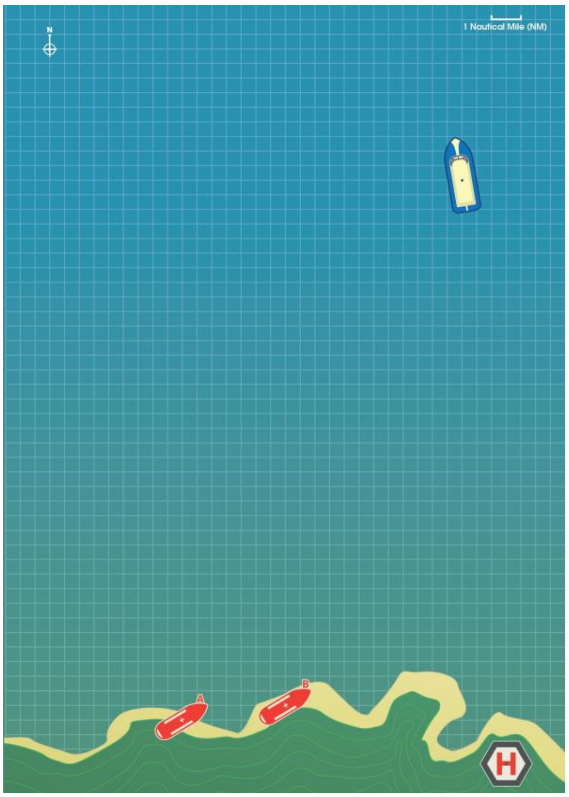
Scenario 3

A small passenger ferry has experienced engine failure. There are **300** passengers on board. All passengers are on board - none have fallen overboard.

We have coastguards fully equipped at station A, B and the helipad.

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.



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Scenario 4

URGENT: We have two ships in distress.

'The Marie Rose' (blue ship) has 18 passengers on board.
'Bonjour Maman' (orange ship) has 52 passengers on board.

We have coastguards fully equipped at station A, B and the helipad.

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.

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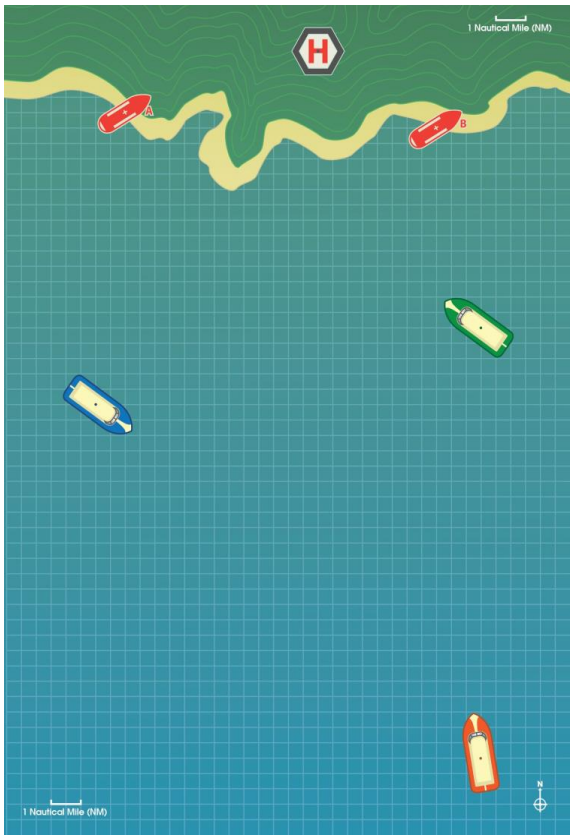
Scenario 5

URGENT: We have three ships in distress.

'The Marie Rose' (blue ship) has 18 passengers on board.
'Bonjour Maman' (orange ship) has 65 passengers on board.
'Green Envy' (green ship) has 24 passengers on board.

We have coastguards fully equipped at station A, B and the helipad.

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.



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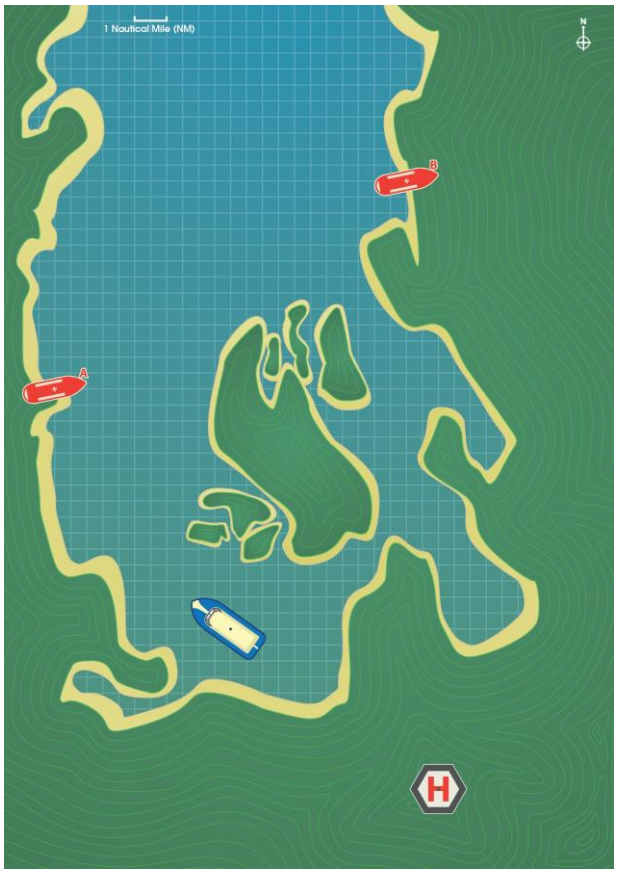
Scenario 6

URGENT: We have a ship in distress. 'The Blue Lagoon' is a large passenger ferry that has hit a large rock and is slowly sinking. There are **750** passengers on board

We have coastguards fully equipped at station A, B and the helipad.

Using the map and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.

The captain estimates that there are 6 hours until the ship sinks. Do you need to call in the Navy?



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Scenario 7

URGENT: We have two ships in distress.

'The Satsuma' (orange ship) has 320 passengers on board.
'The Blue Hawaii' (blue ship) has 400 passengers on board.

We have coastguards fully equipped at station A, B and the helipad.

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.

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Scenario 8

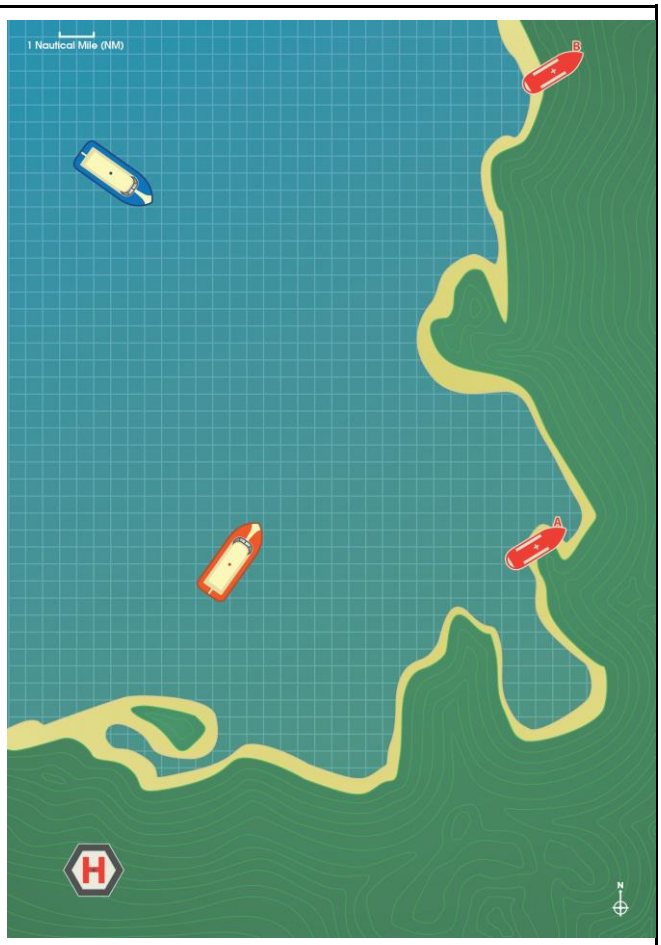
URGENT: We have two ships in distress.

'The Marie Rose' (blue ship) has 12 passengers on board and 15 have fallen overboard.
'Bonjour Maman' (orange ship) has 40 passengers on board and 52 have fallen overboard.

The water is currently 12°C.

We have coastguards fully equipped at station A, B and the helipad.

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.



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Scenario 9

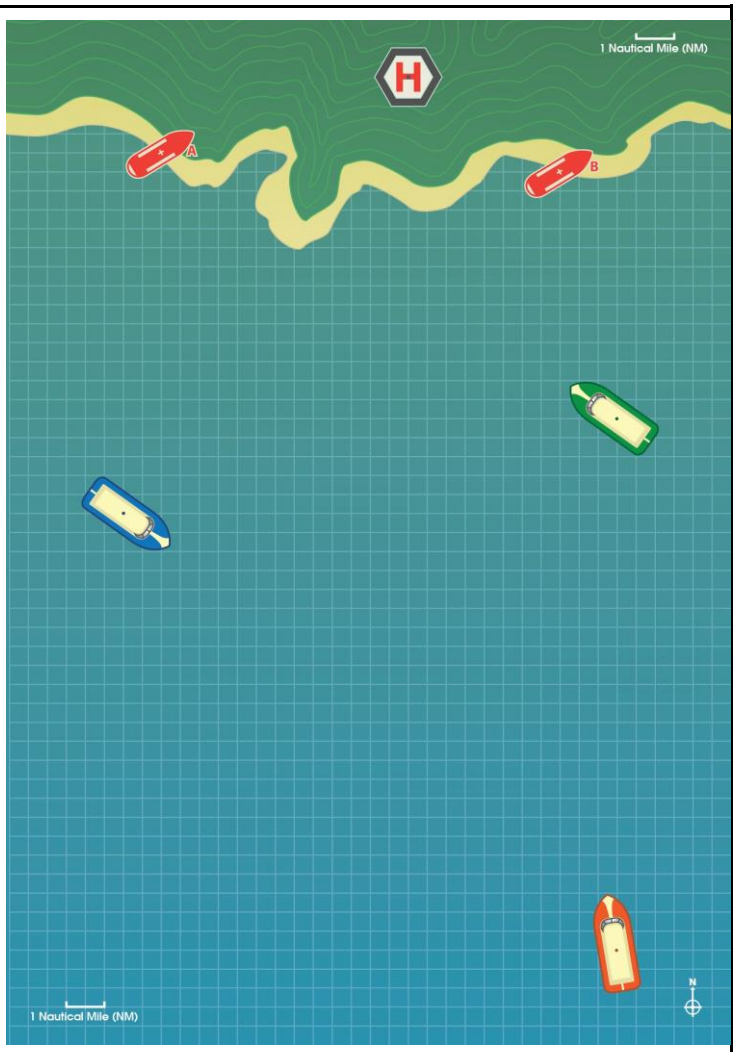
URGENT: We have three ships in distress.

'The Marie Rose' (blue ship) has 218 passengers on board and 19 overboard.
'Bonjour Maman' (orange ship) has 65 passengers on board and 12 overboard.
'Green Envy' (green ship) has 23 passengers on board and 24 overboard.

The water temperature is currently 6.2°C.

We have coastguards fully equipped at station A, B and the helipad.

Using the map, and the space below, prepare a search and rescue plan to get everyone back to shore as quickly as possible.



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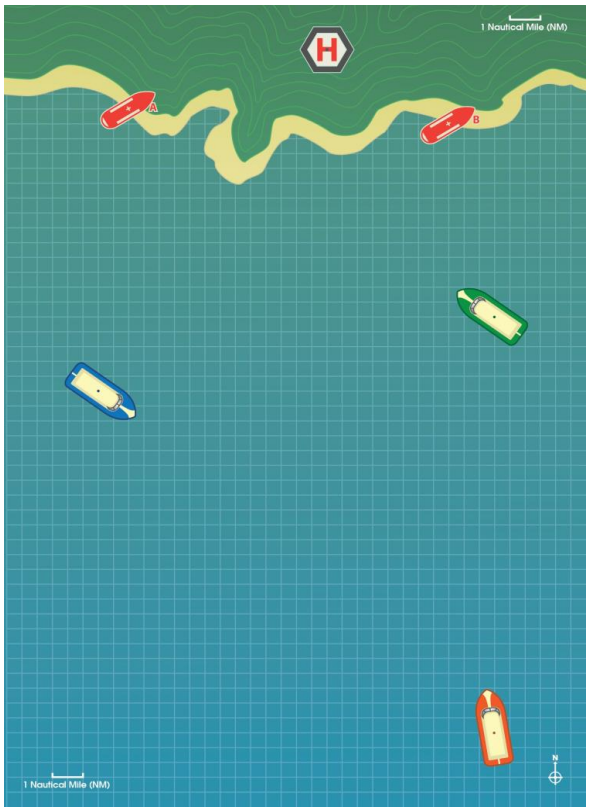
Circle appropriate challenge ranking:

Blank Scenario



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