Describing Ferry Motion!

Speed, Distance and Time

Student Introduction

▶ In this activity you will compare the speed and acceleration of your Red Funnel ferry with other boats and ships.

▶ There are various scenarios for you to consider!

TASK 1

Observation

Let's see what's going on around you!

Look out of a window or go to the outside deck for a 10-15 minutes. Quietly observe all the other boats and ships that you can see. Answer the following questions:

Q1. Look out the window or go up on deck. **How many** different types of boats you can see?

Q2. How are the boats **different?** How are they **moving?** (Fast/slow/ sail / engine)

Q3. What do you think affects the **speed** at which they all travel at?

TASK 2

Perform some calculations

Let's practise some speed calculations!

Complete each of the following problems, showing all your workings where applicable.

Use the following equations for the next questions:

Speed = distance / time

Distance = speed x time

Time = distance / speed

Some other useful measurement conversions you might need:

For example:

6 knots = (6 x 1.15) = 6.9 mph
6 minutes = (6 x 0.017) = 0.102 h

Q4. Your journey should take an hour and the ferry will travel at an average speed of 13.13mph or 11.42knots. **What distance does it cover in miles?**

Q5. The actual distance from Southampton to East Cowes is 11.385miles. **Why is the distance you calculated different to the actual distance?** Explain your reasons.

Q6. If one day the ferry took 45 minutes to cover the 11.385 miles, **at what speed would it be travelling?**

Q8. Extension Task: on the graph paper provided, **plot a distance - time graph for your ferry crossing** using the following information.

THINK!

- ✓ The ferry takes 2 minutes to travel through Southampton Town Quay and a further 6 minutes in East Cowes Harbour, both at 6 Kt (6.9 mph).

- ✓ The total journey will take an hour.

- ✓ Remember the total distance travelled is 11.385 miles or 9.9 nautical miles.

Calculate the distance travelled in the harbours and plot this on your graph.

Add a **title** and choose a suitable **scale**.

DISTANCE

TIME