



Science

Strand: Energy and Forces

Strand unit: Forces

Aims:

- Investigate and compare floating and sinking in fresh water and salt water
- Research information about the Dead Sea, regarding the difference in salt content between the Dead Sea and other seas
- Define a cargo ship and list different types of cargo
- Deduce what stops a cargo vessel from sinking
- Go to the Follow the Fleet website and locate a cargo ship and plot its route on a world map
- Go to the Follow the Fleet website and find out what type of cargo is on board the ship

Suggested Ideas:

Floating and sinking in fresh water and salt water

- Examine a selection of objects focussing on their weight, shape and size
- Taking two identical containers, fill container A with fresh water and container B with the exact amount of salt water
- Predict which would float and sink in fresh water
- Test the objects and record the results
- What conclusions can be made?

	CONTAINER A		CONTAINER B		
	Object	Prediction	Result	Prediction	Result

- Research the Dead Sea on the internet and find out how much salt it has in comparison to other seas. Would it be easier to float in the Dead Sea or a swimming pool?

Investigate what stops a cargo vessel from sinking

- Take a container and just over half fill it with water.
- Mark the water level on the outside of the container.
- Weigh your first cargo ship.
- Place the container (ship) into the water and note the water displaced. The water displaced is the water that rises above the original mark.
- Remove this excess water with a small jug and weigh it.
- Predict how much weight you can add to your ship before it will sink.
- Group your marbles into bundles of 50 gram weights.
- Load your cargo ship with 50 gram bundles at a time.
- Note the water level rising on the outside of the large container.
- Remove the water again and weight it.
- Repeat until the cargo ship sinks, ensuring each time to top up the water to the original mark on the outside before you test the next weight.
- Record your results.
- Repeat for the different ships.

Will it sink with ...	50g	100g	150g	200g	250g	300g	350g	400g	450g	500g
Ship 1										
Ship 2										
Ship 3										
Ship 4										

- What conclusions can you make from the experiment:

Conclusion:

- The cargo ship and the cargo displace water.
- If the weight of the ship and cargo is the same as the weight of the water displaced, the boat _____ . (Fill in the words)
- If the weight of the ship and cargo is more than the weight of the water displaced, the boat _____ . (Fill in the words)

From the Follow the Fleet website define what a cargo ship. List possible types of cargo. Can you find a cargo ship and plot its route from the various ports?