Explorer Education Programme

Lesson Plan: How do Steel Ships float?

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HOW DO STEEL SHIPS FLOAT?

Aim / Description:
The aim of the lesson is to examine HOW and WHY heavy objects such as a steel ship can float.

This can be demonstrated by creating a "bowl" shape out of a solid piece of plasticine and floating it in water.

Background:
Completing the activity "What Floats? What Sinks? Why?" - students will have learned that there are objects that are heavier than water. However by changing the shape of a "heavy" solid object – this can cause the object to float. By changing the shape, the object now contains AIR around it. Air is MUCH lighter than water.

This is why steel ships that weigh thousands of tonnes can float. The weight of the steel is cancelled out by the lightness of the air they contain. The ship is OVERALL lighter than water.

Materials:
You will need

- A bowl of water
- A rolled up ball of plasticine

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Activity: How do Steel Ships Float?
Step 1. Ask the students how a steel ship that weighs thousands of tonnes can FLOAT?
Step 2. Ask the students to put a solid ball of plasticine into the basin of water - demonstrating how heavy objects sink – pretend this is steel.
Step 3. Ask the students to design a new shape using the plasticine to make a boat – that can float.
Step 4. Ask the students how the plasticine that still weighs the same can now float. *(Explain that by combining the VERY light air with the heavier plasticine i.e. changing its shape i.e. into a bowl the plasticine becomes lighter than water – which is why it floats).*

Outcome:
Students will have developed skills:

- understanding how and why heavy items float.