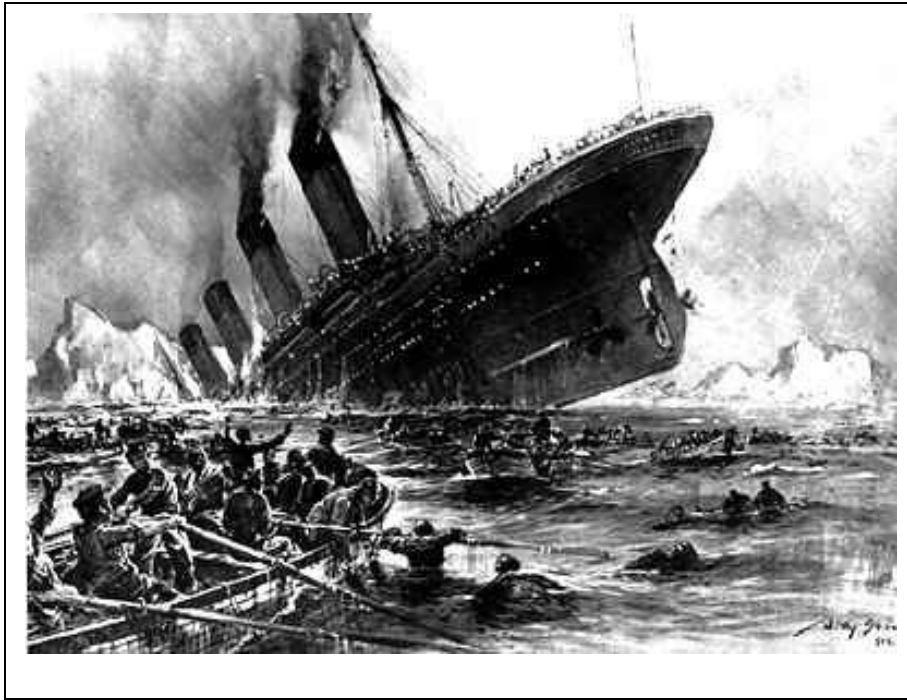


## Lesson Plan: Why did the *Titanic* sink?



### WHY DID THE *TITANIC* SINK?

#### **Aim / Description:**

The aim of this lesson is to demonstrate why the *Titanic* sank.

#### **Background:**

Introduce a history lesson about the *Titanic* and demonstrate through energy and forces HOW and WHY the *Titanic* sank.

The sinking of the *Titanic* is a great example of what happens when the air is forced out of a steel ship.

The *Titanic* was designed to be unsinkable. It was made of steel and was watertight. Therefore, no water could get in from the outside. The problem was that the compartments inside the vessel were not “watertight”. Each compartment did not extend right to the top of the hull – effectively allowing air to flow from one compartment to another.

When the iceberg ripped a horizontal hole in the side of the ship, the compartments started to fill with water. As five of the compartments filled with water, enough air was pushed out of the ship to lower the front end (the bow) deep into the sea. Water continued to pour over the top of the breached compartments into those that were still full of air.



### Lesson Plan: Why did the *Titanic* sink?

The more the *Titanic* sank, the more water poured into the air- filled compartments and the heavier the vessel became. Eventually, air was forced out of the hull so that the whole ship became heavier than the water around it and consequently the *Titanic* sank.

#### Materials:

- A deep basin of water (height of ice cube tray)
- A jug with a fine spout / or a bottle
- Plastic ( or aluminium ) ice cube tray
- Plasticine

#### Activity: Why did the *Titanic* sink?

Step 1. Discuss the activities previously learned highlighting how air can make heavy objects float (refer to lesson plan “What Floats? What sinks? and Why?”). Ask the students why then did the *Titanic* sink?

Step 2. Explain to the class that the compartments of the ice cube tray represent the compartments of the *Titanic*. (Note: some plastic ice cube trays are not heavy enough to sink when filled with water. Therefore, break the plasticine up into little balls and put these in the individual compartments of the ice cube tray - pretend they are passengers. This should weigh down the ice cube tray enough to sink it – with a tilt - when the trays compartments are each filled with water).

Step 3. Demonstrate by drawing a ‘simplified’ drawing of how the water entered through the hole in the bow of the vessel. Highlight how the water flowing into each compartment of the ship – caused it to tilt. (See the illustration below).

Step 4. Ask the students to fill the first two compartments at the end of the ice cube tray with water - as if water is entering the hole in the side of the *Titanic*. Note what happens (*Not a lot*).

Ask the students to gently pour water into the next to compartments.

Keep pouring and point out how the water overflows over the lip of the filled compartment into the empty compartments of the ice cube tray. Note what happens (*The tray starts to tilt at that end where the water has displaced the air*). As the water flows filling the compartments, the tray ( i.e. the *Titanic*) sinks.

#### Outcome:

Students will have developed skills:

- in predicting, evaluating and understanding how and why heavy objects, such as the *Titanic* sank.

## Explorer Education Programme



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The illustration shows how the *Titanic* sank.

