# The Sinking of the Titanic and the Wreck That Remains

Home Education Lesson Plan

## Learning Objectives

• Understand the scientific reasons behind how the Titanic sank
• Explore the role of temperature and hypothermia in the disaster
• Examine the forces acting on a sinking object
• Think critically about ship design and risk

## Estimated Time

60–90 minutes (can be split across two sessions)

## Let's Get Started

Ask your child: “Why do you think such a huge ship like the Titanic could sink? What would have to go wrong?”

## The Main Lesson

### 1. Buoyancy and Balance

Ships float because of a force called buoyancy. This happens when the water pushes up against the weight of the ship. The Titanic stayed afloat because its shape spread out its weight over a wide area. But when water began rushing in, that balance was lost.

The Titanic had watertight compartments — but the tops weren’t sealed. As water spilled from one to the next, the front of the ship dipped lower, lifting the back end up until the whole structure broke apart.

Mini-Task: Fill a plastic container with holes along one edge and watch what happens when you tilt it. What do you notice?

**2. Cold Water and Hypothermia**

That night, the water was below freezing — about -2°C. Because of the salt, the sea didn't freeze but was cold enough to cause hypothermia in under 15 minutes. Most people who ended up in the water didn't drown — they froze to death.

The body shuts down quickly in icy water. Blood is pulled away from the skin to protect vital organs. Fingers, toes, and even muscles stop working, making swimming nearly impossible.

Mini-Task: Dip one hand in ice water for 30 seconds. Then try writing your name. How does the cold affect your movement?

**3. Pressure at the Bottom**

The Titanic now lies nearly 4,000 meters underwater. At that depth, the pressure is around 400 times what we feel at sea level. That's enough to crush most objects instantly.

Pressure builds because the weight of the water above pushes down. Submarines and diving equipment must be specially built to survive these forces. The Titanic wasn't — it was never meant to go there.

Mini-Task: Use a plastic bottle with a lid. Squeeze it slightly on land — then submerge it in water. What happens to the pressure?

**4. Why Didn't the Lifeboats Save More People?**

The Titanic had 20 lifeboats — enough for just over half the people onboard. That was legal at the time. Some were lowered half full on purpose, with plans to pick up others from lower gangways. But that plan failed when the ship tilted too quickly.

Confusion, fear, and poor training made the situation worse. Some passengers didn't believe the ship was sinking. Others delayed getting in. New laws were later passed to ensure all ships carried enough lifeboats for every person.

Mini-Task: Design your own lifeboat plan. How would you organise who gets in, how it launches, and how it stays stable?

**5. Could the Titanic Sink Today?**

Modern ships are safer — but they can still sink. Today's ocean liners have better materials, double hulls, full lifeboat capacity, and international safety codes. But icebergs, storms, or fires could still cause disaster.

The Titanic changed how ships were designed. It taught people that no vessel is truly "unsinkable" — and that preparation saves lives.

Mini-Task: Make a list of 5 safety improvements that exist on ships today because of the Titanic.

## Think and Discuss

Why was the sea being so calm actually a bad thing that night? Do you think Captain Smith made the right decisions under pressure? What could engineers learn from a disaster like this?

## Wrap-Up Summary

The Titanic disaster was more than a tragedy — it was a wake-up call for science, safety, and human decisions. Exploring it through science helps children understand the physical forces, cold-water dangers, and engineering flaws that all played a part