

May 2025

Sailboats

帆船

Sink or float

Why do some things float while others sink? This might sound like a simple question, but it's actually a bit more complicated. Many people believe that heavy things always sink and light things always float, but that's not always true! Think about giant container ships. They carry thousands of heavy containers across the ocean, but they don't sink. On the other hand, a small paperclip will sink in a glass of water, even though it's very light.

In this project, students explored this mystery through hands-on tests and experiments. They made predictions and asked questions during the inquiry stage, then worked to find the answers. They discovered that floating and sinking are influenced by two main forces—gravity and buoyancy. They also learned that an object's density plays a big role in whether it floats or sinks.

Sailboats

Once students understood the science behind floating, they were ready to build their own sailboats. First, we learned about the different parts of a sailboat, such as the mast and sails, the bow and stern, and the hull and keel. Then, we tested our boats in water—with and without a keel—and made some exciting discoveries. Through these tests, students saw how each part of a sailboat helps it stay balanced and move smoothly on water.

沉浮

為什麼有些東西會浮起來，而有些東西會下沉呢？這個問題聽起來或許很簡單，但實際上卻有些複雜。很多人認為重的東西一定會沉下去，輕的東西一定會浮起來，但事實並非總是如此！想想看那些巨大的貨櫃船，它們載著成千上萬個沉重的貨櫃航行在海上，卻不會沉沒。相反地，儘管一個小小的迴紋針非常地輕，將它放進水杯裡卻會沉下去。

在這項專題中，學生透過實作測試和實驗來探索這個謎題。他們在研究階段進行預測並提出問題，然後努力尋找答案。他們發現浮與沉是受到兩種主要力量的影響—重力與浮力。他們也學到物體的密度是決定它會浮還是會沉的關鍵角色。

帆船

一旦學生理解物體浮起來的科學原理，他們就準備好開始打造自己的帆船。首先，我們學習帆船的各個部分，例如桅杆和帆、船首與船尾，以及船身和龍骨。接著，我們在水中測試帆船—有加裝龍骨和沒有加裝龍骨的情況都測試一次，並從中獲得一些令人興奮的發現。透過這些測試，學生觀察到帆船的每一個部位都能幫助船隻保持平衡，並在水面上順利移動的。

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1

ASK + IMAGINE
提問 + 創思

2

We conducted several experiments and tests to learn more about gravity, buoyancy and density. 我們進行好幾項實驗和測試，來更深入瞭解重力、浮力和密度。



4

CREATE
創造

We made our own sailboats. 我們製作自己的帆船。



3

PLAN
計畫

Before making our own sailboats, we tested different materials. 在製作自己的帆船前，我們先測試不同的材料。



5

IMPROVE
改進

After the create stage, we had additional time to make changes and improvements, and test our sailboats. 在創造階段後，我們有時間進行修改，並再次測試我們的帆船。

