

Sailboats 帆船

Sink or float

Why do some things float while others sink? In this project, students explored this question through hands-on testing and investigation. They discovered that it is not just about weight—density plays an important role. Using a water tub, students tested different materials to see what would sink or float and began to understand how objects behave in water. They also learned about gravity and buoyancy, and how spreading weight evenly helps objects stay afloat. Through a fun foil boat challenge, students experimented with how much weight their boats could carry and how design affected floating.

Sailboats

Building on this understanding, students designed and created their own sailboats. They learned about the different parts of a sailboat, including the mast, sail, hull, and keel, and considered how each part helps the boat move and stay balanced. Students carefully selected materials and applied what they had learned about floating and stability to their designs. After building their sailboats, they tested them in water and adjustments and improvements. This project encouraged problem-solving, creativity, and hands-on learning as students brought their sailboat designs to life.

沉浮

為什麼有些東西會浮起來，而有些會下沉呢？在這項專題中，學生透過動手測試與探究來探索這個問題。他們發現影響物體浮沉的不只是重量，密度也扮演著重要的角色。學生利用裝水的容器測試不同材料，觀察哪些會下沉、哪些則是會浮起來，並開始理解物體在水中的行為。他們也學習重力與浮力的概念，以及如何透過均勻分配重量讓物體保持漂浮。透過有趣的鋁箔船挑戰，學生實驗他們的船能承載多少重量，並瞭解設計如何影響浮力。

帆船

在這些理解的基礎上，學生設計並製作自己的帆船。他們學習帆船的各個部分，包括桅杆、帆、船體和龍骨，並思考每個部分如何幫助船隻移動與保持平衡。學生仔細挑選材料，並將所學到關於浮力與穩定性的知識應用在設計中。在完成帆船製作後，他們將作品放入水中進行測試，並進行調整與改進。這項專題鼓勵學生培養解決問題的能力、發揮創意，並透過動手實作的學習方式，將他們的帆船設計付諸實現。

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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.
我們進行多項實驗與測試，以更深入瞭解重力、浮力與密度。



3

PLAN
計畫



Before making sailboats, we tested different materials.
在製作帆船前，我們測試各種不同的材料。



4

CREATE
創造



We made and tested our own sailboats.
我們製作並測試自己的帆船。



5

IMPROVE
改進



After the create stage, we made changes and improvements, and tested our sailboats again.
在完成創造階段後，我們進行修改與改進，並再次測試我們的帆船。

