

Water Rockets 水火箭

Understanding Forces

The G6 students explored how forces always work in pairs. For instance, when you row a boat with a pair of oars, the force of the oars pushing the water creates an opposite force that pushes the oars, and so the boat, forwards. The opposite force, called a reaction force, is what makes rockets fly. When you pump air into the rocket, the air pressure inside builds up until it pushes out the cork and then the water with a powerful force. This downward force creates an upward reaction force that launches the rocket.

Designing and Creating the Rockets

After investigating forces and learning how they work together, the students had to apply their knowledge in designing and creating their rockets. They designed a rocket that would go as far and fast as possible. Using detailed drawings, they were able to create very accurate, aerodynamic rockets.

Testing the Rockets

The students had a lot of fun testing their rockets. They launched them while measuring how long they stayed airborne and then measured the distance it flew. Back in the classroom, they had to use their prior knowledge about distance and time to work out the speed at which the rockets flew. The success of this project is well reflected in the good reports that the students wrote.

了解力的作用

六年級學生探索力如何相互作用。例如，用一對槳划船時，槳推動水的力產生相反的力，進而推動船前進，稱之為反作用力，也就是火箭飛行的動力。當把空氣灌進火箭時，裡面的空氣壓力逐漸增大，直到把軟木塞推出，並以強大的力量把水推出，這種向下的力產生向上的反作用力，讓火箭順利發射。

設計及建造火箭

在調查各種力並學習其如何相互作用後，學生將知識應用到火箭的設計及製造中。他們設計出能飛得既遠又快的火箭，利用詳細的設計圖，製造出非常精確的空氣動力火箭。

火箭測試

學生測試火箭時玩得很開心。發射火箭的同時，也量測火箭在空中的時間及飛行的距離。回到教室後，學生必須利用他們對距離及時間的知識來計算火箭的飛行速度。學生們寫的期末報告展現了此專題的成功。

1 ASK + IMAGINE 提問 + 創思



4 CREATE 創造



Students get creative while making their rockets.
學生運用創意製作火箭。

6 PRESENT 展現

The students finalized their projects by writing a report on their findings.
學生撰寫觀察報告完成專題。

Students worked on how different forces work together.
學生學習不同的力如何相互運作。

3 PLAN 計畫



Students put their skills to use in designing their rockets.
學生將所學技巧運用在設計火箭上。

5 IMPROVE 改進

Students tested their rockets in the playground.
學生實地測試火箭。

