

Rocket Power 火箭的力量

Understanding Forces

The sixth Graders explored Newton's Third Law of Motion that states that, for every action there is an equal and opposite reaction. They then explored how this law explains how the water rockets are able to fly. They discovered that when you pump air into the rocket, the air pressure builds up inside. When the pressure is released, it pushes the water out with a powerful force that creates an upward reaction force that launches the rocket into the sky.

Designing and Creating the water Rockets.

After learning how the forces work together, the students had to apply their knowledge in designing and making their own water rockets. They used their Chromebooks to research parts of a rocket and possible design options they could use. They then designed their water rockets to go as straight as possible and that could stay in the air for as long as possible. Using detailed designs, they were able to create very accurate and aerodynamic water rockets.

Testing the Water Rockets

The students had a lot of fun testing their water rockets. They launched them while measuring how long they stayed in the air while drawing the flight paths. After testing, they used their results and observations to improve their rockets and test them again.

瞭解力的作用

六年級學生探索牛頓第三運動定律，該定律指出，每個動作都會產生大小相等且方向相反的反應。接著，他們探討這條定律如何解釋水火箭怎麼飛行。他們發現當你將空氣注入火箭時，內部就會產生氣壓。當壓力釋放時，它會用強大的力量將水推出，並產生向上的反作用力，將火箭發射到天空。

設計及創造水火箭

在瞭解這些力是如何相互運作後，學生必須運用他們的知識來設計和建造自己的水火箭。他們使用 Chromebooks 來研究火箭的零件，以及可能可以使用的設計方案。接著，他們設計盡可能可以直線飛行，且能夠在空中停留較長時間的水火箭。透過詳細的設計，他們能夠建造出非常精確且符合空氣動力學的水火箭。

測試水火箭

學生在測試水火箭時很開心。他們發射水火箭，同時測量它在空中停留的時間，並繪製飛行路徑。測試後，他們利用觀察結果來調整火箭，並再次進行測試。

1 ASK + IMAGINE 提問 + 創思

Students did research on the parts of a water rocket and the forces that work together to launch a rocket.
學生研究水火箭的各個零件，以及共同發射火箭的力量。

4 CREATE 創造

Building and launching their rockets was a lot of fun.
建造和發射火箭非常有趣。



6 PRESENT 展現

Each group presented their findings to the class before writing a report.
每個小組在撰寫報告之前向全班展示他們的發現。



3 PLAN 計畫

Students designed their water rockets, using what they have learned during their research.
學生利用他們在研究過程中學到的知識來設計水火箭。



5 IMPROVE 改進

After the initial testing, it was time for improvements.
初步測試結束後，就到了改進的時候了。

