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Aviation – Taking Flight

飛行

How do airplanes fly?

Planes! Have you ever watched an airplane fly over and wondered how it can soar through the sky so effortlessly? Four forces keep an airplane in the sky. They are lift, drag, thrust, and gravity. Lift pushes the airplane up, gravity (or weight) is the force that pulls the airplane toward Earth, thrust is the force that moves the airplane forward, and drag slows the airplane. An airplane flies when all four these forces work together and are in balance. The students studied these four forces and learned how they work together to make airplanes fly. They did activities and tested the workings of these forces with different paper plane prototypes.

Taking Flight

When an airplane takes off, it needs to generate speed to create enough lift. Therefore it needs a long runway. But what if there isn't a long runway? What if the airplane has to take off from a short runway, like on an aircraft carrier ship? This was the big question that the Grade 1 students were faced with in this project. To solve the problem, the students had to design and make an airplane launcher. They worked together in their teams and came up with brilliant ideas. The most fun was using their launchers to launch their paper planes.

飛機如何飛行？

飛機！你有沒有看過飛機飛過天際，並好奇它是如何如此輕鬆地翱翔天空的？有四種力使飛機在空中飛行，分別為升力、阻力、推力和重力。升力推動飛機向上，重力或是重量是將飛機拉向地面的力，推力是使飛機向前移動的力，而阻力則是使飛機減速。當這四種力共同作用並保持平衡時，飛機就能飛行。學生學習這四種力，並瞭解它們如何相互運作使飛機能夠飛行。他們進行活動，並用不同的紙飛機原型測試這些力的作用。

起飛

飛機起飛時，需要加速才能產生足夠的升力。因此，飛機需要一條長跑道。但如果沒有長跑道該怎麼辦？假設飛機必須從短跑道起飛，例如在航空母艦上，而這就是一年級學生在這項專題中面臨的一個大問題。為了解決這個問題，學生需設計並製作一個飛機發射器。他們分組合作，提出許多絕妙的想法。最有趣的是使用發射器來發射他們的紙飛機。

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1

ASK + IMAGINE
提問 + 創思

2

We listed all the different things that can fly and discussed their similarities. We then used our knowledge on the 4 forces of flight to play a fun board game.

我們列出所有能飛的物體，並討論它們的相似之處。然後，再運用對四種飛行力的瞭解，進行一項有趣的棋盤遊戲。



4

CREATE
創造

We helped each other and worked together on making our airplane launchers.

我們相互合作，共同製作飛機發射器。



5

IMPROVE
改進

Testing was the most FUN! We got to launch paper planes, and make adjustments to our launchers in order to have them work perfectly.

測試是最有趣的！我們要發射紙飛機，也要調整發射器，確保它們完美運作。

