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Cargo Drop! 貨物空投

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What is a Cargo Drop?

A cargo drop is when cargo is dropped from an airplane to a designated area. It happens when roads, paths, or other routes to a destination are inaccessible. This destruction can be due to natural or manmade disasters.

Mission

The mission was to create a cargo drop container that could successfully protect the cargo within it. The essential cargo to protect was food, medical supplies and general items. These were represented by a small Ziploc bag full of small stones, a small Ziploc bag full of blue water, and a small cup full of small objects wrapped in plastic wrap. The students learned scientific concepts like inertia, force, motion, gravity and biomimicry.

Result

Mission successful! The students came up with some incredible designs to protect their cargo! They used many innovate ideas like parachutes, turtle shell mimicry, and even cat's paws mimicry through sponges. The cargo drop container was dropped from 1.5m, 6m, 9m and the final drop was from the third floor, which is about 12m high! We had about a 95% success rate in protecting the valuable cargo! Great job!

什麼是「貨物空投」?

空投是指從飛機上將貨物投放到指定區域的行動。當通往目的地的道路、小徑或其他路線無法通行時，就會進行空投。通常是由於自然災害或人為災害而需進行空投。

任務

這次任務是要設計一個執行空投貨物的容器，在空投過程中能成功保護裡面的貨物。需要保護的主要貨物包括食物、醫療用品以及一般物品。這些貨物分別為一小袋裝滿小石頭的密封袋、一小袋裝有藍色水的密封袋，以及一個用保鮮膜包裹裝滿小物品的小杯子。學生也在過程中學習慣性、力、運動、重力，以及仿生學等科學概念。

結果

任務成功！學生設計出非常出色的貨物空投保護裝置！他們運用許多創新的想法，例如降落傘、模仿龜殼的設計，甚至用海綿模仿貓爪的緩衝效果。空投容器分別從一點五公尺、六公尺以及九公尺的高度進行測試，最後還從三樓（大約十二公尺高）進行終極測試！我們的成功率高達百分之九十五，有效地保護珍貴的貨物！

1 ASK + IMAGINE 提問 + 創思



Students learned about inertia, force, motion, gravity and biomimicry. 學生學習慣性、力、運動、重力以及仿生學。

4 CREATE 創造



Teamwork makes the dream work while creating a container to be dropped from a high distance! 在設計要從高處空投的容器時，團隊合作讓夢想成真！

6 PRESENT 展現

Every team presented what they learned and shared it in a Canva presentation. 每個小組都分享他們的學習成果，並以 Canva 簡報的形式進行發表。

3 PLAN 計畫



Teams used these previously learned concepts to plan a strong and durable cargo drop container. 小組利用先前學到的概念來計劃堅固且持久的貨物空投容器。

5 IMPROVE 改進



The students excitedly tested their cargo drop container by dropping it from many different heights! 學生興奮地從各種不同的高度測試他們設計的空投貨物容器！

