

Strongest Tower 堅固之塔

The Challenge

The Grade 3 students' first project is to design and build towers that could hold heavy weight while staying stable. Their goal: apply engineering principles to create the strongest, most resilient structures possible.

The Process

Using the engineering design cycle, students tested shapes, column lengths, and the importance of strong foundations. They also compared reinforced and regular beams, discovering how reinforcement helps buildings withstand greater forces.

Lessons Learned

Through trial, error, and teamwork, students refined their designs and problem-solving skills. Some towers held remarkable weight, others revealed new ways to improve — every group gained practical insight into engineering and collaboration.

挑戰

三年級學生的第一項專題是要設計並建造能承受重物且保持穩定的塔樓。他們的目標是運用工程原理，打造出最堅固、最耐用的結構。

過程

學生運用工程設計循環法，測試不同的形狀、柱子的長度，以及穩固地基的重要性。他們還比較強化樑與普通樑之間的差異，發現加強結構能幫助建築承重。

經驗學習

透過反覆測試、嘗試錯誤和團隊合作，學生不斷增進設計與解決問題的能力。有些塔樓可承受驚人的重量，有些則揭示改進的新方法；每個小組都獲得對工程與團隊合作的實務見解。

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1 ASK + IMAGINE 提問 + 創思

Students brainstormed what makes a tower strong and experimented with structural shapes.
學生集思廣益，討論塔樓如何才能堅固，並實驗不同的結構形狀。



4 CREATE 創造

Groups worked together to create the strongest tower they could using their limited materials.
各小組合作，利用有限的材料建造出他們能設計的最堅固塔樓。



6 PRESENT 展現

Students presented their towers and reflected on what they learned throughout the project.
學生展示他們完成的塔樓，並與全班一起反思整個過程。

3 PLAN 計畫

Groups had to formulate a plan using a set amount of materials.
各小組必須制定計畫，使用有限的材料完成建造。



5 IMPROVE 改進

Students observed how their towers performed under heavy weight, and discussed possible improvements.
學生觀察塔樓在承受重物時的表現，並討論可能的改進方法。

