

## Tallest Tower 最高的塔

### Types of Towers

Towers have been a part of developed society for centuries, serving a variety of purposes, from watch towers to modern cell towers. In this project, student groups designed and build any of three types of towers (guyed, free-standing or monopole), engineering them to meet the requirements that they must be as tall as possible and be able to stand without support in windy conditions.

### Learning Outcomes

Towers are all structures that are taller than they are wide, students were tasked to design the tallest tower possible, although initially this task seemed fairly straight forward they quickly realized that there are numerous factors that will influence the outcome. Firstly, it was clear from the get go that balance and weight distribution was important, students figured out that if the tower was too thick or heavy towards the top it would not be able to stand. Equally important, they learned how to think critically and adjust their plans or designs through constant reflection. These were important lessons to learn as part of the engineering design process that the students follow.

### 高塔類型

幾個世紀以來，塔一直是文明社會的象徵，從瞭望塔到現代手機信號塔，用於各種目的。此次專題中，學生依小組設計和建造三種類型的塔(纜繩塔、獨立塔和單極塔)，設計並滿足塔越高越好，以及能夠迎風站立而無須支撐的需求。

### 學習成果

塔大多是高度大於寬度的結構，學生的任務是設計高的塔。起初這項任務看似簡單，但學生迅速意識到有許多因素會影響結果。首先，平衡和重量的配比很重要，學生發現如果塔太厚或頂部太重就無法站立。同樣重要的是學會如何透過批判性地思考以及不斷的反思調整計劃與設計。這些都是學生在工程設計的過程中學習的重要課程。

1

ASK + IMAGINE  
提問 + 創思

2



Learning about different towers and gathering knowledge about how to build tall.  
認識不同的塔，並收集關於如何建造高樓的知識。



Groups looking at the material and coming up with design concepts.  
小組查看材料並提出設計概念。

3

PLAN  
計畫



4

CREATE  
創造

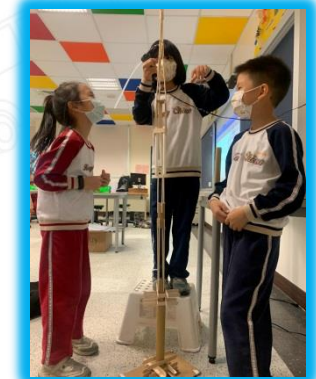


Construction is never easy, we had to collaborate and be creative.

建造一點也不容易，我們必須合作並發揮創造力。

5

IMPROVE  
改進



Sometimes our plans didn't work out but we had opportunities to reflect and improve our designs.

有時我們的計畫沒有成功，但仍有機會去反思及改進設計。