

## Day and Night 晝與夜

### Connection

Daytime is when you can see the sun from where you are, and its light and heat can reach you. Nighttime is when the sun is on the other side of the Earth from you, and its light and heat don't get to you. We get day and night because the Earth spins (or rotates) on an imaginary line called its axis and different parts of the planet are facing towards the Sun or away from it.

### The Sun and Moon

Students had a fascinating time answering two questions that simply never come to mind; what will happen if the sun or the moon disappeared? Exploring these two questions allowed the students to realize the importance and fragility of our resources as well as different ways to harness their energy for our benefit.

### Solar Tower

In each class, students were tasked to study certain materials provided to them and come up with a way to use those materials to make a propeller spin by using sun energy as the power source. Students were able to rely on their prior knowledge that warm air rises, and as we discovered and developed this concept in greater detail the solar towers started to take shape. The solar tower is a simple concept where lamps are used to heat up the air entering the tower, the warm air then rises through the shaft of the tower and spins the propeller sitting on the top.

### 連接性

在白天，你可以在你所在的地方看到太陽，並且感受光和熱。在夜晚，太陽是在地球的另一側，因此你看不到光也感覺不到熱。我們有晝與夜是因為地球以一條假想線（軸）轉動，也稱自轉，因此行星的不同部份，有的面向太陽，有的則遠離太陽。

### 太陽和月亮

學生思考兩個從未想過的問題。如果太陽或月亮消失了會發生什麼事？藉由探索這兩個問題，學生了解這些資源的重要性和脆弱性，以及使用能源來換取效益的不同方式。

### 太陽能塔

各班先針對所需的材料做研究，並設法將這些材料製作成太陽能動力螺旋槳。學生藉由他們先前學習的知識（熱空氣上升），利用及發展這個原理，製作太陽能塔。太陽能塔是一個簡單的概念，使用燈來產生熱空氣進入塔內，並推動塔頂的螺旋槳轉動。

### 1 ASK + IMAGINE 提問 + 創思

Brainstorming what will happen if the sun or the moon disappeared.

腦力激盪一下，如果太陽和月亮都消失，會發生什麼事？



Drafting ideas on how to harness the energy from the sun and make a solar tower.

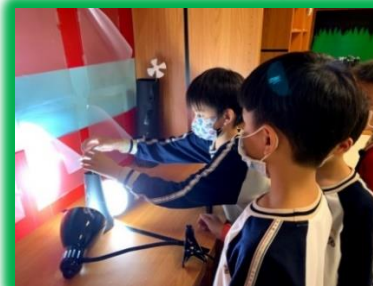
思考如何利用太陽能來製造太陽能塔。

### 3 PLAN 計畫



Making and testing our solar towers to see if the warm air makes the propeller spin.

製造並且測試我們的太陽能塔，以查看暖氣是否會使螺旋槳旋轉。



### 4 CREATE 創造



### 5 IMPROVE 改進

Once testing was completed we had the opportunity to share our findings and make changes where needed.

一旦測試完成，我們就有機會可以分享我們的發現並進行修改。

