

Water Works 水利裝置

Hydropower

A major source of renewable energy is hydropower, or hydroelectricity. It generates electricity by using the natural flow of flowing water as a source of energy. During the year students were introduced to three renewable energy sources namely solar, wind, and water. During this lesson, students learned about the importance of these sources and why they are better for the environment than non-sustainable sources. As part of this project, we revisited the importance of saving water and keeping it clean as well as the importance of doing our part to save it.

Water wheel

Water wheels convert water energy into useful forms of power, usually in water mills. An external rim is arranged with blades or buckets forming the driving mechanism on the outside of a wheel (usually wood or metal). Students were tasked with designing and creating a water wheel that rotated and lifted water. They could choose from Overshot, Undershot, or Breastshot concepts to come up with a creative design plan. Upon completion of construction, the water wheels were tested to see if they functioned correctly. Water moved into the wheel from either the top middle or bottom.

水力發電

可再生能源的主要來源之一是水力發電，它利用水的自然流動產生能源來發電。在這一學年中，老師向學生介紹三種可再生能源：太陽能、風力和水。在這堂課當中，學生瞭解這些資源的重要性，以及比起非永續資源，為什麼可再生能源對環境更有利。這次的專題強調在水，我們重新審視節約用水和保持水乾淨的重要性，以及盡我們所能節約用水。

水車

水車通常在水力磨坊中將水流的能量轉換為有用的動力形式。在輪子的外緣上（通常是木材或金屬製成）有設置葉片或水桶來形成驅動力。學生的任務是設計和製造一個可以旋轉和提起水的水車。他們可以從上掛式、下掛式或胸掛式水車的概念中進行選擇，從而產出有創意的設計方案。水車建造完成後也進行了測試，看看它們是否能正常運作，並可以觀察水如何從頂部、中間或底層進入水車。

1 ASK + IMAGINE 提問 + 創思

We discovered water wheels and hydro power.
我們研究水車及水力發電。



3 PLAN 計畫

We looked at material to figure out, lifting, rotating, and energy.
我們透過研究資料來獲得水車如何提水、旋轉和取得動力的知識。



4 CREATE 創造

Three different water wheel designs were constructed and tested.
我們建造並測試三種不同的水車設計。



5 IMPROVE 改進

After testing, we shared our findings with the class.
測試過後，我們向班上同學分享的研究結果。

