

自然科學週

Science Program

鹿江暑期主題營第一週 2020.07.20 ~ 2020.07.24

課程設計：蔡欣展老師

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海報編輯：林育如老師

唐山過台灣·鹿港時空的科學奇幻之旅

Leaving the Mainland for Taiwan - The Scientific Curious Case of Lukang Time Travel

自然科學週的課程，融入STEAM教學五大精神「跨領域、動手做、生活應用、解決問題、五感學習」。學生模擬鹿港先民渡海過程、結合在地風力優勢，進而體認全球永續發展目標(SDGs) - 永續能源的綠能精神。

On the science program, the teaching process manifested the five characteristics of STEAM, including cross-discipline, hands-on learning, real-life application, problem-solving and five-sense learning. Students took the advantage of wind energy in Lukang and stimulated how ancestors crossed the sea. These practices helped students perceive the spirit of 7th SDG goal: "Affordable and Clean Energy."

為期五天的自然科學週中，有一系列的課程讓學生們進行探究實作。《船的負重》觀察杯子沉入水中體積建構浮力原理；《船的速度》測試大小不同風帆對船速的影響；《綜合挑戰-唐山過台灣》自製船隻模擬鹿港先民渡海過程。



探討水面下體積與浮力關係



運用重量分散原理

《紙張撐重》思考如何運用一張紙撐起重物。

On the "Magic Paper" activity, students explored how to use a piece of paper to hold heavy objects.

《全球暖化與能源》與《發電方式的區分》討論全球發電方式優缺點；《風力發電》實驗不同的扇葉數量與長短，做出最佳風力發電機。



發表風力發電優缺點

Students discussed pros and cons of wind power generation methods in the world. They conducted some tests to explore green energy.

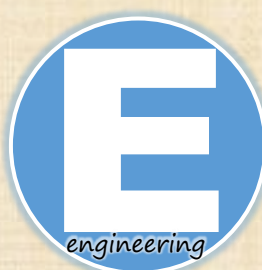
利用吸管吹氣
仿真先民渡海情境



After doing "How Do You Weight A Ship?" experiment, students understood the buoyancy rationale. When undergoing "Sailing Speed" analysis, students examined how vessel's speed varied depending on diverse sail sizes. On the "Leaving the Mainland for Taiwan" challenge, students produced ships to model the sail in the past.

經由動手做，練習不放棄和嘗試錯誤，組員間不斷進行思考解決問題，且探究內容與生活息息相關。這些經歷不僅引發學生的好奇心，同時培養當面對未來挑戰時，所應具備的知識、能力與態度。

Through the above lessons, students kept practicing, did experiments in the process of trial and error, and communicated with their partners to solve problems. The content of program was also related to student's real-life scenario. These experiences not only aroused students' curiosity, but cultivated their knowledge, capabilities and attitude when facing challenges in the future.



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