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Designing a Water Filtration System 設計濾水器系統

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Grade 5 Engineers Tackle a Water Crisis!

What if you were stuck after a typhoon with only dirty water? This was the urgent mission for our Grade 5 students: "Oh no! There is a typhoon and you are stuck in your apartment with typhoon water everywhere! You are so thirsty, but you only have this dirty water to drink. You have many materials around you. Can you build a water filter with just the materials in your apartment to clean the water? Will you survive?"

Mission Successful!

This project revealed a process many take for granted: getting clean water from a tap. Students learned how to build a working DIY water filter *and* how to test it. They focused on key indicators like **pH, TDS (Total Dissolved Solids), color, clarity, smell, and debris** to see if the water was drinkable.

Our G5 engineers tested the dirty water, filtered it, and then tested the cleaner water to compare results. The students survived the challenge and gained a new appreciation for the science in every glass of clean water. Great job everyone!

五年級小小工程師克服水資源危機！

想像一下：如果颱風過後你被困在家裡，四周都是混濁的積水，沒有乾淨的水可以喝，該怎麼辦呢？這個正是我們五年級學生面臨的任務！

「糟糕！颱風來襲，你被困在公寓裡，外面全是颱風積水！你口渴極了，但手邊只有這些髒水。你身邊有各種材料嗎？能不能用手邊現有的東西做出一個濾水器，把水變乾淨？你能成功生存下來嗎？」

任務成功！

這項專題讓學生體會到一件我們常常視為理所當然的事——打開水龍頭就有乾淨的水。學生學習如何製作一個能運作的 DIY 濾水器，並且學會如何測試濾水的效果。他們觀察關鍵的水質指標，如 **pH 值、TDS (總溶解固體量)、顏色、清澈度、氣味及雜質**，以判斷水是否可飲用。

我們五年級的小工程師先檢測髒水，再用自己設計的濾水器淨化，最後再測試濾後的水，進行結果比較。

學生成功完成挑戰，並對「每一杯乾淨水背後的科學」有了全新的體會。大家的表現都太棒了！

1 ASK + IMAGINE 提問 + 創思



The students linked clean drinking water at home to the greater water pollution problem facing the world. 學生將家中乾淨飲用水的問題，與全世界面臨的更嚴重水污染問題聯繫起來。

4 CREATE 創造



Collaboration time! They created working water filters to clean the dirty, stinky water. Then they tested it! 合作時間到！他們製作能運作的濾水器來淨化骯髒又臭的水，然後進行了測試！

6 PRESENT 展現

Everyone was able to compare their results as a class and determine the best way to purify water. 全班同學一起比較各自的結果，並找出最有效的淨水方法。

3 PLAN 計畫



Teamwork makes the dream work when we're learning about the materials and designing our water filter. 當我們學習材料並設計濾水器時，團隊合作讓夢想成真。

5 IMPROVE 改進



After testing and comparing results, teams were able to create their even better water filter #2. 在測試並比較結果之後，各組成功製作出改良版的濾水器 #2。

