

## Creating a Greener Cleaner

### 製作環保清潔劑

#### Why a “Greener Cleaner”?

As we realize the consequences of human action on the environment, the need to raise children to be environmentally conscious grows. In our first project, students explored the effects of pollution on water ecosystems. Water pollution is a major issue in our world today and through this project, students were able to brainstorm ways we can lessen our impact on the environment. One of those ways is to create our own cleaning products that utilize household products that are environmentally safe and non-toxic.

#### Time to Clean Green!

Students learned about the importance of using environmentally friendly products through hands-on learning. We began with a lab to explore whether water is truly clean if we clean it with bleach. Then they used that knowledge to look at the effects water pollution can have on the environment. The topic culminated with a challenge where the students had to design and make a “Greener Cleaner”, an environmentally friendly cleaner. They then tested their cleaner on different surfaces to determine how well it cleans. Finally, they reflected on the test results to improve their Greener Cleaner recipe.

#### Reflection

The students practiced valuable skills while working through this project. This project focused on designing, finding eco-friendly solutions, teamwork, mixing and testing solutions, as well as problem solving. We believe that the students will find these skills useful as they continue their path through life!

#### 為什麼使用環保清潔劑？

隨著我們意識到人類行為對環境的影響，培養孩子的環保意識與日俱增。在學生的第一個專題裡，他們探究汙染對水生生態系統的影響。水汙染是現今全球的重大議題，透過這個專題，學生集思廣益如何減輕環境汙染的影響。其中一種方法即是使用環保、無毒的成分製造自己的家用產品。

#### 用環保方式清潔吧！

學生透過實作學習瞭解使用環保產品的重要性。從實驗開始，我們探究如果用漂白劑清洗後的水是否真的乾淨。接著，他們利用這些知識探討水汙染對環境的影響。此專題的挑戰在於學生需設計並製造出環保清潔劑。他們於不同物品的表面測試清潔劑以確定清潔程度，並根據測試結果，加以改進清潔劑成份。

#### 反思

專題探究的過程中，學生練習了重要技能。此專題著重於設計、尋找環保的解決方案、團隊合作、混合和測試方法，以及問題解決等。我們相信學生會發現這些技能在生活當中是非常受用的。

#### 1 ASK + IMAGINE 提問 + 創思

Students learned about the environmental impacts of oil spills and other forms of pollution.  
學生們學習漏油及其他種類的环境汙染。



#### 4 CREATE 創造



Students worked together to mix up their cleaning recipes.  
學生們一起混合他們的清潔劑配方。

#### 6 PRESENT 展現

Students reflected on their findings and analyzed further improvements that could be made.  
學生們藉由測試的結果來分析進一步的改善方式。

#### 3 PLAN 計畫



Students researched benefits and uses of the provided materials to inform their cleaner recipe.  
學生們研究手上的資料以了解清潔劑配方及用處。

#### 5 IMPROVE 改進



After testing their cleaner on different surfaces, students redesigned their recipes.  
學生們在不同的介面測試清潔劑後，再調整配方。

