

Ocean Debris Cleaner 海洋垃圾清潔器

Gathering Facts

Sometimes trash, like plastic bottles or snack wrappers, escapes the garbage can and finds its way into the ocean. This is dangerous for sea animals, who may mistake the trash for food. The good news is that scientists and engineers have created Ocean Debris Cleaners to help! These large floating machines use nets and filters to collect trash as it moves through the water. Once the debris is removed, ocean animals can swim safely again. These cleaners are amazing helpers—and we can be ocean heroes too by always throwing our trash where it belongs.

Making it Work

Microplastics are tiny pieces of plastic that break off from items like bottles, bags, and packaging. Even though they are very small, they can cause big problems for the ocean and marine life. Using the STEAM process, students asked questions and imagined solutions, explored different materials, sketched their ideas, and built their own mini ocean debris cleaners. The most exciting part was testing their designs to see how well they worked. As students collaborated, improved their designs, and solved problems together, the project truly became an engineering adventure.

蒐集事實

有時，塑膠瓶或零食包裝這樣的垃圾會不小心流入海洋。這對海洋動物來說非常危險，因為牠們可能會把垃圾誤以為是食物。好消息是，科學家和工程師研發「海洋垃圾清潔器」來幫忙！這些大型的漂浮裝置利用網子和濾網，在垃圾隨水流移動時將其收集起來。一旦廢棄物被清除，海洋動物就能再次安全地游泳。這些清潔器是了不起的幫手，而我們也可以成為海洋小英雄，只要確實把垃圾分類到正確的地方。

發揮其作用

微塑膠是從瓶子、塑膠袋和包裝等物品上剝落下來的極小塑膠碎片。雖然它們非常微小，卻會對海洋和海洋生物造成巨大的問題。透過 STEAM 研究過程，學生提出問題並想像解決方法，探索不同材料，繪製設計草圖，並動手製作屬於自己的迷你海洋垃圾清潔器。而最令人興奮的是他們測試自己的設計，查看實際運作效果的過程。在合作、改進設計與共同解決問題的過程中，這項專題成為一場真實的工程探險。

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1 ASK + IMAGINE 提問 + 創思

During the Imagine Stage, we learned about ocean pollution, its causes, and how it affects sea life.

在「想像」階段，我們學習海洋污染的相關知識，包括其成因以及對海洋生物造成的影響。



3 PLAN 計畫

We planned how to build an ocean debris cleaner using simple materials. 我們規劃如何使用簡單的材料來製作一個海洋垃圾清潔器。



4 CREATE 創造

We worked together to build ocean debris cleaners that could collect microplastics. 我們一起合作並製作能夠收集微塑膠的海洋垃圾清潔器。



5 IMPROVE 改進

We tested our designs and improved them. 我們測試設計並加以改善。

