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Mars Rover 火星探測車

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All About Mars

Students began this project by exploring what they already knew about the planet Mars and how scientists explore space. They learned that Mars is a rocky, dusty planet called the "Red Planet" and that rovers are used to explore its surface. Students compared Mars to Earth, noticing similarities like rocks and mountains, and differences such as Mars being colder, drier, dustier, and smaller than Earth. By studying pictures of Mars, they observed its red-orange color, rocky ground, and dusty landscape, and imagined how the surface might feel and sound.

Engineering a Rover for Mars Exploration

Students took on the exciting challenge of helping NASA build a Mars Rover by following the engineering design process. They researched Mars' colors, textures, temperatures, and surface features, then planned and created rovers with wheels and axles to move across rough surfaces. Working together, students improved their designs by adding features like antennas, satellite dishes, and scoops to collect information about Mars. Through this service learning project, students explored how engineers design technology to help people solve problems and improve life both on Earth and in space, while connecting these ideas to machines and tools they use in everyday life.

認識火星

學生首先探討自己對火星的既有認識，以及科學家如何探索太空，來展開這項專題。他們瞭解到火星是一顆佈滿岩石與塵土的行星，因此被稱為「紅色星球」；而科學家會利用探測車來探索火星表面。學生比較火星與地球的異同之處，發現兩者都有岩石和山脈，但火星比地球更寒冷、更乾燥、塵土更多，而且體積較小。透過觀察火星照片，學生注意到火星紅橘色的外觀、佈滿岩石的地表以及塵土飛揚的景觀，並發揮想像力思考火星表面可能帶來的觸感與聲音。

為火星探索設計探測車

學生接受一項充滿挑戰與樂趣的任務——協助美國太空總署設計火星探測車，並依循工程設計流程完成作品。他們先研究火星的顏色、質地、溫度及地表特徵，再規劃並製作配有車輪和車軸的探測車，使其能夠在崎嶇不平的地面上移動。在合作過程中，學生持續改良設計，加入天線、衛星接收盤及採樣鏟等裝置，以協助蒐集更多關於火星的資訊。

透過這項服務學習專題，學生瞭解工程師如何設計科技來幫助人們解決問題，並提升地球及太空中的生活品質。同時，他們也將這些概念與日常生活中使用的機械和工具連結起來，進一步認識工程與科技在生活中的重要性。

1 ASK + IMAGINE 提問 + 創思

We explored Mars and shared what we already knew before discovering new facts.
我們探索火星，並在發現新知識之前，先分享了自己原本已經知道的內容。



4 CREATE 創造

We built a simple machine to move across Mars' rough Surface.
我們製作一台簡易機械，讓它能夠在火星崎嶇不平的表面上移動。



3 PLAN 計畫

We collaborated in the planning stage to draw our designs.
我們在規劃階段互相合作，一起繪製設計圖。



5 IMPROVE 改進

We improved our rover with features to help NASA take pictures and collect samples.
我們為探測車加強功能，讓它能協助美國太空總署拍攝照片並收集樣本。

