

June 2026

Circuit and Sensors 電路與感測器

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Circuit and Sensors

How do museums keep their priceless treasures safe? In our Circuits and Sensors unit, students explored how museums protect valuable artifacts from damage and theft. They discovered how alarms are triggered and how sensors can detect changes in the environment. Using their new knowledge, students designed and built their own museum artifacts and display cases, complete with a circuit system that activates a flashing LED alarm. This hands-on challenge encouraged creativity, critical thinking, and problem-solving while showing students how technology helps protect valuable objects in the real world.

Design and Create

Students planned and built their own models of museum artifacts with sensors. First, they sketched their ideas and decided where to place the sensors in their designs. Then, they used a variety of materials to carefully create their artifact models. The sensors were connected to the reed switch to detect movement and trigger an alarm system with a flashing LED to help protect the artifacts. Students tested their sensors to make sure they worked properly and made improvements to their designs. This hands-on activity helped students understand how sensors are used in museums to safeguard valuable objects.

電路與感測器

博物館是如何保護珍貴文物的呢？在「電路與感測器」單元中，學生探索博物館如何防止珍貴文物遭受損壞或失竊。他們瞭解警報系統是如何被啟動，以及感測器如何偵測環境中的變化。運用所學知識，學生設計並製作自己的博物館文物與展示櫃，並結合電路系統，讓閃爍的LED 警示燈在警報觸發時亮起。這項實作的挑戰培養學生的創造力、批判性思考能力與問題解決能力，同時讓他們認識科技如何在真實世界中保護珍貴物品。

設計與創作

學生規劃並製作自己的博物館文物模型及感測系統。首先，他們繪製設計草圖，決定感測器在作品中的擺放位置；接著運用各種材料，細心製作文物模型。感測器與磁簧開關相連，能夠偵測移動狀況並啟動警報系統，透過閃爍的LED 燈提醒人們文物可能受到干擾，進而達到保護文物的目的。學生在完成作品後進行測試，確認感測器運作正常，並根據測試結果持續改良設計。透過這項實作活動，學生深入瞭解感測器在博物館安全防護中的應用，並體驗工程設計與科技創新的實際運用。

1 ASK + IMAGINE 提問 + 創思

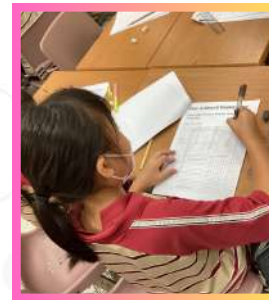
We researched artifacts and explored different sensors.
我們研究了各種文物，並探索了不同種類的感測器。



2

3 PLAN 計畫

We made plans for both the artifacts, display case and an alarm system.
我們為文物、展示櫃以及警報系統制定設計方案。



4

CREATE 創造

We built our display case and artifact with an alarm system.
我們製作展示櫃和文物，並為它們加裝警報系統。



5

IMPROVE 改進

We tested and made improvements throughout the process.
我們在整個過程中進行測試，並持續改進。

