The G2 KCFS Gazette
Kang Chiao International School, Hsinchu Campus, International Department
June 2023

Power On
通電

Basic Circuits

All circuits need to have three basic elements. These elements are a voltage source, conductive path, and a load. The voltage source, such as a battery, is needed in order to cause the current to flow through the circuit via the path or wires and into a load that consumes the power source, which in this case was an LED light. During the initial stages of the project students explored basic circuits through an interactive smartboard activity before trying their hand at connecting a battery, basic wires, and a lamp to see if they could get it to light up.

Circuit Wand

Students were excited when they learned that they will have to put their knowledge to the test by planning and creating a Harry Potter style wand that lights up at the tip when they activate the switch. This project really tested the students' ability to follow detailed step by step instructions as they had to be very accurate and precise with the placement of copper tape and connecting all the parts. The project also provided an opportunity for the students to understand the testing and improving stage better due to the fact that many connections did not work the first time. Thus they had to go back to find the fault and try again until they were able to get the wands to work.

基本電路

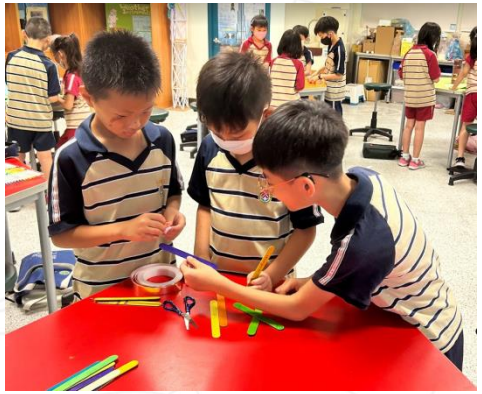
所有電路都需要具有三個基本元素：電壓源、導電路徑和負載。電壓源，例如電池需要電壓以使電流透過電線流過電路，並進入消耗電源的負載，LED 燈就是如此運作的。在專題的初始階段，學生透過用互動式電子白板設計的活動探索基本電路，接著嘗試連接電池、基本電線和燈，看看是否可以點亮燈泡。

電路魔仗

學生得知他們需要創造一支哈利波特風格的魔杖來測試他們所學的知識時非常興奮，當他們啟動開關時，魔杖的尖端會亮起。這個專題真正測試學生按照詳細步驟與說明進行操作的能力，因為他們必須非常準確地放置銅箔膠帶並連接所有零件。此專題也為學生提供了一個更能瞭解測試過程和改進的機會，因為許多連接過程並不會第一次就成功，因此，他們必須尋找錯誤並重試，直到他們能夠啟動魔杖。

1 ASK + IMAGINE 2 提問 + 創思

Students solved some circuit puzzles to learn about simple circuits before planning their wand.
學生在設計他們的魔杖之前解決一些電路難題，以瞭解簡單的電路。



3 PLAN 計畫

We looked at the material and used our knowledge of simple circuits to design a wand.
我們查看材料，並利用我們對簡單電路的瞭解來設計魔杖。

4 CREATE 創造

During the create stage we worked carefully with the components and pieced them together to ensure we had a working wand in the end.
在創造階段，我們仔細處理零件，並將它們拼湊在一起，以確保我們最後擁有一根可以運作的魔杖。

5 IMPROVE 改進

Success! After lots off trouble shooting and testing the circuits were connected and the wands lit up when the switch was pressed.
成功！ 經過大量故障排除和測試後，電路已連接，按下開關時魔杖會亮起。