

The Education University of Hong Kong 2021-2022 Quality Education Fund Thematic Network – Tertiary Institutes STEM Project Team

SCHOOL: YING WA GIRLS' SCHOOL (S1)

TOPIC: WORKSHOP 1 - AQUATIC PLANT
PHOTOSYNTHESIS EXPERIMENT SET UP

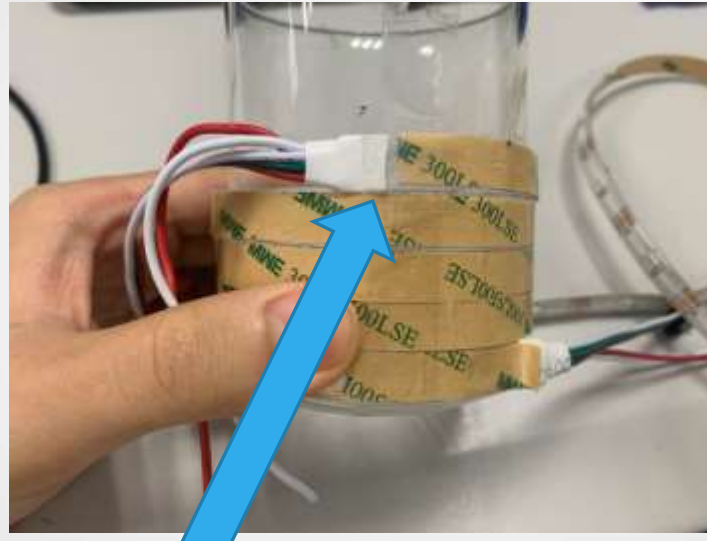
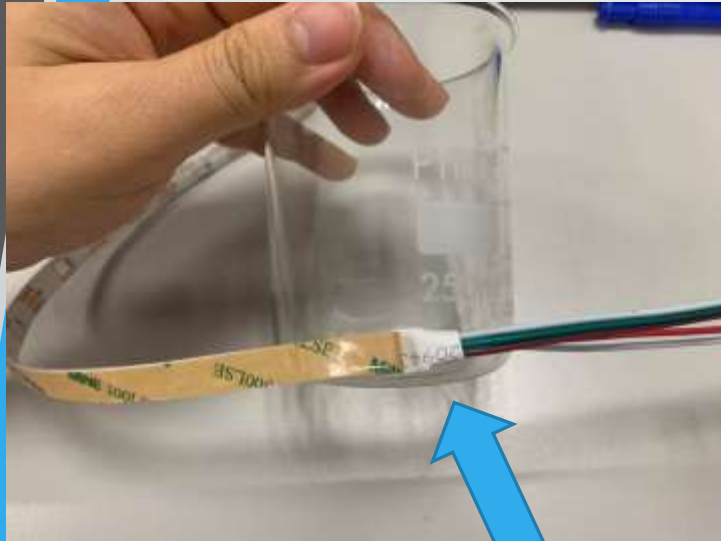


250ml

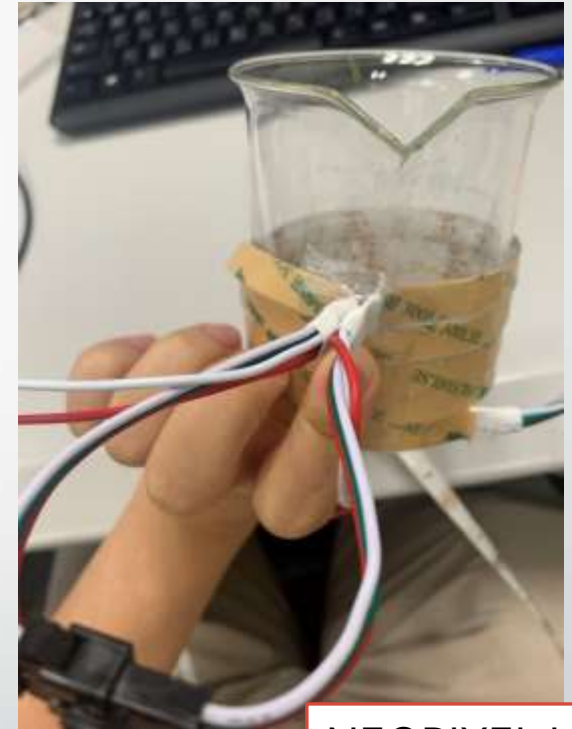


NEOPIXEL LED *2





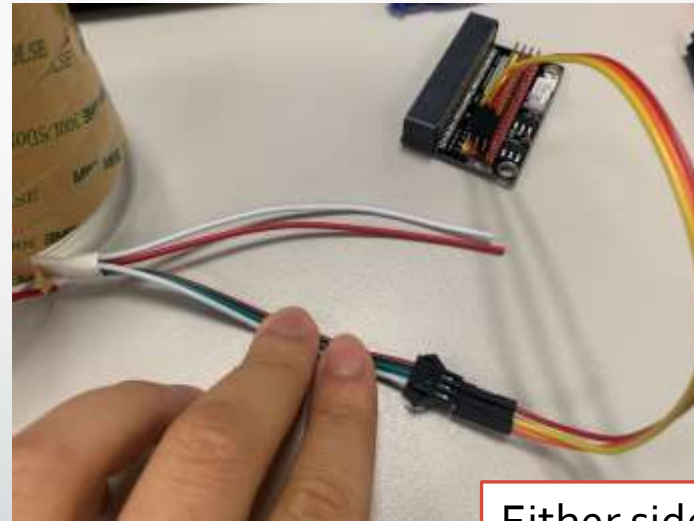
Must*



NEOPIXEL LED



Double
Check



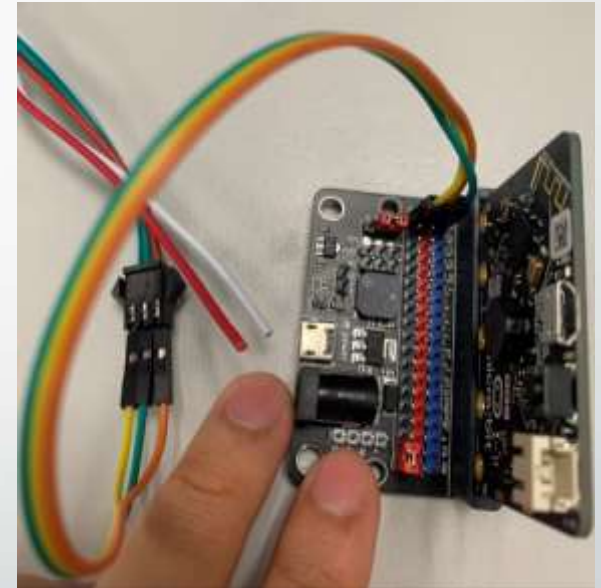
Either side

CONNECTIONS OF NEOPIXEL LED WITH MICRO:BIT



- red > 3V
- green > pin 0
- white > GND

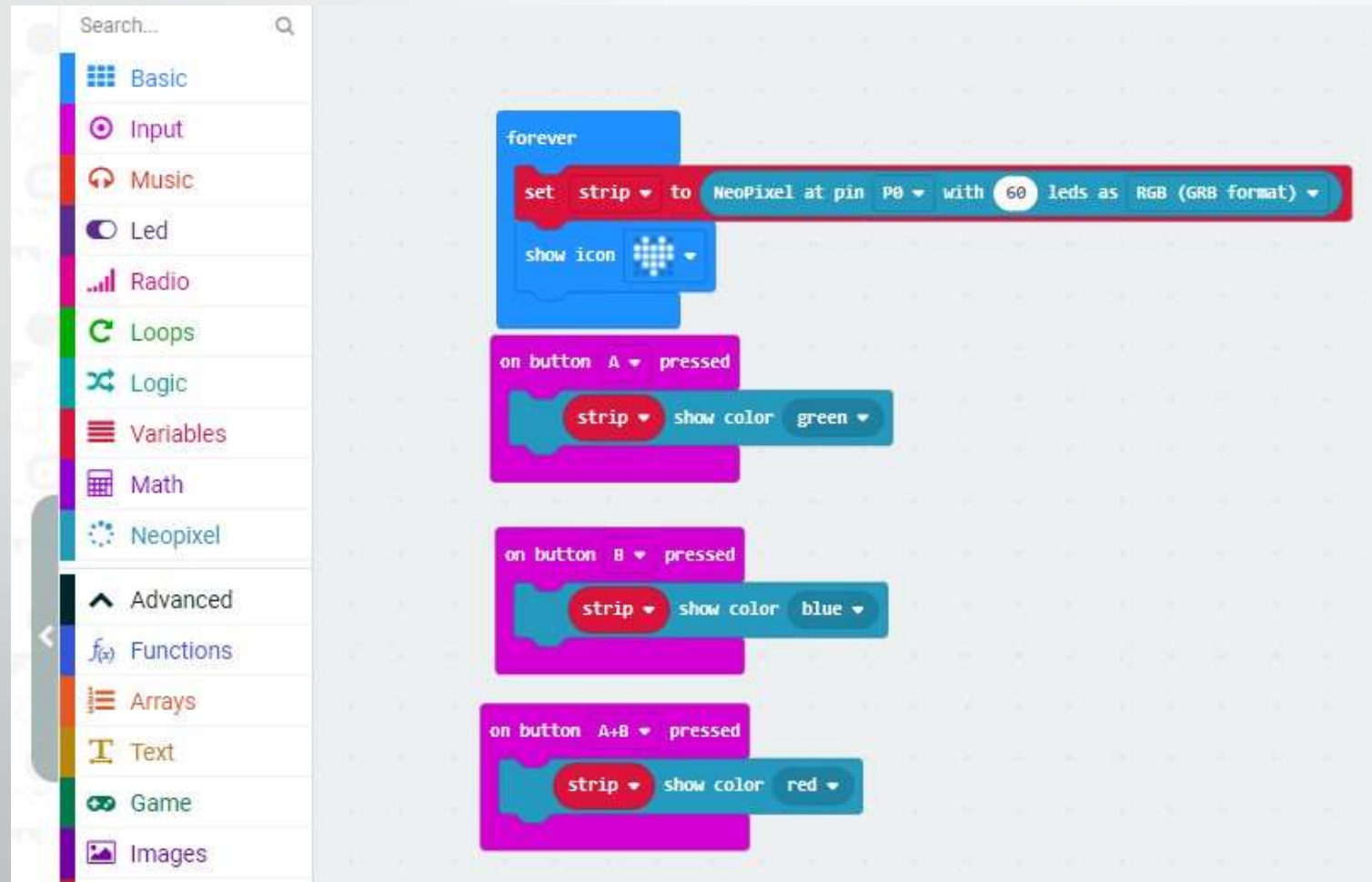
NOTE: Please note that LED strip has to be connected to the plug as shown on the picture. LED strip will NOT work if connected on the other end of the strip



Extensions

The screenshot shows the MakeCode Extensions library search results for the keyword "Neopixel". The search bar at the top contains "Neopixel" and a yellow arrow points to it with the text "Type in 'Neopixel' here". Below the search bar, a grid of extension cards is displayed. The first card, "neopixel", is highlighted with a blue arrow pointing from the left side of the slide. The "neopixel" card features a colorful, glowing sphere of LEDs and the text: "neopixel", "A Neo-Pixel package for pxt-microbit", and "Learn more". Other visible cards include "ws2812b", "ringbitcar", "cutebot", "ColorBit", "gigglebot", "reromicro", "ExpressivePixelsMakeCode", "giggle", and "CubeBit". Each card includes a small image, a title, a brief description, and a "Learn more" link.

Code



The screenshot shows the MIT Scratch IDE interface. On the left is a sidebar with a search bar and a list of categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, Neopixel, Advanced, Functions, Arrays, Text, Game, and Images. The Neopixel category is selected. The main workspace contains the following code blocks:

```
forever loop
  set strip to Neopixel at pin P0 with 60 leds as RGB (GRB format)
  show icon [LED icon]
on button A pressed
  strip show color green
on button B pressed
  strip show color blue
on button A+B pressed
  strip show color red
```



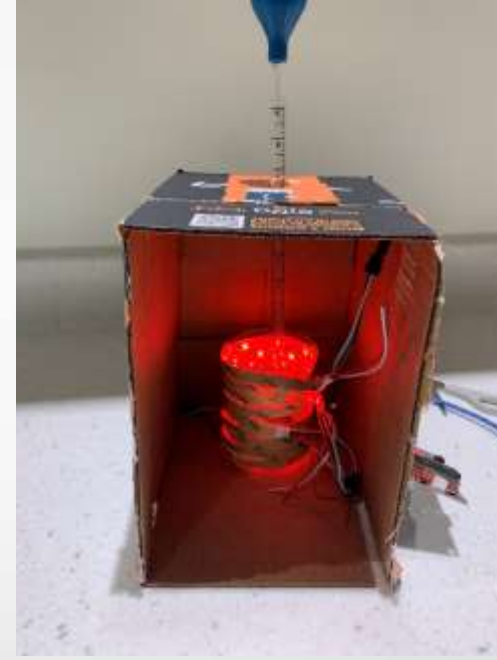
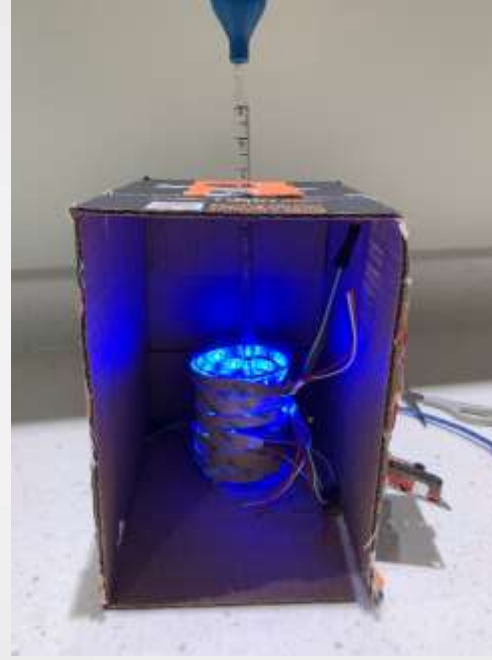
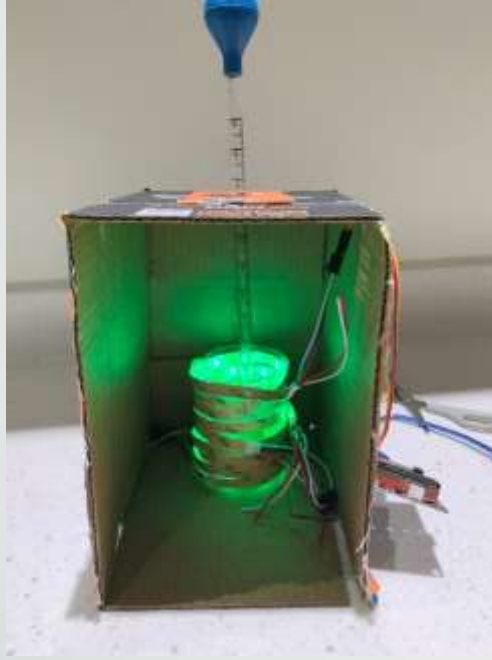


移液管 (chemical
dropper)



水草 (羅漢西) (學名: *Hornwort of Ceratophyllum demersum*)



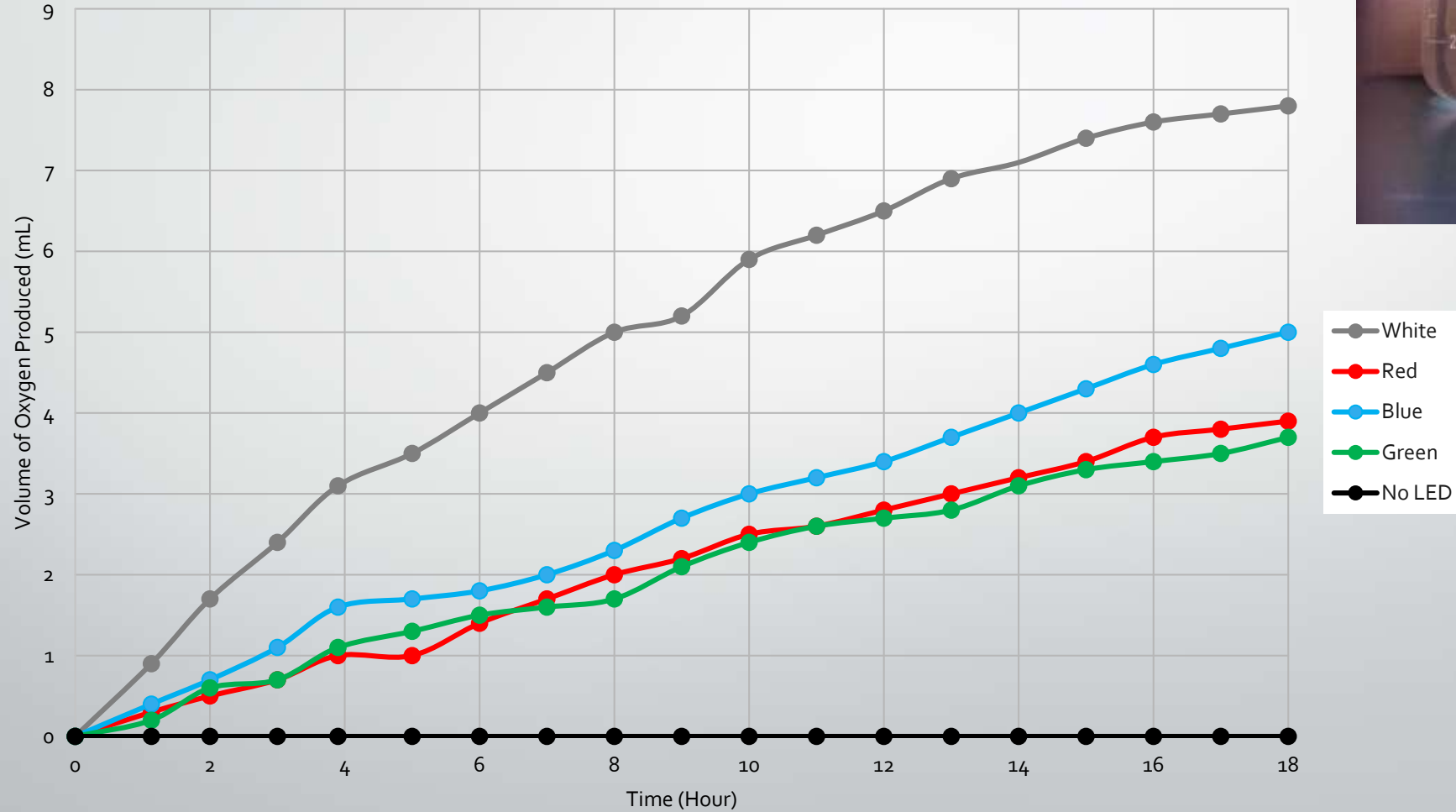


Box Design:

- Wire/Micro:bit
- Check
- Water Level

Data Reference

Volume of Oxygen Produced (mL) vs. Time (Hour)



小米 Cam



小米智能攝影機 1080p 雲台版
~HKD 229

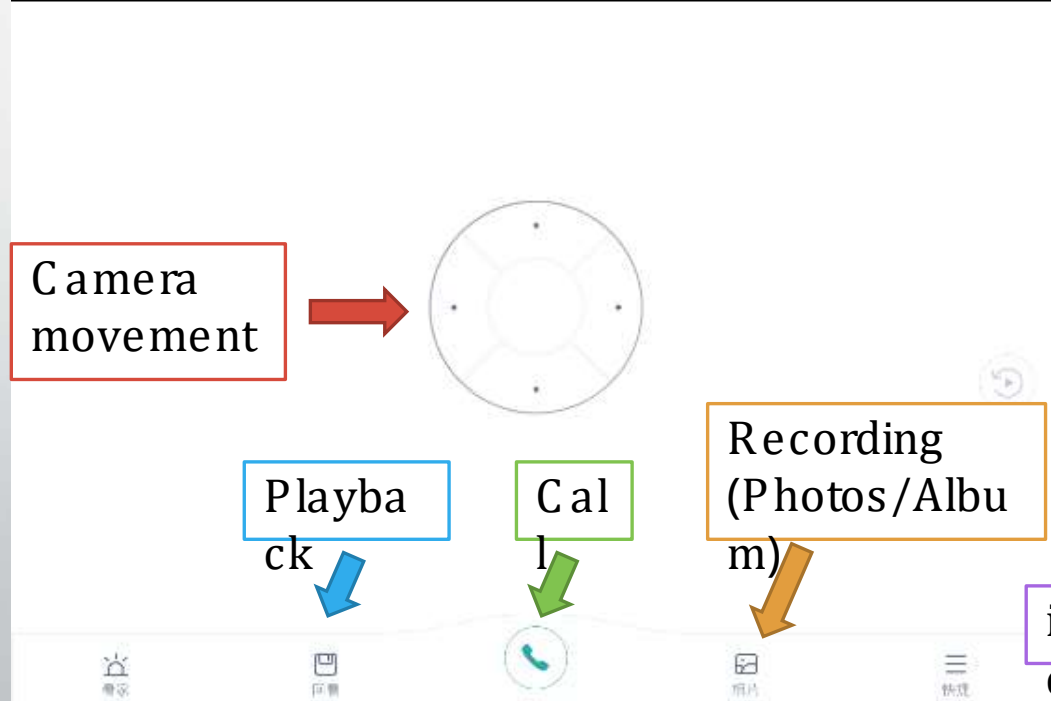


Micro SD

Date &
Time



Camera
name



iPa
d

Materials List

- JOANLAB塑料刻度移液管 一次性血清移液管 (10ml)
~HKD 2
- RGB灯燈帶:彩色LED燈帶Neopixel WS2812B Micro:Bit
~HKD 34
- 水草 (羅漢西) (學名: Hornwort of *Ceratophyllum demersum*)
~HKD 10 /bunch
- Sodium Hydrogen Carbonate
~HKD 15 /500g
- ESP32-CAM
~HKD 35
- 小米Cam
~HKD 229

