The Education University of Hong Kong
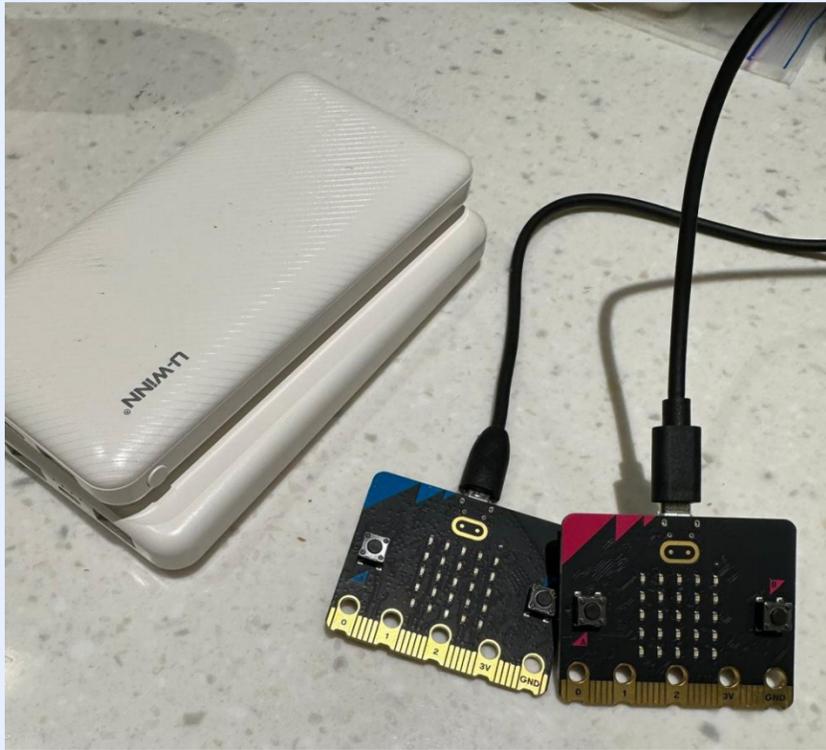2022-2023 Quality Education Fund Thematic Network – Tertiary Institutes
STEM Project Team

SCHOOL: Tak Sun Secondary School

TOPIC: Concentration Test

Experiment material
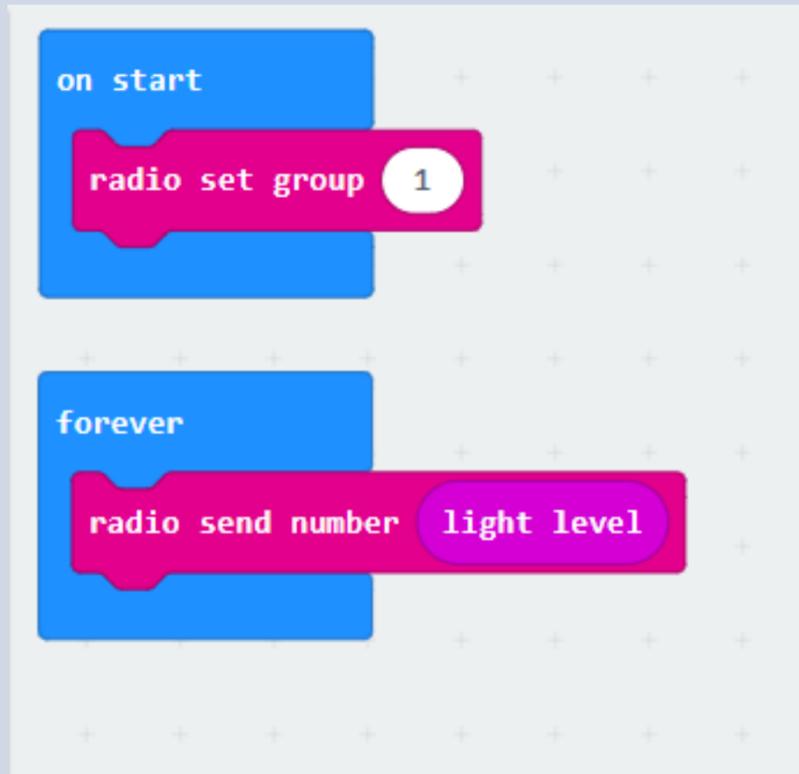
Objectives of Experiment

A) To find out the light level of different liquids with micro:bit.
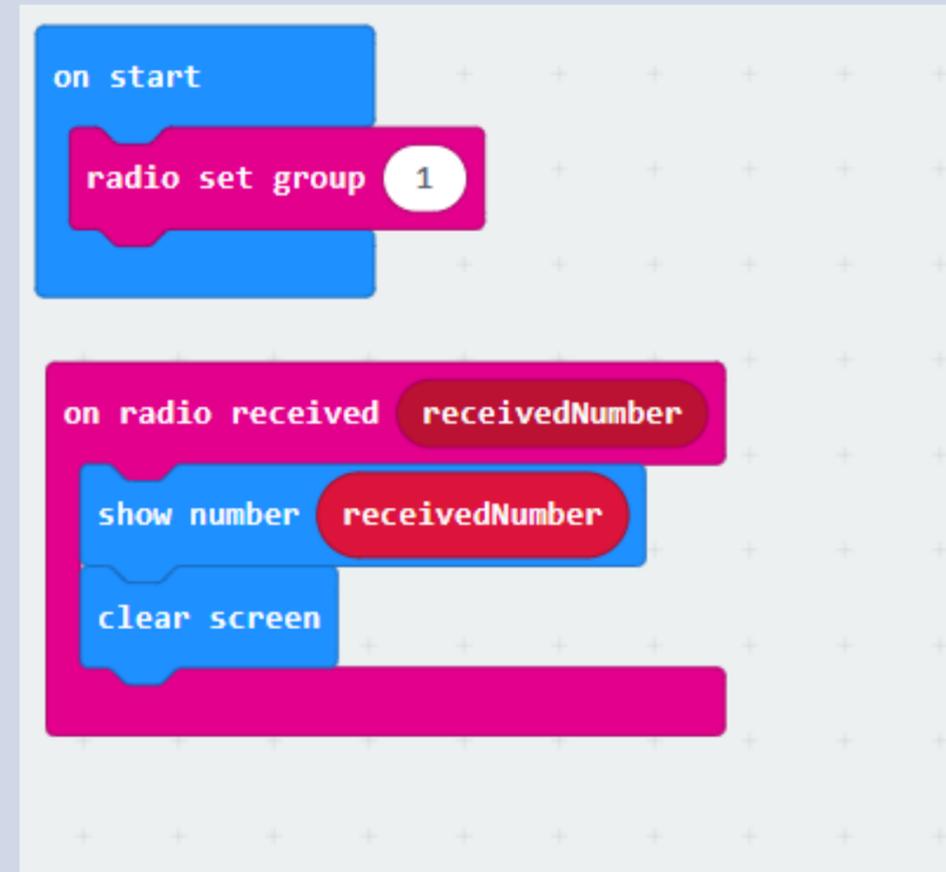
B) To predict the turbidity of the liquids.

Coding

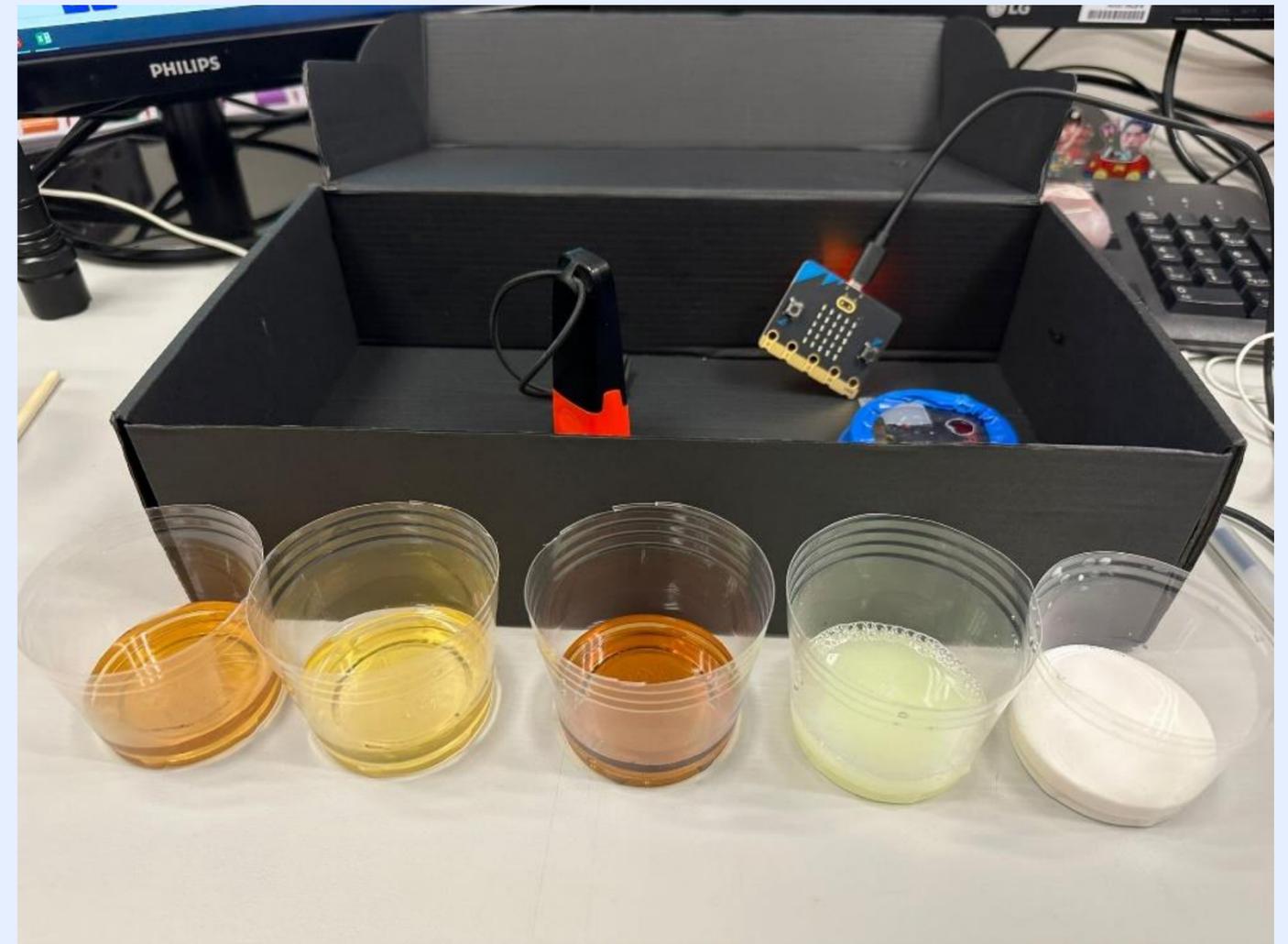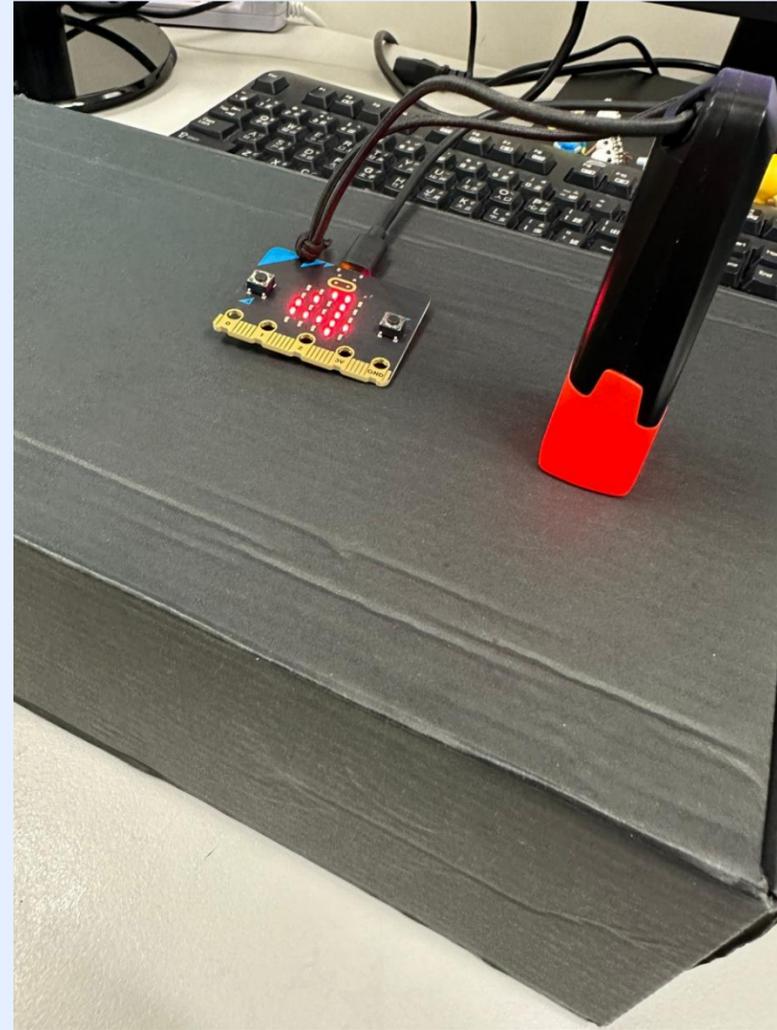| For testing the light level of the liquids:	for radio (receive data):
on start radio set group 1 forever radio send number light level	on start radio set group 1 on radio received receivedNumber show number receivedNumber clear screen

Experiment

Result

| Concentration 100%	Micro:bit light level
Water	249
Pocari Sweat	245
Green Tea	245
Dishwasher Detergent	240
Red Tea	237
Cola (with no sugar)	236
Kiwi Juice	215
Cola	192
Milk, Milk Tea, Soy sauce	0 (cannot show the number)

Concentration Experiments

Sample A:

littleBits Coca Cola Concentration Experiments

	Concentration	Light level	Log10 (light level)
Water	0	249	2.396199347
Coca Cola	100	192	2.283301229
Unknown	100	180	2.255272505

Plot data:

Concentration	Log10(light level)
0	2.396199347
100	2.283301229

Calculation:

m (slope)	-885.7543547
y-intercept	2122.444006
Predicted concentration	124.826564
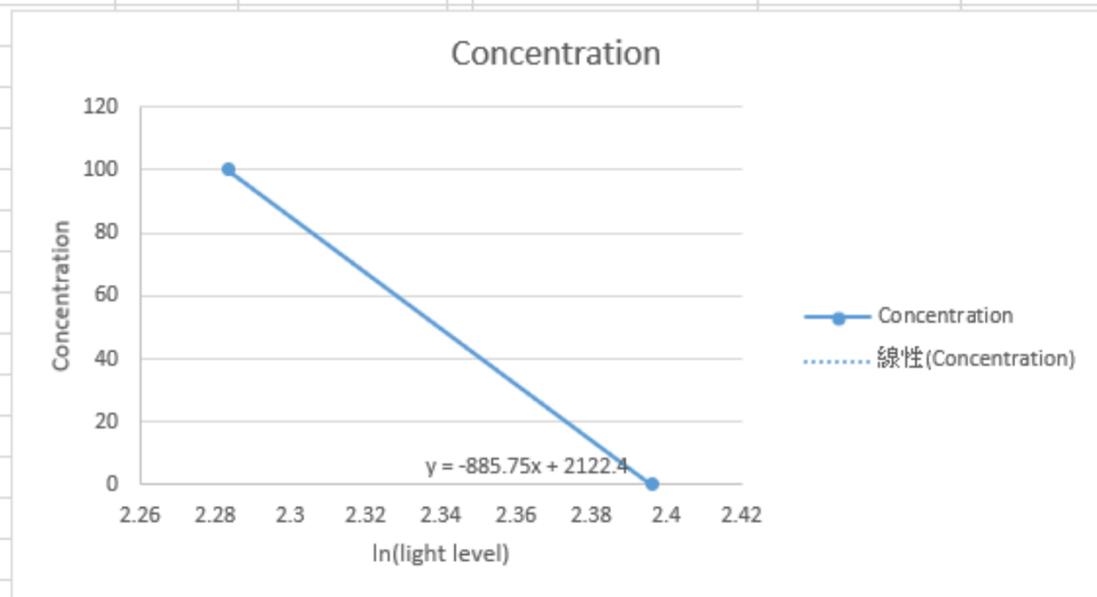
Sample B:

littleBits Coca Cola Concentration Experiments

	Concentration	Light level	Log10 (light level)
Water	0	249	2.396199347
Coca Cola	100	192	2.283301229
Unknown	100	230	2.361727836

Plot data:

Concentration	Log10(light level)
0	2.396199347
100	2.283301229

Calculation:

m (slope)	-885.7543547
y-intercept	2122.444006
Predicted concentration	30.53329105
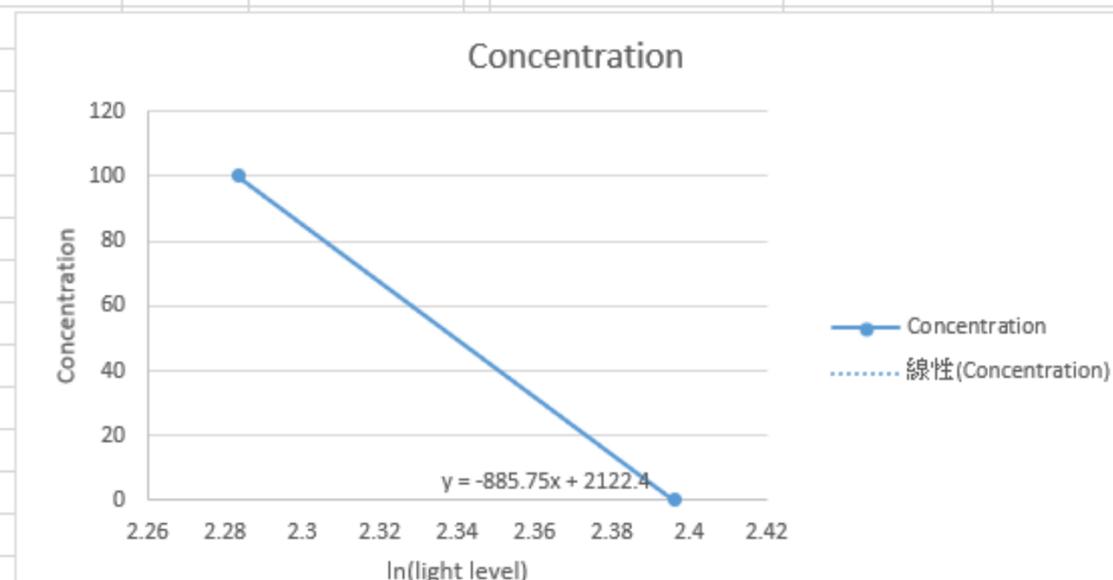
Sample A (with 180 micro:bit light level) is more similar to the Coca Cola, and the predicted concentration is higher than Sample B.