

Microbits and drone

Programme: Microbits

Level: P4 to P5

Theme / Challenge

Statement:

Summary

Using the accelerometer on the mircobits to perform a simple indication which direction the drone is flying and how stable the drone is when hovering.

<Please insert a photo here that is representative of the lesson idea. This photo will be used as the thumbnail of the lesson idea when it is posted on the Digital Maker website.>

Prior Knowledge:	Students should already know: <ol style="list-style-type: none"> 1. using the javascript block base programming 2. how a drone move around 3.
Learning Objectives:	By the end of the lesson, students should be able to: <ol style="list-style-type: none"> 1. understand how the accelerometer works 2. how can we apply this accelerometer system else where 3. what kind of data are we collecting from the accelerometer

Time	Teacher Activities	Purpose	Resources Needed
Introduction/Pre-activity			
Lesson 1 1 hour 20min	Introduction to mirobits and drone. Recap on the block base programming. Plotting of table and graph	To refresh pupils knowledge in using the block base programming and their understanding about drone	<ul style="list-style-type: none"> • Mircobits programming site • Drone • Excel
Lesson development/Main activities			
Lesson 2 1 hour 20min	Introduction to the accelerometer on the microbits and programming mircobits to use the accelerometer to detect movement in terms of direction	Pupils will view demo on how accelerometer works and what are the programming blocks we are using.	<ul style="list-style-type: none"> • Mircobits programming site

Lesson Plan

Lesson 3 1hour 20min	Testing of mircbits and programme if the accelerometer works. Fine tuning the programme to get a accurate reading	Pupils to learn that simply using the correct block to programme is not enough, as real test and fine tuning is necessary to have accurate data.	<ul style="list-style-type: none"> • Mircobits programming site
Lesson 4 1hour 20min	Test flight with mircobit on board	Success or fail it does not matter, but the take away will be if it fail why and how can the pupils improve on it	<ul style="list-style-type: none"> • Mircobits programming site • drone
Lesson 5 1hour 20min	Improvement and more flight testing	Pupils to test if their improvement works better or worst.	<ul style="list-style-type: none"> • Mircobits programming site • drone
Closure and consolidation/Post-activity			
Lesson 6 1hour 20min	<i>Plotting of their data they collected and analyse. Implementing this ideas elsewhere and what kind of data are we collecting for.</i>	Why analysing data is important and what can it do to help us. Beside drone where can we have this accelerometer place to collect data and for what purpose.	

List of Projects (5 – 10 projects if possible) created by Students			
Project 1	Using what they have learn on accelerometer, pupils to apply the programme somewhere around school and start collecting data	mircobits	Student to observe the mircobits carefully

Please send this template, together with any additional resources, e.g. Powerpoint slides, worksheets and .hex file, to: digital_maker@imda.gov.sg.

Contributed by:

Name of School: Farrer Park Primary School

Name of Teacher (Optional):

Date: 24 July 2018