Contributed by Nan Chiau Primary (CAA 12 April 2017)

Using micro:bit to develop a light sensor

Subject: Science **Level:** Primary 3
Unit: Materials
Topic: Intensity of light

Summary

Students will be exposed to the world of programming. They will see for themselves how a simple programming device can help them to measure the intensity of light. Through the device, they will be able to decide on the suitable material to make a curtain (eg.).

Prior Knowledge:	
Objectives:	To develop a device that can measure intensity of light using micro:bit in order to choose a suitable material based on the conditions given.
Resources:	micro:bit with battery pack Computer with Internet access Materials of the same thickness (eg. plastic, different types of fabric, paper)

Step/Time	Teacher Activities	Purpose	Resources Needed
Pre-activity			
Lesson Development	In this activity, students will be giving each other instructions to allow them to successfully navigate a maze. Students will be grouped in pairs. 1 member of the pair (student A) will be giving instructions while the other member (student B) who is blindfolded will use those instructions to navigate the maze. Student A can only give 1 instruction at a time. After each instruction, student B must execute the given instruction. Each instruction should only be 1 statement at a time, e.g. “turn 90 degrees to your right) After this activity, teacher will make the link between the activity and how programming	To understand the importance of giving clear instructions when doing programming	

	works		
Main activity			
Lesson Development	Teacher will inform the group that they will be designing and constructing a device to measure the intensity of light (light sensor). It will be a group work and at the end of the project, there will be a mini competition to determine the best light sensor. In groups of 4, students will design and construct a light sensor and program it. Groups will be given the opportunity to test their light sensor. On the final day, each team has to present their light sensor. After which, teacher will let the students, in their groups, to use their light sensors to test how much light each material allows to pass through. Each group will be tasked to find the best material to be used as a curtain and present their findings to the class.	Students will be exposed to the world of programming. They will see for themselves how a simple programming device can help them in Students will get the opportunity to understand that different materials let different amounts of light pass through.their everyday life.	▪ micro:bit with battery pack ▪ laptop with internet access ▪ materials

Additional Remarks:

week 1 (1h) – intro to microbits

week 2 (1h) – teaching how to use microbits – the functions of a light sensor

week 3 (1h) – creation of their light sensor

week 4 (1h) – testing our their light sensor

week 5 (1h) – finalisation of their light sensor