# Micro:bit (Enrichment Programme)

**Programme:** **Scissor, Paper, Stone game** **Level:** **Primary 4**

**Lesson: 3 hours duration**

**Summary**

After completing the lesson, students will be able to code the micro:bit to create a scissors, paper, stone game capturing score.

<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:<br>1. Addition and subtraction up to 10 |
| **Learning Objectives:** | By the end of the lesson, students should be able to:<br>1. display an image on the 5 x 5 LED<br>2. display an animation using the LED<br>3. use Shake event handler<br>4. use Button event handler |

| Time | Teacher Activities | Purpose | Resources Needed |
|---|---|---|---|
| **Introduction/Pre-activity (25 min)** | | | |
| E.g.<br>5 min | Settle students down and Introduction to coding | To let students understand that coding is a language that allows us to give computer and devices instructions. | Powerpoint Slides |
| 10 min | Introduction to hardware & interface<br><br>Students to be in pairs.<br><br>Introduce parts of the micro:bit<br>- The main board<br>- USB cable (power and programming)<br>- Battery for power | To introduce to students the terminology of the micro:bit and understand how micro:bit works. | 1 micro:bit & laptop for each pupil.<br><br>Encourage students to work in pair to help one another to familiarise and connect micro:bit to laptop |

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| | Introduce interface of makecode.microbit.org | | |
| 10 min | Basic coding to micro:bit<br><br>Learn how to display an image on 5 x 5 LED (Show Icon & Show LED)<br><br>Learn how to display letters (Show string)<br><br>Learn how to display numbers (Show Number) | To let students understand the available features / functionalities of the display ability of micro:bit | |
| **Lesson development/Main activities (105 min)** | | | |
| 15 min | Basic coding to micro:bit<br><br>Learn how to use loop to display smiley and sad faces | Allow students to understand purpose of using loop in programming. | |
| 20 min | Basic coding to micro:bit<br><br>Learn how to use button event handler.<br><br>When button A is pressed, show tick. When button B is pressed, show cross.<br><br>Challenge students to modify it to handle MCQ questions. (choices A, B, C and D) | Allow students to understand purpose of event handler and how it work.<br><br>Using micro:bit to answer True/False question in class. | |
| 20 min | Basic coding to micro:bit<br><br>Learn how to set variables and to display the variables using button event.<br><br>Challenge students to do a countdown timer. | Allow students to understand function of variables and how we can manipulate them to give us a countdown timer. | |

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|---|---|---|---|
| 20 min | Basic coding to micro:bit<br><br>Learn how to use shake event handler.<br><br>Challenge: Using shake event handler to make a pedometer. (step tracker) | Allow students to understand how shake event handler work. | |
| 30 min | Consolidate<br>Students will make a scissors, paper, stone game with the ability to tabulate scores. | Allow students to consolidate what they have learnt to create a scissors, paper, stone game. | |
| **Closure and consolidation/Post-activity (15 min)** | | | |
| 15 min | Get students to talk about challenges / improvements to be done, reflections to their game | Select a few students' project and explain to pupils on the different way coding can be represented. | |

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: Meridian Primary School

Name of Teacher (Optional): Mr Lee Huan Leng, Mdm Jaime Hoi, Mdm Tang Li Hwa

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