**Hackathon with Micro:bit**

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| **Programme:** |  | **Level:** | P6 |
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| **Theme / Challenge Statement:** | **Animals – Best Defence Animal** |  |  |

**Summary**

Most animals have a defence mechanism to protect themselves and their territory, be it their teeth like a wolf, spikes like a porcupine, or odour like a skunk.

In the challenge, create an animal that is able to keep themselves in the ring and force it’s

opponent out.

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| <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.> |

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| **Prior Knowledge:** | Students should already know:  1. Basic coding & introduction to micro:bits  2. Know the design thinking process  3. |
| **Learning Objectives:** | By the end of the lesson, students should be able to:  1. Using the design thinking process to help them create their animal that falls within the theme  2. apply their micro:bit knowledge to have their project perform the given task  3. |

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| **Time** | **Teacher Activities** | **Purpose** | **Resources Needed** |
| **Introduction/Pre-activity** | | | |
| Day 1  1 hour | -Setting the context / talk about the environment where the challenge statement lies.  -Team Formation | To let students understand the objectives of accomplishing the tasks | Video / Textbooks |
| **Lesson development/Main activities** | | | |
| Day 1  2 hours | -Ideation / Brainstorming  -Prototyping | To go through the design thinking process and come up with the idea for the project. | Writing materials |
| Day 1 & 2  3 hours | Digital Making | * To create the animal using the available materials. * To programme the micro:bit. * And to trial and error with the micro:bit with their animals. | -Laptop  -micro:bit  -scissors  -recycled materials  -tape  -glue  -decorative materials |
| Day 3 – 1.5 hours | Challenge | To compete with other groups “animals” | A marked-up ring |
| **Closure and consolidation/Post-activity** | | | |
| E.g. 30 mins | *(Optional post-class activity)*  Reflection about the activity  E.g. Get students to talk about challenges / improvements to be done, reflections | Getting them to reflect about the activity. | Paper |
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| **List of Projects (5 – 10 projects if possible) created by Students** | | | |
| Project 1 | C:\Users\s8011996h\Downloads\IMG_6904.JPG | Resources Needed  Cardboard  Bottle cap  Sticks  Markers | Remarks / Tips to be shared |
| Project 2 | C:\Users\s8011996h\Downloads\IMG_7056.JPG | Bottle caps  Bottle  Coloured paper  Rubber bands  Hot glue | Remarks / Tips to be shared |
| Project 3 | C:\Users\s8011996h\Downloads\IMG_7053.JPG | Cardboard  Hot glue  Bottle  Rubber bands |  |
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Please send this template, together with any additional resources, e.g. Powerpoint slides, worksheets and .hex file, to: [digital\_maker@imda.gov.sg](mailto:digital_maker@imda.gov.sg).

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| **Contributed by:**  Name of School: Montfort Junior School  Name of Teacher (Optional): Lawrence Loo  Date: 4 April 2018 |