MICRO:BIT LESSON PLAN

<table>
<tr><td>Teacher facilitator: Science Teachers</td><td>Class: 2E</td><td>Date: Semester 2 2019</td><td>Time: TBA</td></tr>
<tr><td>Subject: Science Sec 2</td><td colspan="3">Theme: Renewable Energy Project

Topic: Renewable Energy Project</td></tr>
<tr><td>Specific Instructional Objective : Pupils will be able to:-

Solve problems based on real-world context:
- Design their own windmills with a microbit-controlled device
- Calculating wind speed generated by their windmills.</td><td colspan="2">SEL Skill implemented:

☒ Self-Awareness
☒ Social Awareness
☒ Relationship Management
☒ Self-Management
☒ Responsible Decision Making

CL Strategies:

☐ Fan-N-Pick
☐ Find Someone Who
☐ Mix-Freeze-Group
☐ Quiz-Quiz-Trade
☐ Rally Coach
☐ Showdown
☐ Who Am I?
☐ Think/Timed-Pair-Share
☐ Think/Timed-Pair-Square
☐ Simultaneous Roundtable
☐ Numbered-Heads Together</td><td>Skills:

☐
☐
☐
☐
☐

21C Competency:

☒ Civic Literacy, Global Awareness and Cross-Cultural Skills
☒ Critical and Inventive Thinking
☒ Communication, Collaboration and Information Skills</td></tr>
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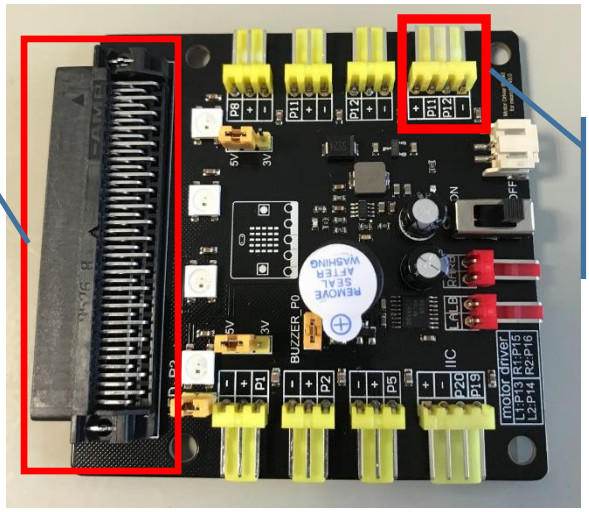
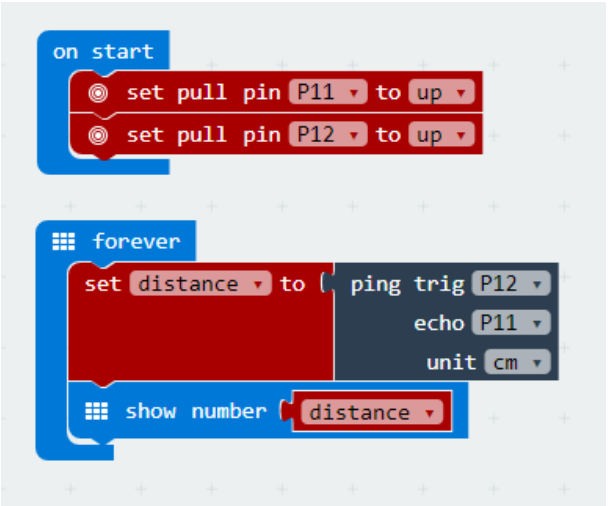
Duration	Details of Activities Teacher	Materials / Resources
Tuning In: **[5 minutes]**	Discuss some real-world problems to involve alternative renewable energy (E.g. wind, solar, water)	
Lesson Development **[50 minutes]**	Develop codes for the micro:bit to calculate the wind speed from the windmill incooperated to the use of ultrasonic sensor. Students to be reminded on the connection of the micro:bit to the customised breakout board and the ultrasonic sensor.  Connected to Micro:bit Connected to Ultrasonic Sensor Pin 11 and Pin 12 *Customised breakout board*  *Sample of the initialising codes to be shown to the students if required.*	- micro:bit - Customised breakout board - Ultrasonic Sensor - Makecode coding platform (https://makecode.microbit.org)

	Students need to discuss in groups on how to utilise the microbit and ultrasonic sensor to calculate the wind speed generated from their windmill.	
Conclusion [5 minutes]	Discuss how micro:bit can be used to record the wind speed generated by their windmills.	