Introduction to Micro:Bit
Suitable for: G4 - G7

Prerequisite: Introduction to Micro:Bit
Duration: 30 Weeks
Classes per Week: 1 class (45 minutes each)

Course Overview:
This course introduces students to coding and electronics using the Micro:bit, a small programmable device designed to make learning to code accessible and fun. Students will explore various Micro:bit features, create interactive projects, and understand foundational coding concepts like loops, conditionals, and sensors.

Covered Topics

Unit 1: Getting Started with Micro:Bit

- Understanding what Micro:bit is and how it works.
- Learning to use the MakeCode editor for programming.
- Creating a beating heart animation as an introductory project.

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Unit 2: Interactivity with Inputs and Sensors

- Use buttons and sensors to control output on the Micro:bit.
- Understand how inputs can change program flow.

Unit 3: Loops and Conditionals

- Introduce programming loops for repeated actions.
- Apply conditional logic for interactive responses.
- For and while loops for repetitive actions
- Conditional statements (if/else) for decision-making
- Combining loops and conditionals for dynamic behavior

Unit 4: Creating Simple Games and Utilities

- Apply knowledge of loops, conditionals, and inputs to create interactive projects.
- Explore how Micro:bit can be used for both gaming and utility functions.

Unit 5: Working with Advanced Sensors and Data Logging

- Explore advanced sensors on the Micro:bit such as sound, light, and motion sensors.
- Log data and use sensors to create more complex interactions.

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Unit 6: Integrative Projects and Real-World Applications

- Combine all learned concepts to develop comprehensive projects.
- Apply Micro:bit programming skills to real-world scenarios.

Materials Needed:

- Micro:Bit Device
- Computer or tablet
- Access to Internet
- Chrome Browser

Assessment

Throughout the course, students will be assessed based on their ability to apply programming concepts, create functional projects, and use the Micro:bit's features effectively. Assessments focus on creativity, problem-solving, and programming accuracy.

Certification

A certificate of completion will be awarded upon successful completion of the course, acknowledging the student's skills in programming and understanding of basic electronics with Micro:bit