

Tinkercademy Digital Maker Holiday microCamp

Course Objectives

By the end of the course, students should be able to:

- Handle and use the micro:bit independently, or with external sensors and actuators
- Understand and use the PXT programming environment
- Develop computational thinking skills:
 - Use variables
 - Understand different types of variables: strings and numbers
 - Utilise event handlers
 - Perform basic arithmetic and comparison operations
 - Use control structures such as conditionals and loops
 - Problem decomposition, pattern recognition, pattern generalisation and abstraction, algorithm design and data analysis
- Understand electronics concepts and utilise the micro:bit's onboard components
 - Buttons
 - Light sensor
 - Capacitive touch sensor
 - Accelerometer
 - Compass
 - LED array display
- Extend outputs with external components
 - Piezo buzzer/Speakers
 - Potentiometers (dial/knob)
 - Keypad
- Gain an appreciation of the components that go into everyday devices such as electronic toys, factory automation machines, robots, burglar alarms, and smartphones
- Complete a team project showcasing their creativity and innovation, and demonstrate their understanding using a combination of sensors and other input/output components.