spinner lesson

Topic

If (Conditionals)

Quick Links

- activity (https://www.microbit.co.uk/blocks/lessons/spinner/activity)
- challenges (https://www.microbit.co.uk/blocks/lessons/spinner/challenges)

Class

Year 7

Prior learning/place of lesson in scheme of work

Learn how to use an if statement to run code run code depending on whether a condition is true or not. We will be learning how to create a die with If statements, On Shake, Variables, Assignment Operator, Pick Random and Show LEDs.

Documentation

- If : read more... (https://www.microbit.co.uk/blocks/if)
- Variables : read more... (https://www.microbit.co.uk/blocks/var)
- Assignment Operator : read more... (https://www.microbit.co.uk/blocks/assign)
- On Shake : read more... (https://www.microbit.co.uk/functions/on-shake)
- Pick Random : read more... (https://www.microbit.co.uk/blocks/math)
- Show LEDs : read more... (https://www.microbit.co.uk/functions/show-leds)

Objectives

- learn how to run code when the BBC micro:bit is shaken, when running code in the web browser, moving the mouse quickly simulates shaking
- learn how to create a local variable as a place where you can store and retrieve data
- learn how the assignment operator is used to declare a new local variable
- learn how to declare a new local variable or update the value of a variable
- learn how to return a random number

- learn how to conditionally run code depending on whether a condition is true or not
- learn how to show an image on the LED screen

Progression Pathways / Computational Thinking Framework

Algorithms

- Designs solutions (algorithms) that use repetition and two-way selection, ie if, then and else.(AL)
- Uses logical reasoning to predict outputs, showing an awareness of inputs (AL)
- Designs solutions by decomposing a problem and creates a sub-solution for each of these parts. (DE) (AL) (AB)
- Represents solutions using a structured notation (AL) (AB)

Programming & Development

- Creates programs that implement algorithms to achieve given goals (AL)
- Declares and assigns variables(AB)
- Understands the difference between, and appropriately uses if and if, then and else statements(AL)
- Uses a range of operators and expressions e.g. Boolean, and applies them in the context of program control. (AL)
- Selects the appropriate data types(AL) (AB

Data & Data Representation

- Understands the difference between data and information(AB)
- Uses filters or can perform single criteria searches for information.(AL)
- Performs more complex searches for information e.g. using Boolean and relational operators(AL) (GE) (EV)
- Defines data types: real numbers and Boolean (AB)

Hardware & Processing

- Knows that computers collect data from various input devices, including sensors and application software (AB)
- Demonstrates responsible use of technologies and online services, and knows a range of ways to report concerns Understands how search engines rank search results (AL)

Information Technology

- Makes appropriate improvements to solutions based on feedback received, and can comment on the success of the solution (EV)
- Makes judgements about digital content when evaluating and repurposing it for a given audience (EV) (GE)
- Recognises ethical issues surrounding the application of information technology beyond school.

Computational Thinking Concept: AB = Abstraction; DE = Decomposition; AL = Algorithmic Thinking; EV = Evaluation; GE = Generalisation

Activity

- time: 20 min.
- **activity (https://www.microbit.co.uk/blocks/lessons/spinner/activity)**

Extended Activity

- time: 20 min.
- **challenges (https://www.microbit.co.uk/blocks/lessons/spinner/challenges)**

Homework

- Extended Activity: **challenges (https://www.microbit.co.uk/blocks/lessons/spinner/challenges)**