Computing Learning Journey
Year 4 Autumn 2nd ½

4.2 We are makers

Coding for micro:bit

Write and test their own micro:bit project

Plan their own micro:bit project

Modify their sorting hat game to make a dice game

Modify a rock-paper-scissors game to make a sorting hat game

Work out how a match-scoring program has been written

They explore the MakeCode environment and learn about the BBC micro:bit

Key Vocabulary

- **Accelerometer**: hardware component providing data on changes in motion, typically in three directions
- **Algorithm:** a sequence of precise instructions or steps (sometimes a set of rules) to achieve an objective
- **Bluetooth:** wireless digital communication protocol using low energy signals over short distances
- **If/else if/else:** programming selection construct which indicates what code should be run depending on which one of multiple conditions are satisfied
- **JavaScript**: text-based programming language, commonly used to power interactive web pages
- **LED:** light emitting diode, an electronic component that lights up when current flows in one direction
- **MakeCode**: block- and text-based editor from Microsoft, supporting a variety of hardware platforms including the micro:bit
- **micro:bit:** simple, single board programmable computer with integrated input, output and network capabilities
- **Object code**: a version of the program converted (compiled) into the detailed instructions to be followed by the computer's processor
- **Runtime:** the complete software environment (operating system, drivers, interpreter) needed for a program to run on particular hardware
- **Simulator:** software allowing one computer system to behave as another; in this case, the MakeCode editor includes an on-screen simulator of a micro:bit so that programs can be tested
- **Source code:** the program as written, in a language that can be understood by both the programmer and the computer
- **Variable:** lets computer programs store, retrieve or change simple data – typically thought of as a particular bit of the computer's memory that holds a specific bit of data

Software: Microsoft MakeCode for the micro:bit (online)
Hardware: Laptop/desktop computers, BBC micro:bits (with USB cables and battery packs)

Online safety:
We know that if we see anything inappropriate whilst researching online we know to turn off the monitor/turn the iPad over and tell a trusted adult. Appropriate filters and monitoring are in place at school whilst children access the MakeCode editor. If pupils publish their work on the MakeCode parental permission needs to be sought.

Switched on Online Safety Unit:
Social and emotional wellbeing and developing resilience
Unit 4.2 – We are standing up to peer pressure
Dealing positively with peer pressure

Unit overview:
The children will learn:
- about the input – process – output model of computation
- about the inputs and outputs available on a BBC micro:bit
- to program using the MakeCode blockbased environment
- to test and debug programs they write, using an on-screen simulator and the micro:bit
- how to convert and transfer a program written on screen to the micro:bit.

In Key Stage 2:
Programming here builds on earlier programming work in Scratch, including Unit 3.1: We are programmers, **Unit 3.2: We are bug fixers** and **Unit 4.1: We are software developers.**
- Pupils will continue to develop programming in **Unit 5.1: We are game developers** and Unit **6.6: We are AI developers**. They return to the micro:bit and MakeCode for programming in Unit **6.1: We are toy makers.**