Enriching lives every day; enabling our school community to learn, achieve and flourish through living 'life in all its fullness'

St Peter's Bratton Church of England Academy

St Chad's Academies Trust

Subject: Computing

Year group: 6

Term: Summer Term

Unit name: Programming: Sensing using Microbits

Respect

Do for other people the same things you want them to do for you.

Matthew 7:12

Vocabulary	
Micro: bit,	CSS
Input,	Plug in
Process	Sensing
Output	Accelerometer
USB	HTML
Emulator	Random
Selection	Selection Condition
Condition,	Variable
if… then… else Variable	MakeCode

Big idea: To apply knowledge of the programming constructs and use their design to create their own BBC Micro:bit based step counter.

Progression of skills:

Understands the difference between, and appropriately uses if and if, then and else statements.

Designs, writes and debugs modular programs using procedures.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.

Prior learning:

Sequence from **Year 3 : Sequencing in Music** Children were introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences.

Repetition from **Year 4 : Repetition in Shapes** Children plan, modify, test commands to create shapes and patterns using repetition and loops

Selection from **Year 5: Selection in Quizzes** Children use Scratch to develop their understanding and use of If… Then… Else structure , understanding that it can be used to select different outcomes depending on whether a condition is true or false

Variables from **Year 6: Variables in Games** Children use variables to create a simulation of a scoreboard in Scratch .

National Curriculum links :
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

micro:bit

Key learning assessment statement -What will the children know by the end of the unit?

To explore Microbits programming environment by building and testing a program using if...then...else statements which features selection

influenced by a random number (build a fortune teller project)

To use conditions to change the value of a variable using selection.

To develop their programs to update the variable to sense motion and respond to an input.

To use conditional statements to modify programs so that the Microbit becomes a navigational device.

To design and program a step counter by deciding on variables, designing the algorithm, testing, debugging and modifying their program as necessary.

The micro:bit will need the following peripherals:

- A micro USB to USB lead
- A battery pack
- 2 x AAA batteries per micro:bit

This unit uses a desktop computer and the makecode.microbit.org website to program the micro:bit.

USB connector

Reset button

Battery socket

Processor

25 LED lights

2 buttons

Pin-0 Pin-1 Pin-2 Pin-3V

Pin-GND

USB BLE ANTENNA RESET BATTERY

BBC

mirco:bit

PROCESSOR COMPASS ACCELEROMETER PINS

Edge connector for accessories

Compass and accelerometer