

Inspiring and enabling our school community to live life to the full

We aim to equip pupils to use computational thinking and creativity to understand and change the world; to become digitally literate –using, and expressing themselves and developing their ideas through, information and communication technology. They will build on this knowledge and understanding, becoming equipped to use information technology to create programs, systems and a range of content– at a level suitable for the future workplace and as active participants in a digital world



YEAR 5

Subject: Computing
Unit: Programming A – Selection in physical computing

Characteristics of an Effective Learner

Courage
Commitment
Collaboration
Creativity
Curiosity

Prior Learning:

Key concepts from Education for a connected World:
Year 1 Introduction to programming
Year 2 Programming Robot algorithms
Year 3 Programming sequences in music
Year 4 Programming – repetition in shape

Key Vocabulary taught in this unit:

Microcontroller, components, connections, infinite loop, output, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery, program, condition, input, selection, action, debug

Intent: What do we want the children to know, be able to do by the time they complete this unit?

- **Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts**
Create a simple circuit and connect to a microcontroller, make a switch, design a conditional loop, design a physical project that includes selection, test and debug a project
- **Use sequence, selection, and repetition in programs; work with variables and various forms of input and output**
Explain infinite loops, use count-controlled loops
- **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs**
Explain that condition is either true or false, use selection to direct the flow of a program, write an algorithm that describes what a model will do
- **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information**
Using Crumble programming, connect multiple output components

Impact / Outcome:

What will the final product / result be?

Pupils will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. They will develop a program to control the model of a fairground ride and evaluate its success.

P4C Inquiry (where appropriate)

N/A