Stage 4

Computational Thinking

- **4CT.01** Follow, understand, edit and correct algorithms that use repetition, including indefinite (forever) loops.
- **4CT.02** Follow, understand, edit and correct algorithms that use iteration, including count-controlled loops.
- **4CT.03** Understand that the use of repetition can make algorithms more concise.
- **4CT.04** Compare and contrast algorithms designed for the same task to determine which produces the outcome that is best suited to the purpose.
- **4CT.05** Predict the outcome of algorithms that contain repetition.
- **4CT.06** Understand that decomposition is a process that is used to break tasks into different parts (sub-routines).
- **4CT.07** Know how to use decomposition to break tasks into different parts, represented as algorithms.
- **4CT.08** Follow and understand algorithms that use a sub-routine.
- **4CT.09** Know how to develop algorithms to produce different outputs based on different inputs.
- **4CT.10** Know how to develop algorithms that include repetition.

Programming

- **4P.01** Know how to add comments to blocks of code and explain the benefits of these comments.
- **4P.02** Know how to develop programs with repetition.
- **4P.03** Know how to develop programs with iteration.
- **4P.04** Know how to develop programs that produce a desired output, which includes the use of the repeat command.
- **4P.05** Know how to develop programs that produce different outputs from different inputs.
- **4P.06** Know how to plan the instructions for objects within programs, including identifying inputs and outputs.
- **4P.07** Know how to test different parts of a program systematically, to identify and debug errors.
- **4P.08** Know how to develop programs for a physical computing device to produce outputs from input devices.
- **4P.09** Know how to develop programs for a physical computing device using count-controlled and indefinite (forever) loops.

Managing Data

- **4MD.01** Understand the differences between physical (paper-based) and digital databases.
- **4MD.02** Understand the advantages and disadvantages of using forms when collecting data.
- **4MD.03** Identify the differences between data and information.
- **4MD.04** Know how to sort data into a required order, including descending or ascending numerical values and alphabetically.
- **4MD.05** Identify appropriate data types for a field within a data table.
- **4MD.06** Know how to use a database to answer a single question.
- **4MD.07** Identify data, records and fields within a data table.

Networks and Digital Communication

- **4DC.01** Explain the role of servers and clients in a network.
- **4DC.02** Describe the differences between the World Wide Web and the internet.
- **4DC.03** Describe the differences between wi-fi and ethernet, including speed, security and the use of wires.
- **4DC.04** Identify issues that may occur as a result of a failure in a network.
- **4DC.05** Identify where and why encryption is used in digital systems.
- **4DC.06** Know how to write and decode messages using the Caesar Cipher and the Pigpen Cipher.

Computer Systems

- **4CS.01** Identify examples where a control system is used.
- **4CS.02** Know the functions of application and systems software.
- **4CS.03** Identify a range of data recorded by input devices in computer systems, including data that is collected through sensors and data loggers.
- **4CS.04** Identify a range of information communicated by output devices in computer systems.
- **4CS.05** Identify that different types of file have different sizes, including text, audio, image, video and games.
- **4CS.06** Describe the role of computer scientists in a range of industries.
- **4CS.07** Identify the role of robots in service industries, including for delivery services, public transport and health care.