Stage 6

Computational Thinking

- **6CT.01** Follow and understand algorithms that are presented as flowcharts.
- **6CT.02** Understand the symbols used in flowcharts, limited to start, stop, process, procedure (sub-routine), decision and the connector.
- **6CT.03** Predict the outcomes of flowcharts.
- **6CT.04** Know that variables can be used in different algorithms.
- **6CT.05** Know that the same sub-routine can be used multiple times in an algorithm.
- **6CT.06** Know that a sub-routine can be used in different algorithms.
- **6CT.07** Know how to develop algorithms that include two or more variables.
- **6CT.08** Understand and use arithmetic (+, −, *, /) operators in algorithms.

Programming

- **6P.01** Explain the use of constructs in programming, including sequence, selection and iteration.
- **6P.02** Know how to develop block-based programs with a procedure (sub-routine) to define commonly used sections of code.
- **6P.03** Know how to develop block-based programs where multiple algorithms interrelate.
- **6P.04** Know how to develop block-based programs using data types, including Integer, Character and String.
- **6P.05** Know how to develop block-based programs with combined constructs across multiple objects and that meet set criteria, including:
  - variables
  - conditionals (selection)
  - arithmetic and comparison operators
  - loops
  - procedures
  - interaction.
- **6P.06** Describe the role of prototypes when designing programs.
- **6P.07** Know how to develop prototypes of interfaces for programs, including suitable prompts for its users.
- **6P.08** Know how to follow project plans to develop programs.
- **6P.09** Define and use criteria to evaluate programs.
- **6P.10** Know how to test programs using a range of data.
- **6P.11** Know how to develop programs for a physical computing device to generate outputs based on a range of inputs, including the use of a variable.

Managing Data

- **6MD.01** Identify the role of different computing tools when planning statistical investigations.
- **6MD.02** Design appropriate forms to capture continuous data for given purposes.
- **6MD.03** Design spreadsheets that include a combination of features, including cell referencing, arithmetic operators and functions limited to SUM, and AVERAGE.
- **6MD.04** Select data that is relevant for particular purposes.
- **6MD.05** Design and create single table databases, including data attributes and data types, for given purposes.
- **6MD.06** Know how to use phrase searching to find information in databases.
- **6MD.07** Know that data is used to solve problems in a range of industries, including health, manufacture and retail.

Networks and Digital Communication

- **6DC.01** Know that a range of digital content is stored on servers, including streaming and messaging services.
- **6DC.02** Explain that digital devices can transfer data wirelessly using radio waves, including wi-fi and cellular networks.
- **6DC.03** Understand how bandwidth affects network performance.
- **6DC.04** Know that a network can become overloaded if there are too many devices connected to it.
- **6DC.05** Explain the need to keep data secure during transmission.
- **6DC.06** Describe the different types of user authentication, including password, fingerprint and facial recognition.

Computer Systems

- **6CS.01** Know how to select hardware and software components, while considering a range of factors such as functionality, cost, speed and aesthetics.
- **6CS.02** Know that there are many different programming environments, such as block-based and text-based, and that some are more appropriate to use in a given situation.
- **6CS.03** Explain that analogue data must be digitised (converted into a numerical form) for processing by a computer, as computers can only store, process and communicate digital information.
- **6CS.04** Identify nibbles, bits, bytes (kilobyte, megabyte, gigabyte, terabyte), making links to memory size and storage.
- **6CS.05** Explain the role of a processor within a computer.
- **6CS.06** Explain the role of primary and secondary storage within a computer.
- **6CS.07** Know that robots can work autonomously.
- **6CS.08** Identify benefits of using robotics in industry, such as car manufacturing or food production.