

## Australian Curriculum: Digital Technologies key concepts mapping - Years 3 and 4

### BAND DESCRIPTION

Learning in Digital Technologies focuses on further developing understanding and skills in computational thinking, such as categorising and outlining procedures; and developing an increasing awareness of how digital systems are used and could be used at home, in school and the local community.

By the end of Year 4, students will have had opportunities to create a range of digital solutions, such as interactive adventures that involve user choice, modelling simplified real-world systems and simple guessing games.

In Year 3 and 4, students explore digital systems in terms of their components, and peripheral devices such as digital microscopes, cameras and interactive whiteboards. They collect, manipulate and interpret data, developing an understanding of the characteristics of data and their representation.

Using the concept of abstraction, students define simple problems using techniques such as summarising facts to deduce conclusions. They record simple solutions to problems through text and diagrams and develop their designing skills from initially following prepared algorithms to describing their own that support branching (choice of options) and user input. Their solutions are implemented using appropriate software including visual programming languages that use graphical elements rather than text instructions. They explain, in general terms, how their solutions meet specific needs and consider how society may use digital systems to meet needs in environmentally sustainable ways.

With teacher guidance, students identify and list the major steps needed to complete a task or project. When sharing ideas and communicating in online environments they develop an understanding of why it is important to consider the feelings of their audiences and apply safe practices and social protocols agreed by the class that demonstrate respectful behaviour.

### KEY CONCEPTS

The **key concepts** that underpin the Digital Technologies Curriculum establish a way of thinking about problems, opportunities and information systems and provide a framework for knowledge and practice. They are:

-  **abstraction**, which underpins all content, particularly the content descriptions relating to the concepts of data representation, and specification, algorithms and implementation
-  **data collection** (properties, sources and collection of data)
-  **data representation** (symbolism and separation)
-  **data interpretation** (patterns and contexts)
-  **specification** (descriptions and techniques)
-  **algorithms** (following and describing)
-  **implementation** (translating and programming)
-  **digital systems** (hardware, software, and networks and the internet)
-  **interactions** (people and digital systems, data and processes)
-  **impact** (sustainability and empowerment).

### ACHIEVEMENT STANDARD

By the end of Year 4, students **describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes**. They **explain how the same data sets can be represented in different ways**.

Students **define simple problems, design and implement digital solutions using algorithms that involve decision-making and user input**. They **explain how the solutions meet their purposes**. They **collect and manipulate different data when creating information and digital solutions**. They **safely use and manage information systems for identified needs using agreed protocols** and describe how information systems are used.

### CONTENT DESCRIPTIONS

#### Digital Technologies knowledge and understanding

##### Digital systems



Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (ACTDIK007)

##### Representation of data



Recognise different types of data and explore how the same data can be represented in different ways (ACTDIK008)

#### Digital Technologies processes and production skills

##### Collecting, managing and analysing data



Collect, access and present different types of data using simple software to create information and solve problems (ACTDIP009)

##### Creating designed solutions by:

###### Investigating and defining



Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)



###### Producing and implementing



Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)

###### Evaluating



Explain how student solutions and existing information systems meet common personal, school or community needs (ACTDIP012)

###### Collaborating and managing



Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)