

BACKGROUND – Australian Curriculum (v8) implementation by 2020: What it means for Rainworth State School

(With thanks to Catriona Mathewson, a parent at Rainworth State School, who volunteered to delve into the 2020 Australian National Curriculum and use her experience as a journalist to produce a curriculum overview written by a parent, for parents).

Why change?

THE development of a National Curriculum for Australian schools (to replace state-based systems) has been underway since 2009.

The new National Curriculum began being phased in around 2014. We are now reaching the “pointy end”, with all schools required to have the Australian Curriculum (version 8) implemented by 2020. The major focus of the new curriculum has been an emphasis on “21st century skills”.

To this end, **ICT** (Information and Communication Technology) competency has been enshrined, alongside literacy and numeracy, as a key capability for students to acquire at primary school.

The curriculum also includes the new learning area (subject) of **Digital Technologies**.

Under the new Australian Curriculum, it's expected students will leave primary school proficiently using a range of technologies from word processing and data programs such, as Excel and Word, to video editing software and recording equipment. They need to know how to send emails, search for and download appropriate online information, and export and import data from different devices. They should have the skills to share information online safely and effectively.

It is also expected they will learn binary code and understand how to use algorithms to put together simple problem-solving digital applications.

Meeting the new technology-based goals contained in **ICT** and **Digital Technologies** will require significant change, which is why the school has embarked on this process.

What are ICT and Digital Technologies?

There has been some confusion over the terms **ICT** and **Digital Technologies** and how they fit into the Australian Curriculum.

- **ICT** is the capability to safely and effectively use various hardware (computers, cameras, printers etc.) and software (word-processing, spreadsheet and video-editing programs).
- **Digital Technologies** is the subject area that gives students knowledge about *how* these technologies work. Coursework includes learning binary code, understanding algorithms and developing coding skills.

Under the Australian Curriculum **ICT** is defined as a “capability”, while **Digital Technologies** is a discrete subject area.

To clarify further, it's probably easiest to use a familiar analogy:

- **Literacy and English.**
 - Literacy – like ICT – is considered a “capability”, while English – like Digital Technologies - is a discrete subject.
 - Literacy is explicitly taught in English, but is used across all subject areas.

How is ICT taught?

The Australian Curriculum dictates ICT learning should be integrated across the curriculum and is not a stand-alone subject.

The aim is for students to gain ICT capability by using various technologies to complete projects across a range of subject areas.

So, for example, students may use PowerPoint software and digital cameras for a science project on plants. They may record data from a maths exercise in an Excel spreadsheet. Or they may collaborate on a persuasive video campaign for English using recording equipment and editing software.

The curriculum sets out that, as part of developing ICT capabilities, schools must cover the social, ethical and legal responsibilities of communicating in the digital world. There will also be an emphasis on critically evaluating the veracity of online source material and considering the positive *and negative* impacts technology can have on our social, work and school lives.

The plan for ICT is that students will develop increasingly complex skills as they move through Prep to Year 6 based around five key elements:

1. *Applying social and ethical protocols and practices when using ICT* (learning is around digital security, privacy, copyright, social protocols and online safety)
2. *Investigating with ICT* (learning is around online research and critically evaluating source material)
3. *Creating with ICT* (learning is around creating content, recording and communicating data)
4. *Managing and operating ICT* (learning is around the practical skills of using and troubleshooting with various technology)
5. *Communicating with ICT* (learning is around safe and appropriate online sharing)

There is no recommended time for integrating ICTs across other subject areas. To get an idea of how ICT goals are currently, and will be, incorporated across subject areas, the following are a few edited extracts from the Australian Curriculum content descriptions as they relate to ICT in English. (Other subject areas can be viewed at www.australiancurriculum.edu.au)

English (integrated ICT units)

Prep: Understand concepts about print and screen, including how books, film and simple digital texts work. Construct text using software including word-processing programs.

Year 1: Recreate texts imaginatively using drawing, writing, performance and digital forms of communication. Construct texts that incorporate supporting images using software including word-processing programs.

Year 2: Construct texts featuring print, visual and audio elements using software, including word processing programs.

Year 3: Identify the features of online texts that enhance navigation. Elaborations:

- Becoming familiar with the typical features of online texts: navigation bars and buttons, hyperlinks and sitemaps.
- Plan, draft and publish imaginative, informative and persuasive texts. Elaborations: using print and digital resources to gather information about a topic.

Year 4: Identify features of online texts that enhance readability including text, navigation, links, graphics and layout. Elaborations:

- Participating in online searches using navigation tools.

Year 5: Use a range of software including word processing programs with fluency to construct, edit and publish written text, and select, edit and place visual, print and audio elements. Elaborations:

- Writing letters in print and by email.

How is Digital Technologies taught?

Digital Technologies is a distinct 'learning area', alongside English, Math, Art, PE, Languages (Italian), Science and Humanities and Social Studies.

It sits under the umbrella of Technology and has a recommended time allocation of:

- 30 minutes/week for Prep - Year 2;
- 1hr/week for Year 3 - 4
- 1.5hr/week for Year 5 - 6.

To give you an idea of the knowledge/skill level students are required to achieve under the Australian Curriculum, the following are edited extracts from Digital Technologies content descriptions (see www.australiancurriculum.edu.au for full content).

Foundation (Prep) to Year 2:

Recognise and explore digital systems (hardware and software components) for a purpose.

Elaborations:

- Playing with and using different digital systems for transferring and capturing data
 - For example using a tablet to take a photograph of a grandparent and recording an interview with them about life in the past;
- Exploring and identifying hardware and software components of digital systems.
 - For example experimenting with different ways of providing instructions to games software using a mouse, touch screen, keyboard and using different software to manipulate text, numbers, sound and images;
- Recognising that a digital system follows instructions or commands.
 - For example instructing robotic toys to perform a function such as a dance movement.

Year 3-4:

Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data. Elaborations:

- Using different peripheral devices to display information to others.
 - For example using a mobile device, interactive whiteboard or a data projector to present information;
- Recognising that images and music can be transferred from a mobile device to a computer
 - For example using a cable to connect a camera and computer to upload images.

Collect, access and present different types of data using simple software to create information and solve problems. Elaborations:

- Using software to sort and calculate data when solving problems.
 - For example sorting numerical and categorical data in ascending or descending order and automating simple arithmetic calculations using nearby cells and summing cell ranges in spreadsheet or database software;
- Recognising that all types of data are stored in digital systems and may be represented in different ways such as files and folders with names and icons.

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

- Defining and describing the sequence of steps needed to incorporate multiple types of data in a solution.
 - For example sequencing the steps in selecting and downloading images and audio to create a book trailer.

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

- Designing and implementing a simple interactive digital solution using a visual programming language
 - For example, preparing the content and design of a simple guessing

Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols. Elaborations:

- Considering ways of managing the use of social media to maintain privacy needs.
 - For example activating privacy settings to avoid divulging personal data such as photographs, addresses, and names and recognising that all digital interactions are difficult to erase (digital footprints).

Year 5/6

Examine the main components of common digital systems and how they connect together to form networks to transmit data.

Acquire, store and validate different types of data, and use a range of software to interpret and visualise data.

Design a user interface for a digital system.

Design, modify and follow simple algorithms involving sequences of steps, branching (choices), and iteration (repetition). Elaboration:

- Designing the instructions for a robot, for example a robot vacuum cleaner to clean a room.

Implement digital solutions as simple visual programs involving branching, iteration (repetition) and user input. Elaborations:

- Creating a quiz where questions are repeated until the correct response is given, for example questions and feedback on responses in a few slides in a slideshow.