



STEINER EDUCATION AUSTRALIA

AUSTRALIAN STEINER CURRICULUM FRAMEWORK

DIGITAL TECHNOLOGIES (From Analogue to Digital Techné) Scope & Sequence

Kindergarten/Foundation to Year 10

June 2016

Revisions in this document

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ASCF DIGITAL TECHNOLOGIES SCOPE and SEQUENCE	Kindergarten / Foundation to YEAR 10
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Digital technologies K-6	Kindergarten / Foundation to Class 2	Classes 3- 4	Classes 5- 6
How Digital Technologies Work	<p>2.1 Scaffolding how Digital Technologies Work</p> <p>Children recognise and explore the living world and experience complexity through learning and play. They engage in complex activities with sequences of steps in concrete play and learning activities.</p> <p>(This is lived experience, scaffolding towards sequential steps which will be required later in understanding systems, hardware and software)</p>	<p>4.1 Scaffolding how Digital Technology Works</p> <p>Children solve problems, representing data and using algorithms with several steps, such as when exploring long multiplication or division.</p> <p>Children can recognise and work with systems such as managing their school garden or farm. They learn through experience the importance of managing time and space in their garden (system) and that some things outside the garden are really part of the system, such as the compost heap.</p>	<p>6.1 Scaffolding how Digital Technologies Work</p> <p>Children solve more complex problems using data and functional needs through logic and algorithms in sequential steps, in business mathematics, freehand geometry and Euclidean geometry lessons.</p> <p>Children recognise and work with complex systems in Geography lessons where many natural systems are examined, data is recorded, predictions are made and results are communicated.</p>
Creative use of Digital Technologies	<p>2.2 Scaffolding creative use of Digital-Technologies</p> <p>Children communicate, collaborate and manage complex technological tasks such as weaving and knitting.</p> <p>They learn to work safely and share, through respectful conversation, their completed work with others</p>	<p>4.2 Scaffolding creative use of Digital Technology</p> <p>Children communicate with the School community for example, they contribute to the school newsletter to advise of an upcoming performance or garden project</p> <p>Children create complex visual works in a variety of media. For example: design and creation of Main Lesson books with title, contents and pictures and diagrams.</p> <p>Children plan, create communicate and access ideas and information in Main Lesson books,</p>	<p>6.2 Scaffolding creative use of Digital Technologies</p> <p>Children create and communicate complex works representing their education for the purposes of visual exhibitions, musical and dramatic presentations and displays</p> <p>Children design and create Main Lesson books as a means of both reflection and presentation. Their work requires layout, editing and creative writing and drawing skills and includes, iterative and branching solutions through contents tables and page borders</p>

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		<p>plans, maps, timelines and discussions which meet their individual, school and community needs.</p> <p>They work safely on gardening and building projects.</p> <p>They show empathy to fellow students and share, through respectful conversation, their completed work with others.</p>	<p>Children work collaboratively to plan, create and communicate ideas in practical and creative projects requiring individual responsibility e.g. class play. They work safely and responsibly with woodwork and science equipment. They show appreciation of fellow students' creative work and share, through respectful and insightful conversation, their completed work with others</p>
<p>Research and Analysis</p>	<p>2.3 Research and Analysis Children explore and create complex patterns with natural objects such as in a nature table.</p> <p>They represent objects and patterns through pictures, symbols and diagrams e.g. collections of objects in a times tables lesson or a vertical algorithm lesson.</p> <p>Children sort collections of objects and explore creative patterns in those collections</p>	<p>4.3 Research and Analysis Children recognise that data comes in different forms such as words, numbers, musical notes etc. Children collect information and present it to others, conduct measurements of their classroom or school, presenting as diagrams, maps or tables; design plans for a house or farm and collect data from class related activities.</p>	<p>6.3 Research and Analysis Children examine how numbers and symbols can represent other things: for example: the postal system uses numbers for houses and numbers for postcodes, symbols are used in maps, measurement and astronomy.</p> <p>Children access and collect information and present it to others such as, percentage and interest information in a Business lesson</p>

AUSTRALIAN STEINER CURRICULUM FRAMEWORK

Digital technologies Years 7-10	Years 7-8	Years 9-10
<p>How Digital Technologies Work</p>	<p>8.1 How Digital Technologies Work Students investigate wired circuitry in electrical motors and in the home (see ASCF Science 8.4) and discuss electromagnetism without wires (wireless) Reflecting on real world problems, students investigate technologies of the Industrial revolution and the complexity of cultural and societal influences that lead to its beginning and to its eventual decline. (See ASCF History 8.2)</p> <p>Students learn a computer language such as HTML Students are introduced to Binary numbers and learn how data can be expressed in binary, which is explored in greater detail in Class 10. Students design and trace algorithms to predict output for a given input and identify errors.</p>	<p>10.1 How Digital Technologies Work Students build a binary adder from relays and in so doing experience the basic function of computer systems.</p> <p>They examine the main components of complex digital systems and how they may connect together and switch to form networks to transmit data.</p> <p>Students design and test algorithms to solve real world problems. Assemble a computer from components in order to understand the hardware as a complex system.</p> <p>Students learn a general purpose coding language.</p> <p>Students investigate how data is transmitted and secured in wired, wireless and mobile networks, and how the specifications affect performance.</p> <p>Students investigate the role of hardware and software in networked digital systems.</p> <p>Students implement programs using an object-oriented language.</p> <p>Students design and validate algorithms through tracing and test cases.</p>
<p>Creative use of Digital Technologies</p>	<p>8.2 Creative use of Digital Technologies Students identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data</p> <p>Students design a user interface of a digital system, generating, evaluating and communicating alternative designs</p>	<p>10.2 Creative use of Digital Technologies Students design and evaluate a user experience. They create a small set of digital fonts considering alternative designs with regard to functionality, usability, and aesthetics as well as opportunities for innovation and enterprise.</p> <p>Students create (and evaluate) a web site or other on-line application based on real world considerations, identifying needs of stakeholders and taking into account safety, social contexts and legal responsibilities</p>

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	<p>Students evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability</p> <p>Students plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account</p>	<p>Students define and decompose real-world problems</p>
Research and Analysis	<p>8.3 Research and Analysis Students collect data from the environment around them and digital resources and evaluate its authenticity, accuracy and timeliness.</p> <p>Students analyse and visualise data using a range of software to create information, and use structured data to model objects or event. They create sub totals of numerical data, filtering and searching within a spreadsheet.</p> <p>Explain how student solutions and existing information systems meet common personal, school or community needs</p>	<p>10.3 Research and Analysis Students analyse simple compression of data. They explain the difference between JPG and PNG compression, Students work with file size and resolution in images when developing on-line graphics.</p> <p>Students analyse and visualise data to create information and address complex problems and model processes, entities and their relationships using structured data.</p> <p>Students develop techniques for gathering, storing, validating and presenting quantitative and qualitative data. For example: when researching a topic in Geography or History.</p>