Whole school curriculum plan: 5–10 overview of Digital Technologies.

Teaching and learning term overview across 5–10

		Term 1	Term 2	Term 3	Term 4
Digital Technologies	**5**	**Introducing Programming** Students use the core features of a symbolic or block-assisted programming environment to design a simple game. They create a game pitch to sell the idea to their class before creating a final user interface and programming code.	**Great Ball Contraption Network Simulator** Students design units for a collaborative Great Ball Contraption, exploring networks and data transmission through large-scale modelling. Students develop and manage a team project that uses the engineering process as the core philosophy.	**Exploring Mechatronics – Robot Racers** Students explore the core aspects to efficient robot design, designing for a purpose, and gathering and using data to justify Students develop and manage a team project that uses the engineering process as the core philosophy.	**Fix the Factory – Exploring Algorithms** Students will build modules for their base robot, with the aim of engineering a solution to each of the Fix the Factory challenges. These are modelled in the iPad app and are built using the Mindstorms EV-3 kits, programmed on the iPad.
	6	**iPad Explorers** Students explore the rise of tablet and touch screen computing, developing an interactive presentation on the evolution of computer technology.	**Robot Sumo** Students design, build, test and program Sumo Robots. They follow the Software Design Cycle using team and teacher feedback to guide development and use competition data to evaluate their solution. Students develop and manage a team project that uses the engineering process as the core philosophy.	**Rolling out the Code** Students develop maze-based solutions using Spheros and tablet-based programming. Multiple algorithms for maze-searching and a range of simple and complex maze-solving programming solutions will be explored and developed, working individually and in teams. Students develop and manage a team project that uses the engineering process as the core philosophy.	**Mathematics Tools** To support their mathematics and science classes, students use a variety of information representation tools to manipulate and filter data.
	7	**Balancing Billions – Exploring the Digital Divide** Students identify community digital deficiencies through data. They acquire, analyse, validate and evaluate the data to identify the key elements that contribute to the digital divide in local, national and international communities. Students develop and manage a team project that considers cultural and geopolitical influences as well as legal requirements as they explore solutions to real-world problems.	**Balancing Billions – Exploring the Digital Divide** Students identify community digital deficiencies through data. They acquire, analyse, validate and evaluate the data to identify the key elements that contribute to the digital divide in local, national and international communities. Students develop and manage a team project that considers cultural and geopolitical influences as well as legal requirements as they explore solutions to real-world problems.	**The Space Challenge – Mission to Mars Robotics Activity** Students will build modules for their base robot, with the aim of engineering a solution to each of the seven mission to Mars challenges. Students develop and manage a team project that uses the engineering process as the core philosophy. They will research the requirements to sustain life in the hostile environment outside the Earth's atmosphere, and will look at case studies in space exploration.	**The Space Challenge – Mission to Mars Robotics Activity** Students will build modules for their base robot, with the aim of engineering a solution to each of the seven mission to Mars challenges. Students develop and manage a team project that uses the engineering process as the core philosophy. They will research the requirements to sustain life in the hostile environment outside the Earth's atmosphere, and will look at case studies in space exploration.

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Digital Technologies	8	**Programming the Web – Exploring HTML5** Students develop an understanding of user centred design, and create user experiences for the World Wide Web. They develop a knowledge of and application for web programming, including accessing structured language elements of HTML, CSS and JavaScript. Student work samples and progress reports are placed into a digital folio for review at the end of the school year.	**Programing the Web 2** Students use their design and development experience to create a web site, using enhanced tools including Photoshop and Flash animation, to explore a science unit in depth. Students develop and manage a project that considers cultural and geopolitical influences as well as legal requirements as they explore solutions to real-world problems.	**Introduction to App Programming** Students will work with a language specific to App creation for Android or IOS devices. They will explore the role of hand held computing in modern society, and look at how they change the way we design and develop computer programs.	**Get Appy – Build an App** Students will explore their local community and their learning environment, identify a need and use their App Design and programming to develop a solution that addresses the need. Students develop and manage a project that uses the Software Development Cycle process as the core philosophy. They will research the requirements to explore their chosen field of application, and will look at case studies.
	9	**Robot Rescue** Students explore remote rescue scenarios, developing a robotic solution that could be used to rescue workers from an inaccessible chemical spill. Student work samples and progress reports are placed into a digital folio for review at the end of the school year.	**Game Programming Shark Tank** Students use their design and development experience to create a web site to pitch a new computer App to potential investors. They will use data to address complex problems, interview and survey potential clients and customers and design the user experience. Students develop and manage a project that considers cultural and geopolitical influences as well as legal requirements as they explore solutions to real-world problems.	**Game Programming Prototype** Students will work with a language specific to Game creation for HTML5. They will explore the role of hand held computing in modern society, and look at how they change the way we design and develop computer programs between web-based systems and other smaller format devices.	**There's an App for That!** Students use algorithms and an object oriented programming language to design and create a responsive web app to solve an identified problem (for example an app to locate the best surfing spots in Queensland). Learning opportunities include examining existing apps, studying agile software development cycles used in real-world projects, and exploring and evaluating solutions and information systems that create information from open data (for example in meteorology, transportation, government).
	10	**Creating Desktop Computer Applications** Students develop an understanding of user centred design, and use an object-oriented programming language to develop a range of small programs, leading towards a whole class project that focusses upon the needs of younger learners, using database systems to store and present information. Student work samples and progress reports are placed into a digital folio for review at the end of the school year.	**Robot Soccer** Students will use a standard platform robotics kit to design, develop, test and evaluate a robot soccer team. They will consider the implementation of team and individual strategies and look at how these can be programmed using a top-down programming methodology.	**Robot Soccer** Students will use a standard platform robotics kit to design, develop, test and evaluate a robot soccer team. They will consider the implementation of team and individual strategies and look at how these can be programmed using a top-down programming methodology.	**The LAN Party Project** Students will explore ways to develop a networked digital system that serves a specific purpose at Iona College. They will collect and analyse data to model processes.

Assessment plan: 5 –10 overview

	Term 1	Term 2	Term 3	Term 4
5	Folio	Folio	Folio	Folio
6	Folio	Folio	Folio	Folio
7	Folio	Multimodal Presentation	Folio	Mission to Mars Folio
8	Folio	Digital Presentation	Folio	Product – App Programming Project
9	Extended Writing - Robotics Project Report	Presentation – Game Programming Pitch	Product – Programming Computer Games	Extended Writing – Report
10	Extended Writing – Programming Folio	Interactive Display	Product – Robotics Programming (Soccer)	Extended Writing – Computer Hardware Systems