St Francis School Digital Technologies Scope and Sequence (F-6)

The Australian Curriculum Digital Technologies subject is organised into the following year bands: F-2, 3-4, 5-6, 7-8, 9-10. The St Francis School Digital Technologies Scope and Sequence document builds on the Digital Technologies Content Descriptors to provide a list of possible skills and knowledge for students at **each year level.** A list of technologies, software and apps is available at the end of the document that can be used to support the teaching of Digital Technologies.

KNOWLEDGE & UNDERSTANDING

Digital Systems

F	1	2	3	4	5	6
Recognise and explore digital systems (hardware and software components) for a purpose			**Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data**		**Examine the main components of common digital systems and how they may connect together to form networks to transmit data**	
Explore digital devices through play Capture simple data using a digital system such as taking a photo with a tablet Recognise that a digital system follows instructions or commands	Explore and use different hardware & software for a purpose such as tablet, apps, inbuilt camera/mic, robotic device Transfer data between hardware/software (save & retrieve) e.g. take a photo and use the photo in a presentation app	Use and select hardware/software for the right purpose Explain basic features of a device/software Explore and use the functions of digital systems like downloading, storing and backing up information	Explain what a peripheral device is and identify peripherals used in the classroom Use peripheral devices to display and capture information Explain key functions of different peripherals and when to use them	Identify and categorise peripherals as input, output and storage devices Explain how peripherals and digital systems are used for a purpose Recognise and use different methods of transferring or transmitting data between devices e.g. cables, USB, email, cloud storage	Identify the basic internal components of a digital device e.g. CPU, RAM, motherboard, fan Investigate how internal and external components of a digital system can work together to handle data	Identify how digital systems can connect to form a network Explain difference between wireless and wired networks Identify main components of a network e.g. router, server, cable, etc. Describe the purpose of a network

Representation of Data

Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002)			**Recognise different types of data and explore how the same data can be represented in different ways (ACTDIK008)**		**Examine how whole numbers are used to represent all data in digital systems (ACTDIK015)**	
Sort and classify familiar objects through play Describe reasons for sorting and classifying in a particular way Explore simple data displays and identify patterns	Experiment with different ways of representing data as patterns, e.g. using materials, sounds, movement, drawings Create simple data displays	Create data displays and interpret the data Explore data patterns in daily life e.g. a web address follows a pattern	Explore representations of same data in different ways Discuss reasons for selecting a particular representation	Recognise data in digital systems can be text, number, images, sounds, symbols Use codes and symbols to represent data Represent same data in different ways	Recognise that digital systems represent all types of data using number codes that ultimately are patterns of 2 numbers Explain that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics Use on/off state to code and decode messages and pictures	Represent whole numbers as binary Represent binary as whole numbers

PROCESS AND PRODUCTION SKILLS

Collecting, managing and analysing

F	1	2	3	4	5	6
Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003)			**Collect, access and present different types of data using simple software to create information and solve problems (ACTDIP009)**		**Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information (ACTDIP016)**	
Collect & sort data through play Collect data using technology e.g. take photos with a tablet, digital device, digital microscope	Collect & sort data into categories with and without technology Locate & use data e.g. find an image in a picture library Identify methods for collecting data Use software to create data displays	Locate & purposefully use appropriate data Create & compare different data displays such as picture graphs Use software to present data creatively Explore & make conclusions based on visual data presentations Explore techniques for improving visual presentation of data	Present data in different formats e.g. graph, table Improve the appearance and usability of data, for example using colour, headings and labelling, and justify choice of techniques used Use technology to record data sets such as a spreadsheet Make conclusions about the data Explore & use online sources to locate data e.g. search engine, map	Select appropriate formats/layout styles to present data depending on the type of data, purpose of the data and audience Use technology to collect and record data sets such an online survey Use software to sort and calculate data when solving problems Make conclusions about data and suggest solutions to problems	Understand data becomes information when it is structured, organised, analysed and interpreted Understand data is quantitative or qualitative Design, collect & interpret data using data collection tools Recognise & use appropriate data types when collecting & storing data e.g. date, numerical Use software to automate calculations on data e.g. use functions in spreadsheets	Use digital systems to validate data such as set date type in a spreadsheet Use software to graph, visually represent and interpret data Analyse data to make statements about its meaning & the information it provides Select and use peripheral devices to acquire, store and interpret data Use visualization software to interpret trends Acquire data from online sources by narrowing the focus e.g. filtering, queries

Investigating/Defining and Generating/Designing

F	1	2	3	4	5	6
Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)			**Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)**		**Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017)** **Design a user interface for a digital system (ACTDIP018)** **Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019)**	
Follow and represent simple step by step procedures Describe a sequence of steps to complete a task such as provide a simple set of instructions to a classmate to follow Enter step by step instructions into a simple programmable device	Follow a sequence of steps in order to complete a task or solve a problem Describe and represent a sequence of steps using text, images, symbols	Follow, describe and present algorithms as sequences of steps and decisions, in a variety of ways Recognise and represent algorithms used in everyday life Sequence or rearrange steps so they are in the correct order	Describe simple problems Describe and follow an algorithm to solve a simple problem Describe using drawings, pictures, text the sequence of steps and decisions in a solution	Experiment with different ways of describing a set of instructions Identify and define simple problems such as what need is associated with the problem, who has the problem and why Represent an algorithm to solve the problem Identify errors in simple algorithms and suggest solutions	Describe the nature of a problem and what a solution needs to solve the problem Explore existing solutions to identify features that are transferable to new but similar digital solutions Investigate common characteristics of user interfaces for particular problems Select and use an appropriate design tool to record the user interface of a solution e.g. using a storyboard, wireframe diagram, flowchart Design and follow algorithms involving sequence, branching and iteration Represent algorithms diagrammatically Identify errors in algorithms that contain branching and suggest possible solutions	Define and decompose a problem to identify user needs, data requirements and functional requirements Apply design principles to a set of requirements in order to produce a user interface for a system that addresses an identified need Generate, discuss and consider alternative designs for a user interface Design, modify (reorganise, improve, resolve errors) and follow algorithms involving sequence, branching and iteration Represent algorithms as a flowchart using different symbols to identify branching, iteration, sequence, input, output

	F	1	2	3	4	5	6
Producing and Implementing				**Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)**		**Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020)**	
				Use a design tool such as a storyboard to plan and record how a digital solution will be developed Design and develop visual programs that include sequence Incorporate user input into digital solutions such as pressing a button, selecting a key or moving the mouse	Explore and experiment ways of providing choices and options (branching) Explore and discuss common elements of standard user interfaces that are familiar and appeal to users Identify purpose and audience for user interface features Design and develop visual programs that include sequence, user input and branching, e.g. allow users to make a choice Test and debug errors in visual programs	Explore and experiment with ways of providing repeated instructions and choices Design and develop visual programs that are more efficient using branching and repetition Trace through visual programs to find bugs (errors) Test, debug and refine visual programs	Plan and implement a refined solution using visual programming that uses repetition, branching and user input Develop documentation that explains and justifies their programming decisions
Evaluating	**Explore how people safely use common information systems to meet information, communication and recreation needs (ACTDIP005)**			**Explain how student solutions and existing information systems meet common personal, school or community needs (ACTDIP012)**		**Explain how student solutions and existing information, systems are sustainable and meet current and future local community needs (ACTDIP021)**	
	Recognise and use safe practices when using technology e.g. secure passwords Recognise and discuss the need for cyber-safety when using online information systems Explain how technology is used by friends and family in everyday life	Recognise and use safe practices when using technology including online (cyber safety) Share and describe how we use technology for recreation and communicating Identify how technology can be used to meet personal needs Explore changes in using technology in everyday life in the past and present	Explore and practice cyber safety principles Explain and demonstrate simple practices for keeping personal details safe e.g. password Identify safe ergonomic practices when using technology	Explain how solutions meet personal and school needs Reflect on how own digital solution meets a need Test and explore existing systems and consider how they could be used Recognise and use safe practices when using technology e.g. secure passwords, cyber safety.	Explain how solutions meet community needs Test and evaluate peer developed digital solution and provide feedback	Assess and evaluate digital solutions against criteria and user needs Explore and compare past, present and future information systems in terms of economic, environmental and social suitability	Justify why solution does/does not meet criteria or needs Explore ethical practices and how they impact on use of technology such as internet censorship, freedom of information, digital footprint, cyber safety. Consider opportunities and consequences of future digital systems

Collaborating and Managing

F	1	2	3	4	5	6
Create and organise ideas and information using information systems independently and with others, and share these with known people in safe online environments (ACTDIP006)			**Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)**		**Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social, and technical protocols (ACTDIP022)**	
Share a product developed using digital technologies (e.g. text, poster)	Jointly plan and create a digital product to share	Participate in safe online environments Share ideas and information online with people they know Use safe search tools to locate information	Explain appropriate digital citizenship behaviours Use digital citizenship rules and behaviours for participating in an online environment Recognise appropriate and inappropriate online behaviour Contribute to group collaboration and acknowledge the work of others	Use a range of online tools to share and collaborate with others Document group ideas and decisions Understand that information can be viewed and responded to at different times (i.e. synchronous vs asynchronous)	Collaboratively develop and use rules for appropriate conduct, language and content when communicating online Apply safe practices when participating online e.g. privacy settings, sharing personal details Understand school filtering/privacy settings/policies and why they are required	Use appropriate referencing techniques e.g. creative commons Apply project management practices when working collaboratively such as group member roles, group norms, milestones and deadline

TECHNOLOGY/SOFTWARE

F	1	2	3	4	5	6
Abc Art Maker Bee-Bots Book Creator Bug Club ChatterPix Kids Counting Board Digital Camera Do Ink Epic Friends of 10 Google Earth Google Maps Green screen Osmo Hectors World iMotion iMovie Jolly Phonics Magnetic ABC Mathletics Popplet PowerPoint Publisher Puppet Pals Reading Doctor Sand draw Scratch Jr Seesaw	Shadow Puppet ShowMe Sphero Tablet Teaching Graphs Word		Bee-Bots Digital Camera Book Creator ChatterPix Kids Code.org Do Ink Epic eSafety Resources safety commissioner Excel Google Earth Google Maps Graphs Green Screen Hectors World Hour of Code iCloud iMotion iMovie Lego WeDo Life Stages Makey Makey Probots Mathletics OneDrive Osmo Outlook	Popplet PowerPoint Publisher Puppet Pals Reading Doctor Scratch Scratch Jr Seesaw Shadow Puppet ShowMe Solar Walk Solar System Sphero Weather Puzzle Word Online	Australia Votes Bee-Bots Book Creator Canva ChatterPix Kids Code.org Chromo Cybersmart Dash and Dot Decibel measurer Democracy Sausage Digital Camera Do Ink Epic eSafety Resources safety commissioner Excel Gapminder Geology Google Earth Google Maps GPS Green Screen Grok Learning Hectors World Hour of Code Hydronation iCloud	iMotion iMovie Lego Mindstorm Lego WeDo Makey Makey Probots Mathletics OneDrive OneNote Osmo Outlook Play Theatre Pompeii Popplet PowerPoint Pscope Publisher Pureflow flowcharts Scratch Seesaw Shadow Puppet ShowMe Sphero Sway Teaching Graphs Video Maker Video Star Virtual Testament Word Yammer