Bethania Lutheran School

Curriculum Guidelines – Coding & Robotics

Digital Technologies

Prep to Year 2 Achievement Standard

By the end of Year 2, students identify how common digital systems (hardware and software) are used to meet specific purposes. They use digital systems to represent simple patterns in data in different ways.

Students design solutions to simple problems using a sequence of steps and decisions. They collect familiar data and display them to convey meaning. They create and organise ideas and information using information systems, and share information in safe online environments.

	Prep – Year 2 Content Descriptions	General Capabilities
Knowledge & Understanding	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001)	• Information and Communication Technology (ICT) • Critical and Creative Thinking
	Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
Processes & Production Skills	Collect, explore and sort data, and use digital systems to present the data creatively (ACTDIP003)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking

	Explore how people safely use common information systems to meet information, communication and recreation needs (ACTDIP005)	• Information and Communication Technology (ICT) • Critical and Creative Thinking
	Create and organise ideas and information using information systems independently and with others, and share these with known people in safe online environments (ACTDIP006)	• Information and Communication Technology (ICT) • Critical and Creative Thinking • Personal and Social Capability

Years 3 and 4 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.

	Years 3 and 4 Content Descriptions	General Capabilities
Knowledge & Understanding	Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (ACTDIK007)	• Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Recognise different types of data and explore how the same data can be represented in different ways (ACTDIK008)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking

Processes & Production Skills	Collect, access and present different types of data using simple software to create information and solve problems (ACTDIP009)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)	• Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Explain how student solutions and existing information systems meet common personal, school or community needs (ACTDIP012)	• Literacy • Information and Communication Technology (ICT) • Critical and Creative Thinking • Personal and Social Capability
	Plan, create and communicate ideas and information independently and with others, applying agreed ethical and social protocols (ACTDIP013)	• Literacy • Information and Communication Technology (ICT) • Ethical Understanding • Personal and Social Capability

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Years 5 and 6 Achievement Standard

By the end of Year 6, students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks. They explain how digital systems use whole numbers as a basis for representing a variety of data types.

Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. They incorporate decision-making, repetition and user interface design into their designs and implement their digital solutions, including a visual program. They explain how information systems and their solutions meet needs and consider sustainability. Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols.

	Years 5 and 6 Content Descriptions	General Capabilities
Knowledge & Understanding	Examine the main components of common digital systems and how they may connect together to form networks to transmit data (ACTDIK014)	• Literacy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Examine how whole numbers are used to represent all data in digital systems (ACTDIK015)	• Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
Processes & Production Skills	Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information (ACTDIP016)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking

	Design a user interface for a digital system (ACTDIP018)	• Information and Communication Technology (ICT) • Critical and Creative Thinking
	Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019)	• Literacy • Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020)	• Numeracy • Information and Communication Technology (ICT) • Critical and Creative Thinking
	Explain how student solutions and existing information systems are sustainable and meet current and future local community needs (ACTDIP021)	• Literacy • Information and Communication Technology (ICT) • Critical and Creative Thinking • Personal and Social Capability • Ethical Understanding
	Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols (ACTDIP022)	• Literacy • Information and Communication Technology (ICT) • Personal and Social Capability • Ethical Understanding

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Scope and Sequence

Term 1	Prep	Year 1	Year 2
Unit Focus	Coding with Scratch Jnr	Coding with Kodable -Sequences; Intro to Conditions and Loops	Coding with Kodable (Sequences; Intro to Conditions, Loops and Functions)
Content Descriptions	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (ACTDIK002) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)

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Term 1	Year 3	Year 4
Unit Focus	Coding with code.org (Sequences, Loops)	Coding with code.org (Sequences, Loops)
Content Descriptions	Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (ACTDIK007) Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)	Identify and explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (ACTDIK007) Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010)

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Term 1	Year 5	Year 6
Unit Focus	Coding with Code Monkey	Coding with Code Monkey
Content Descriptions	Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019)	Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019)

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Term 2	Prep	Year 1	Year 2
Unit Focus	Coding & Robotics: Story Telling with Scratch Junior	Coding & Robotics Storytelling with Dot, Dash & Scratch Jr	Coding & Robotics Dot & Dash Show
Content Descriptions	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)

strong in values
strength in character
living hope

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Term 2	Year 3	Year 4
Unit Focus	Dot & Dash Show Go, Blockly & Path App Dot & Dash robots	Dot & Dash Show Go, Blockly & Path App Dot & Dash robots
Content Descriptions	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them(ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input(ACTDIP011)	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them(ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input(ACTDIP011)

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Term 2	Year 5	Year 6
Unit Focus	Robotics with Sphero SPRK+	Robotics with Sphero SPRK+
Content Descriptions	Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020)	Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020)

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Term 3	Prep	Year 1	Year 2
Unit Focus	Intro to Dash	Kodable; Dot & Dash	Dot & Dash; Blue Bots
Content Descriptions	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)

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Term 3	Year 3	Year 4
Unit Focus	Go, Blockly & Path App Dot & Dash robots	Go, Blockly & Path App Dot & Dash robots
Content Descriptions	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them(ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input(ACTDIP011)	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them(ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input(ACTDIP011)

strong in **values**
strength in **character** living hope

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Term 3	Year 5	Year 6
Unit Focus	Problem solving with sequential algorithms	Problem solving with sequential algorithms
Content Descriptions	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)

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Term 4	Prep	Year 1	Year 2
Unit Focus	Blue Bots, Scratch Jr	Blue Bots, Dot & Dash, Scratch Jr	Blue Bots, Dot & Dash
Content Descriptions	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)	Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001) Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems(ACTDIP004)

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Term 4	Year 3	Year 4
Unit Focus	Go, Blockly & Path App Dot & Dash robots	Go, Blockly & Path App Dot & Dash robots
Content Descriptions	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them(ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input(ACTDIP011)	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them(ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input(ACTDIP011)

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Term 4	Year 5	Year 6
Unit Focus	Problem solving with sequential algorithms	Problem solving with sequential algorithms
Content Descriptions	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)	Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them (ACTDIP010) Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and user input (ACTDIP011)