FOREST LEARNING

SHE MAPS

DRONES IN FORESTRY

CURRICULUM MAPPING

Years 5–6

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All units of work designed and created by She Maps are linked to the Australian Curriculum across multiple learning areas both inside and outside the STEM-identified subjects.

By using these programs you help to equip your students with the necessary STEM skills and knowledge that will enable them to engage with the careers of the future.

Working in collaboration with schools we set out to achieve the five strategies of action outlined in the Australian STEM education strategy.

This includes:

1. Increasing student STEM ability, engagement, participation, and aspiration
2. Increasing teacher capability and STEM teaching quality
3. Supporting STEM education opportunities within school systems
4. Facilitating effective partnerships with tertiary education providers, business and industry
5. Building a strong evidence base.

TECHNOLOGIES AND HASS (GEOGRAPHY) UNIT

Digital Systems For Sustainable Forestry

Students will learn the ways digital systems assist forestry workers to manage the forest environments that provide sustainable resources for society. They will then focus on using drones to solve a simulated forestry problem.

By completing all modules in this unit, students will:

1. research the ways Australian forests were managed in the past
2. research the ways digital systems assist Australian forestry workers to manage the forest environments that provide sustainable resources for society
3. conduct a case study of a forestry worker and create a biography to explain how she uses digital systems to assist in her work
4. work collaboratively to define, design and implement a flight path for a drone in a simulated forest environment
5. work collaboratively to define, design and implement a visually programmed drone app
6. share apps with an authentic audience.

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YEARS 5 - 6

YEARS 5 AND 6 DIGITAL TECHNOLOGIES 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.

CONTENT DESCRIPTIONS		YEAR 5	YEAR 6
Digital Technologies – Knowledge and understanding	Examine the main components of common digital systems and how they may connect together to form networks to transmit data	ACTDIK014	
Digital Technologies – Process and 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	
	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	
	Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input	ACTDIP020	
	Explain how student solutions and existing information systems are sustainable and meet current and future local community needs	ACTDIP021	
	Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols	ACTDIP022	

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YEARS 5 AND 6 DESIGN AND TECHNOLOGIES ACHIEVEMENT STANDARD

By the end of Year 6, ***students describe competing considerations in the design of products, services and environments, taking into account sustainability. They describe how design and technologies contribute to meeting present and future needs. Students explain how the features of technologies impact on designed solutions*** for each of the prescribed technologies contexts.

Students create designed solutions for each of the prescribed technologies contexts suitable for identified needs or opportunities. They suggest criteria for success, including sustainability considerations, and use these to evaluate their ideas and designed solutions. They combine design ideas and communicate these to audiences using graphical representation techniques and technical terms. Students record project plans including production processes. They select and use appropriate technologies and techniques correctly and safely to produce designed solutions.

CONTENT DESCRIPTIONS		YEAR 5	YEAR 6
Design and Technologies – Knowledge and understanding	Examine how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use	ACTDEK019	
	Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy	ACTDEK021	
	Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use	ACTDEK023	

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YEAR 5 HASS ACHIEVEMENT STANDARD

By the end of Year 5, ***students describe the significance of people and*** events/***developments in bringing about change***. ***They*** identify the causes and effects of change on particular communities and ***describe aspects of the past that have remained the same***. ***They describe the experiences of different people in the past.*** Students explain the characteristics of places in different locations at local to national scales. ***They identify and describe the interconnections*** between people and the human and environmental characteristics of places, and ***between components of environments***. ***They identify the effects of these interconnections on the characteristics of*** places and ***environments.*** Students identify the importance of values and processes to Australia's democracy and describe the roles of different people in Australia's legal system. They recognise that choices need to be made when allocating resources. They describe factors that influence their choices as consumers and identify strategies that can be used to inform these choices. They describe different views on how to respond to an issue or challenge.

Students develop questions for an investigation. They locate and collect data and information from a range of sources to answer inquiry questions. They examine sources to determine their purpose and to identify different viewpoints. ***They interpret data to identify and describe*** distributions, ***simple patterns and trends,*** and to infer relationships, and suggest conclusions based on evidence. ***Students sequence information about events, the lives of individuals and selected phenomena in chronological order using timelines***. ***They sort, record and represent data in different formats, including large-scale and small-scale maps, using basic conventions.*** They work with others to generate alternative responses to an issue or challenge and reflect on their learning to independently propose action, describing the possible effects of their proposed action. ***They present their*** ideas***, findings*** and conclusions ***in a range of communication forms using discipline-specific terms and appropriate conventions.***

YEAR 6 HASS ACHIEVEMENT STANDARD

By the end of Year 6, students explain the significance of an event/development, an individual and/or group. ***They identify and describe continuities and changes for different groups in the past and present. They describe the causes and effects of change on society. They compare the experiences of different people in the past.*** Students describe, compare and explain the diverse characteristics of different places in different locations from local to global scales. ***They describe how*** people, places, communities and ***environments are diverse and*** globally ***interconnected and identify the effects of these interconnections over time.*** Students explain the importance of people, institutions, and processes to Australia's democracy and legal system. They describe the rights and responsibilities of Australian citizens and the obligations they may have as global citizens. Students recognise why choices about the allocation of resources involve trade-offs. They explain why it is important to be informed when making consumer and financial decisions. They identify the purpose of business and recognise the different ways that businesses choose to provide goods and services. They explain different views on how to respond to an issue or challenge.

Students develop appropriate questions to frame an investigation. They locate and collect useful data and information from primary and secondary sources. They examine sources to determine their origin and purpose and to identify different perspectives in the past and present. ***They interpret data to identify, describe and compare*** distributions***, patterns and trends,*** and to infer relationships, and evaluate evidence to draw conclusions. ***Students sequence information about events, the lives of individuals and selected phenomena in chronological order and represent time by creating timelines. They organise and represent data in a range of formats, including large- and small-scale maps, using appropriate conventions.*** They collaboratively generate alternative responses to an issue, use criteria to make decisions and identify the advantages and disadvantages of preferring one decision over others. They reflect on their learning to propose action in response to an issue or challenge and describe the probable effects of their proposal. ***They present*** ideas, ***findings,*** viewpoints and conclusions ***in a range of communication forms that incorporate source materials, mapping, graphing, communication conventions and discipline-specific terms.***

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CONTENT DESCRIPTIONS		YEAR 5	YEAR 6
HASS – Inquiry and Skills	Develop appropriate questions to guide an inquiry about people, events, developments, places, systems and challenges	ACHASSI094	ACHASSI122
	Locate and collect relevant information and data from primary sources and secondary sources	ACHASSI095	ACHASSI123
	Interpret data and information displayed in a range of formats to identify, describe and compare distributions, patterns and trends, and to infer relationships	ACHASSI100	ACHASSI128
	Work in groups to generate responses to issues and challenges	ACHASSI102	ACHASSI130
HASS (History) – Knowledge and Understanding	The impact of a significant development or event on an Australian colony	ACHASSK108	
	The contribution of individuals and groups to the development of Australian society since Federation		ACHASSK137
HASS (Geography) – Knowledge and Understanding	The environmental and human influences on the location and characteristics of a place and the management of spaces within them	ACHASSK113	

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YEAR 5 MATHEMATICS ACHIEVEMENT STANDARD

By the end of Year 5, students solve simple problems involving the four operations using a range of strategies. They check the reasonableness of answers using estimation and rounding. Students identify and describe factors and multiples. They identify and explain strategies for finding unknown quantities in number sentences involving the four operations. They explain plans for simple budgets. Students connect three-dimensional objects with their two-dimensional representations. They describe transformations of two-dimensional shapes and identify line and rotational symmetry. ***Students interpret different data sets.*** Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator.

Students continue patterns by adding and subtracting fractions and decimals**.** They use appropriate units of measurement for length, area, volume, capacity and mass, and calculate perimeter and area of rectangles. They convert between 12- and 24-hour time. Students use a grid reference system to locate landmarks. ***They measure and construct different angles.*** Students list outcomes of chance experiments with equally likely outcomes and assign probabilities between 0 and 1. ***Students pose questions to gather data, and construct data displays appropriate for the data.***

YEAR 6 MATHEMATICS ACHIEVEMENT STANDARD

By the end of Year 6, students recognise the properties of prime, composite, square and triangular numbers. They describe the use of integers in everyday contexts. They solve problems involving all four operations with whole numbers. Students connect fractions, decimals and percentages as different representations of the same number. They solve problems involving the addition and subtraction of related fractions. Students make connections between the powers of 10 and the multiplication and division of decimals. They describe rules used in sequences involving whole numbers, fractions and decimals. Students connect decimal representations to the metric system and choose appropriate units of measurement to perform a calculation. They make connections between capacity and volume. They solve problems involving length and area. They interpret timetables.

Students describe combinations of transformations. ***They solve problems using the properties of angles.*** Students compare observed and expected frequencies. They interpret and compare a variety of data displays including those displays for two categorical variables. ***They interpret secondary data displayed in the media.*** Students locate fractions and integers on a number line. They calculate a simple fraction of a quantity. They add, subtract and multiply decimals and divide decimals where the result is rational. Students calculate common percentage discounts on sale items. They write correct number sentences using brackets and order of operations. Students locate an ordered pair in any one of the four quadrants on the Cartesian plane. They construct simple prisms and pyramids. Students describe probabilities using simple fractions, decimals and percentages.

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CONTENT DESCRIPTIONS		YEAR 5	YEAR 6
Mathematics – Measurement and Geometry	Estimate, measure and compare angles using degrees. Construct angles using a protractor	ACMMG112	
	Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles		ACMMG141
Mathematics – Statistics and Probability	Pose questions and collect categorical or numerical data by observation or survey	ACMSP118	
	Describe and interpret different data sets in context	ACMSP120	
	Interpret secondary data presented in digital media and elsewhere		ACMSP148

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