AVISTA Challenge – Curriculum Links

Contents

Australian Curriculum – Science Years 7-10 (v9.0)

Years	Content Outcomes
7	• Earth and space sciences AC9S7U03: model cyclic changes in the relative positions of the Earth, sun and moon and explain how these cycles cause eclipses and influence predictable phenomena on Earth, including seasons and tides • Physical sciences AC9S7U04: investigate and represent balanced and unbalanced forces, including gravitational force, acting on objects, and relate changes in an object's motion to its mass and the magnitude and direction of forces acting on it. • Planning and conducting AC9S7I03: select and use equipment to generate and record data with precision, using digital tools as appropriate • Processing, modelling and analysing AC9S7I04: select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information • AC9S7I05: analyse data and information to describe patterns, trends and relationships and identify anomalies • Evaluating AC9S7I06: for assumptions, possible sources of error, conflicting evidence and unanswered questions • Evaluating AC9S7I07: construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information • Communicating AC9S7I08: write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate.
8	• Earth and space sciences AC9S8U04: describe the key processes of the rock cycle, including the timescales over which they occur, and examine how the properties of sedimentary, igneous and metamorphic rocks reflect their formation and influence their use. • Physical sciences AC9S8U05: classify different types of energy as kinetic or potential and investigate energy transfer and transformations in simple systems • Nature and development of science AC9S8H01: explain how new evidence or different perspectives can lead to changes in scientific knowledge • Questioning and predicting AC9S8I01: develop investigable questions, reasoned predictions and hypotheses to explore scientific models, identify patterns and test relationships • Planning and conducting AC9S8I03: select and use equipment to generate and record data with precision, using digital tools as appropriate

	• Processing, modelling and analysing AC9S8I04: select and construct appropriate representations, including tables, graphs, models and mathematical relationships, to organise and process data and information • Processing, modelling and analysing AC9S8I05: analyse data and information to describe patterns, trends and relationships and identify anomalies • Evaluating AC9S8I06: analyse methods, conclusions and claims for assumptions, possible sources of error, conflicting evidence and unanswered questions • Evaluating AC9S8I07: construct evidence-based arguments to support conclusions or evaluate claims and consider any ethical issues and cultural protocols associated with using or citing secondary data or information • Communicating AC9S8I08: write and create texts to communicate ideas, findings and arguments for specific purposes and audiences, including selection of appropriate language and text features, using digital tools as appropriate.
9	• Biological sciences AC9S9U01: compare the role of body systems in regulating and coordinating the body's response to a stimulus, and describe the operation of a negative feedback mechanism • Earth and space sciences AC9S9U04: use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena • Physical sciences AC9S9U04: use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena • Physical sciences AC9S9U05: apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations • Nature and development of science AC9S9H02: investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering • Questioning and predicting AC9S9I01: develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models • Planning and conducting AC9S9I03: select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate • Processing, modelling and analysing AC9S9I04: select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information • Processing, modelling and analysing AC9S9I05: analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies

	• Evaluating AC9S9I06: assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty • Evaluating AC9S9I07: construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information • Communicating AC9S9I08: write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate.
10	• Physical sciences AC9S10U05: investigate Newton's laws of motion and quantitatively analyse the relationship between force, mass and acceleration of objects • Nature and development of science AC9S10H02: investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering • Planning and conducting AC9S10I03: select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate • Processing, modelling and analysing AC9S10I04: select and construct appropriate representations, including table, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information • Processing, modelling and analysing AC9S10I05: analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies • Evaluating AC9S10I06: assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty • Evaluating AC9S10I07: construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information • Communicating AC9S10I08: write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate

Australian Curriculum – Digital Technologies 7-10

Years	Content Outcomes
7 & 8	• Digital systems AC9TDI8K02: investigate how data is transmitted and secured in wired and wireless networks including the internet • Acquiring, managing and analysing data AC9TDI8P01: acquire, store and validate data from a range of sources using software, including spreadsheets and databases • Acquiring, managing and analysing data AC9TDI8P02: analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends • Acquiring, managing and analysing data AC9TDI8P03: model and query the attributes of objects and events using structured data • Generating and designing AC9TDI8P08: generate, modify, communicate and evaluate alternative designs • Evaluating AC9TDI8P10: evaluate existing and student solutions against the design criteria, user stories and possible future impact • Collaborating and managing AC9TDI8P11: select and use a range of digital tools efficiently, including unfamiliar features, to create, locate and communicate content, consistently applying common conventions • Collaborating and managing AC9TDI8P12: select and use a range of digital tools efficiently and responsibly to share content online, and plan and manage individual and collaborative agile projects • Privacy and security AC9TDI8P13: explain how multi-factor authentication protects an account when the password is compromised and identify phishing and other cyber security threats • Privacy and security AC9TDI8P14: investigate and manage the digital footprint existing systems and student solutions collect, and assess if the data is essential to their purpose
9 & 10	• Digital systems AC9TDI10K01: investigate how hardware and software manage, control and secure access to data in networked digital systems • Acquiring, managing and analysing data AC9TDI10P01: develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases • Acquiring, managing and analysing data AC9TDI10P02: analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers

	• Acquiring, managing and analysing data AC9TDI10P03: model and query entities and their relationships using structured data • Generating and designing AC9TDI10P08: generate, modify, communicate and critically evaluate alternative designs • Evaluating AC9TDI10P10: evaluate existing and student solutions against the design criteria, user stories, possible future impact and opportunities for enterprise • Collaborating and managing AC9TDI10P11: select and use emerging digital tools and advanced features to create and communicate interactive content for a diverse audience • Collaborating and managing AC9TDI10P12: use simple project management tools to plan and manage individual and collaborative agile projects, accounting for risks and responsibilities • Privacy and security AC9TDI10P13: develop cyber security threat models, and explore a software, user or software supply chain vulnerability • Privacy and security AC9TDI10P14: apply the Australian Privacy Principles to critique and manage the digital footprint that existing systems and student solutions collect

Australian Curriculum – Design and Technologies 7-10

Years	Content Outcomes
7 & 8	• Engineering principles and systems AC9TDE8K03: analyse how force, motion and energy are used to manipulate and control engineered systems • Materials and technologies specialisations AC9TDE8K06: analyse how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions • Investigating and defining AC9TDE8P01: analyse needs or opportunities for designing, and investigate and select materials, components, tools, equipment and processes to create designed solutions • Generating and designing AC9TDE8P02*:* generate, test, iterate and communicate design ideas, processes and solutions using technical terms and graphical representation techniques, including using digital tools
9 & 10	• Engineering principles and systems AC9TDE10K03: analyse and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to control engineered systems • Materials and technologies specialisations AC9TDE10K06: analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions • Investigating and defining AC9TDE10P01: analyse needs or opportunities for designing; develop design briefs; and investigate, analyse and select materials, systems, components, tools and equipment to create designed solutions • Generating and designing AC9TDE10P02: apply innovation and enterprise skills to generate, test, iterate and communicate design ideas, processes and solutions, including using digital tools.

Australian Curriculum – Mathematics 7-10

Years	Content Outcomes
7	• Number AC9M7N01: solve problems involving addition and subtraction of fractions using the concept of equivalence • Number AC9M7N05: solve problems involving addition and subtraction of integers • Algebra AC9M7A01: create algebraic expressions using constants, variables, operations and brackets; interpret and evaluate the expressions for given values • Measurement AC9M7M01: use formulas to calculate the area of triangles and parallelograms, and solve related problems • Space AC9M7SP01: establish the formulas for volumes of rectangular and triangular prisms and prisms with other uniform cross-sections and use these and other established formulas to solve problems involving volume • Space AC9M7SP03: draw different views of 3-dimensional objects on the Cartesian plane • Statistics AC9M7ST01: construct and compare a range of data displays, including stem-and-leaf plots, dot plots and histograms; describe and compare the distribution of data, focusing on the shape and centre; and analyse and report on the distribution
8	• Number AC9M8N01: solve problems involving the four operations with integers and with rational numbers and explore the use of the associative, commutative and distributive laws • Algebra AC9M8A04: solve linear equations using algebraic and graphical techniques; verify solutions by substitution • Measurement AC9M8M01: establish the relationship between features of circles such as circumference, area, radius and diameter, using formulas to solve problems • Space AC9M8SP02: establish the congruence of triangles and apply this to determine properties of 2-dimensional shapes • Statistics AC9M8ST01: investigate techniques for collecting data, including census, sampling and observation and how these relate to the research question and type of data being collected • Probability AC9M8P01: describe and identify complementary events and use the sum of probabilities to solve problems
9	• Number AC9M9N01: express the magnitude of numbers using scientific notation, with whole-number and decimal fractional indices, and use this to solve problems • Algebra AC9M9A03: solve problems involving linear equations, including those derived from formulas and those involving algebraic fractions

	• Measurement AC9M9M01: solve problems involving the surface area and volume of right prisms and cylinders • Space AC9M9SP01: solve problems using the sine, cosine and tangent ratios for right-angled triangles • Statistics AC9M9ST01: analyse and compare univariate data sets for continuous variables using box plots and other displays or visualisations; discuss the shapes of distributions and differences between the displays • Probability AC9M9P01: calculate relative frequencies and probabilities from two-way tables and tree diagrams
10	• Measurement AC9M10M01: solve problems involving surface area and volume for a range of prisms, cylinders, spheres and composite shapes • Space AC9M10SP01: establish the sine rule and cosine rule and use to find unknown sides and angles of triangles and solve practical problems • Statistics AC9M10ST01: calculate and interpret the mean, median, mode, range and standard deviation of data and use these to compare data sets; interpret quantitative and qualitative data and relationships from a variety of sources • Probability AC9M10P01: use the language of 'if ... then', 'given', 'of', 'knowing that' to investigate conditional statements and identify common mistakes in interpreting conditional statements

Australian Curriculum – English 7-10

Years	Content Outcomes
7	• Creating texts AC9E7LY04: create written and multimodal imaginative, informative and persuasive texts with increasing authority, selecting text structures, language features, images and sound to present content and ideas for specific audiences and purposes • Creating texts AC9E7LY05: create and edit texts that integrate visual, print and/or audio features to present information and ideas • Literacy AC9E7LE03: plan, research, draft, edit and refine texts, applying a clear process suitable to mode, including texts that integrate visual, print and/or audio features
8	• Creating texts AC9E8LY04: create written and multimodal imaginative, informative and persuasive texts, experimenting with text structures, language features, images and sound for specific audiences and purposes • Creating texts AC9E8LY05: create and edit texts that integrate visual, print and audio features for specific audience and purpose • Literacy AC9E8LE03: plan, research, draft, edit and refine texts, applying a clear process suitable to mode, including texts that integrate print, visual and/or audio elements
9	• Creating texts AC9E9LY04: create written and multimodal imaginative, informative and persuasive texts that shape or challenge perspectives of an issue, concept or topic, selecting text structures, language features, images and sound for specific audiences and purposes • Creating texts AC9E9LY05: create and edit texts that integrate appropriate visual, print and/or audio features to present complex ideas and information • Literacy AC9E9LE03: plan, research, edit and refine texts, applying a process appropriate to a range of modes including texts that integrate print, visual and audio elements
10	• Creating texts AC9E10LY04: create sustained written and multimodal imaginative, informative and persuasive texts that introduce diverse viewpoints and perspectives, evaluating a range of interpretations of an issue, concept or topic • Creating texts AC9E10LY05: create and edit sustained texts that integrate appropriate visual, print and/or audio features to present complex ideas and information • Literacy AC9E10LE01: access, synthesise and evaluate information from a range of sources, including digital media, to explore issues and support different perspectives • Literacy AC9E10LE03: plan, research, edit and refine sustained texts, including texts that integrate print, visual and audio elements, for a diverse range of purposes and audiences

Australian Curriculum – Media Arts 7-10

Years	Content Outcomes
7 & 8	• **Developing skills and techniques** AC9AMA8E01: experiment with media conventions and technologies to present ideas and viewpoints • **Creating** AC9AMA8P01: plan, produce and distribute media artworks that communicate meaning and viewpoints using genre-specific production processes • **Creating** AC9AMA8P02: manipulate media conventions, languages and technologies to create and refine media artworks that engage specific audiences
9 & 10	• **Developing skills and techniques** AC9AMA10E01: manipulate media conventions, genres, forms and technologies to create media artworks that communicate intended meaning • **Creating** AC9AMA10P01: plan, produce and distribute media artworks using genre-specific production processes, creative and technical skills, and a range of viewpoints • **Creating** AC9AMA10P02: refine and modify media artworks using feedback, content, genre-specific processes, technologies and a deepening understanding of media languages

NSW Science Syllabus Stage 4 & 5

Years	Content Outcomes
7 & 8	• Working scientifically Questioning and predicting SC4-WS-02: identifies questions and makes predictions to guide scientific investigations • Working scientifically Planning investigations SC4-WS-03: plans safe and valid investigations • Working scientifically Conducting investigations SC4-WS-04: follows a planned procedure to undertake safe and valid investigations • Working scientifically Processing data and information SC4-WS-05: uses a variety of ways to process and represent data • Working scientifically Analysing data and information SC4-WS-06: uses data to identify trends, patterns and relationships, and draw conclusions • Working scientifically Problem-solving SC4-WS-07: identifies problem-solving strategies and proposes solutions • Working scientifically Communicating SC4-WS-08: communicates scientific concepts and ideas using a range of communication forms • SC4-DA1-01explains how data is used by scientists to model & predict scientific phenomena
9 & 10	• Working scientifically Questioning and predicting SC5-WS-02: develops questions and hypotheses for scientific investigation • Working scientifically Planning investigations SC5-WS-03: designs safe, ethical, valid and reliable investigations • Working scientifically Conducting investigations SC5-WS-04: follows a planned procedure to undertake safe, ethical, valid and reliable investigations • Working scientifically Processing data and information SC5-WS-05: selects and uses a range of tools to process and represent data • Working scientifically Analysing data and information SC5-WS-06: analyses data from investigations to identify trends, patterns and relationships, and draws conclusions • Working scientifically Problem-solving SC5-WS-07: selects suitable problem-solving strategies and evaluates proposed solutions to identified problems • Working scientifically Communicating SC5-WS-08: communicates scientific arguments with evidence using scientific language & terminology in range of communication forms • SC5-DA2-01 assesses the use of scientific knowledge and data in evidence-based decisions and when verifying the legitimacy of claims

NSW Design and Technology Syllabus Stage 4 & 5

Years	Content Outcomes
7 & 8	• DT4-4 describes the work and responsibilities of designers and the factors affecting their work • DT4-5 describes designed solutions that consider preferred futures, the principles of appropriate technology, and ethical and responsible design • DT4-6 identifies creative, innovative, and enterprising design ideas and solutions • DT4-7 communicates design ideas and solutions using a range of techniques • DT4-9 applies risk management practices and works safely in developing quality design solutions • DT4-10 uses a range of technologies appropriately and safely in the development of quality design solutions
9 & 10	• DT5-4 analyses the work and responsibilities of designers and the factors affecting their work • DT5-5 evaluates designed solutions that consider preferred futures, the principles of appropriate technology, and ethical and responsible design • DT5-6 develops and evaluates creative, innovative and enterprising design ideas and solutions • DT5-7 uses appropriate techniques when communicating design ideas and solutions to a range of audiences • DT5-9 applies risk management practices and works safely in developing quality design solutions • DT5-10 selects and uses a range of technologies competently in the development and management of quality design solutions

NSW Technology Years 7 and 8 Syllabus

Years	Content Outcomes
7 & 8	• TE4-1DP designs, communicates and evaluates innovative ideas and creative solutions to authentic problems or opportunities • TE4-2DP plans and manages the production of designed solutions • TE4-3DP selects and safely applies a broad range of tools, materials and processes in the production of quality projects • TE4-9MA investigates how the characteristics and properties of tools, materials and processes affect their use in designed solutions

Victorian Curriculum Science Levels 7-10

Years	Content Outcomes
7 & 8	• Questioning and Predicting VCSIS107: Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge • Planning and Conducting VCSIS108: Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed • Planning and Conducting VCSIS109: In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task • Analysing and Evaluating VCSIS111: Use scientific knowledge and findings from investigations to identify relationships, evaluate claims and draw conclusions • VCSIS112: Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of data collected & identify improvements to method • Communicating VCSIS113: Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations
9 & 10	• Questioning and Predicting VCSIS134: Formulate questions or hypotheses that can be investigated scientifically, including identification of independent, dependent and controlled variables • Planning and Conducting VCSIS135: Independently plan, select & use appropriate investigation types, including fieldwork & laboratory experimentation, to collect reliable data, assess risk and address ethical issues associated with these investigation types • Planning and Conducting VCSIS136: Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability • Analysing and Evaluating VCSIS138: Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence • Analysing and Evaluating VCSIS139: Use knowledge of scientific concepts to evaluate investigation conclusions, including assessing the approaches used to solve problems, critically analysing the validity of information obtained from primary and secondary sources, suggesting possible alternative explanations and describing specific ways to improve the quality of data • Communicating VCSIS140: Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Victorian Curriculum Design and Technologies Levels 7-10

Years	Content Outcomes
7 & 8	• Engineering Principles and Systems VC2TDE8C01: analyse how force, motion and energy are used to manipulate and control engineered systems that are ethical • Invesitgating and Defining VC2TDE8D01: explain needs or opportunities for designing, and investigate and select tools, materials, processes and components to create designed solutions • Generating and Designing VC2TDE8D02: generate, test, iterate and communicate design ideas, processes and solutions using technical terms and graphical representation techniques and appropriate attributions, using manual and digital tools • Producing and Implementing VC2TDE8D03: select, justify and use suitable tools, materials, processes and components to safely make designed solutions • Planning and Managing VC2TDE8D05: develop project plans to individually, collaboratively and in teams manage time, cost and production of designed solutions
9 & 10	• Engineering Principles and Systems VC2TDE10C0: analyse and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to control engineered systems that are ethical • Investigating and defining VC2TDE10D01: analyse needs or opportunities for designing; develop design briefs; and investigate, analyse and select materials, systems, components and tools to create designed solutions • Generating and Designing VC2TDE10D02: apply innovation and enterprise skills to generate, test, iterate and communicate design ideas, processes and solutions, using technical terms and graphical representation techniques and appropriate attributions using manual and digital tools • Producing and Implementing VC2TDE10D03: select, justify, test and use suitable technologies, including processes, and skills, and apply safety procedures to safely make designed solutions • Planning and Managing VC2TDE10D05: develop project management plans for intended purposes and audiences to individually and collaboratively and in teams manage projects, taking into consideration time, cost, risk, processes and production of designed solutions

Victorian Curriculum Digital Technologies Levels 7-10

Years	Content Outcomes
7 & 8	• Digital Systems and Security VC2TDI8S01: explain how hardware specifications affect performance and select appropriate hardware for particular tasks and workloads • Digital Systems and Security VC2TDI8S02: investigate how data is transmitted and secured in wired and wireless networks including the internet • Data, Information and Privacy VC2TDI8D02: acquire, store, manipulate and validate data from a range of sources using software tools, including spreadsheets and single-table databases • Data, Information and Privacy VC2TDI8D03: analyse and visualise data using a range of software, including spreadsheets and simple database queries, draw conclusions and make predictions by identifying trends • Data, Information and Privacy VC2TDI8D04: select and use a range of digital tools effectively, including unfamiliar features, to create, locate and communicate content, consistently applying common conventions for a diverse audience • Creating Digital Solutions VC2TDI8C01: define and decompose real-world problems by taking into account functional requirements and constraints
9 & 10	• Digital Systems and Security VC2TDI10S01: investigate how hardware and software manage, control and secure access to data in networked digital systems • Digital Systems and Security VC2TDI10S02: develop cyber security threat models, and explore a software, user or software supply chain vulnerability • Data, Information and Privacy VC2TDI10D03: develop techniques to acquire, store, manipulate and validate data from a range of sources using software tools, including spreadsheets and relational databases • Data, Information and Privacy VC2TDI10D04: analyse and visualise data interactively using a range of software, including spreadsheets and relational databases and queries, to draw conclusions and make predictions by identifying trends and outliers • Data, Information and Privacy VC2TDI10D06: use simple project management tools to plan and manage individual and collaborative iterative projects, accounting for risks and responsibilities • Creating Digital Solutions VC2TDI10C01: define and decompose real-world problems, taking into account functional and non-functional requirements and by interviewing and surveying stakeholders to identify needs

Western Australian Curriculum – Science (V8.1- V9)

Years	Content Outcomes
7	Science Understanding • Biological Sciences: Interactions between organisms, can be described in terms of food chains and food webs; human activity can affect these interactions ACSSU112 • Earth and Space Sciences: Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon ACSSU115 • Physical Sciences: Change to an object's motion is caused by unbalanced forces, including Earth's gravitational attraction, acting on the object ACSSU117 Science as a Human Endeavour • Nature and Development of Science: Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures ACSHE223 • Use and Influence of Science: Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations ACSHE120 • Ethical Understanding: People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ACSHE121 Science Inquiry Skills • Questioning and Predicting: Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge ACSIS124 • Processing and Analysing Data and Information: Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate ACSIS129 • Processing and Analysing Data and Information: Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence ACSIS130 • Evaluating: Reflect on scientific investigations including evaluating the quality of the data collected, and identifying improvements ACSIS131 • Communicating: Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate ACSIS133
8	Science Understanding

	• Physical Sciences: Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems ACSSU155 Science as a Human Endeavour • Nature and Development of Science: Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures ACSHE226 • Use and Influence of Science: Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations ACSHE135 • Use and Influence of Science: People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ACSHE136 Science Inquiry Skills • Questioning and Predicting: Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge ACSIS139 • Processing and Analysing Data and Information: Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate ACSIS144 • Processing and Analysing Data and Information: Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence ACSIS145 • Evaluating: Reflect on scientific investigations including evaluating the quality of the data collected, and identifying improvements ACSIS146 • Communicating: Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate ACSIS148
9	Science Understanding • Biological Sciences: Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems ACSSU176 • Physical Sciences: Energy transfer through different mediums can be explained using wave and particle models ACSSU182 Science as a Human Endeavour • Nature and Development of Science: Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries ACSHE158

	• Use and Influence of Science: People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities ACSHE160 • Use and Influence of Science: Values and needs of contemporary society can influence the focus of scientific research ACSHE228 Science Inquiry Skills • Questioning and Predicting: Formulate questions or hypotheses that can be investigated scientifically ACSIS164 • Planning and Conducting: Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods ACSIS165 • Planning and Conducting: Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately ACSIS166 • Processing and Analysing Data and Information: Use knowledge of scientific concepts to draw conclusions that are consistent with evidence ACSIS170 • Evaluating: Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data ACSIS171 • Evaluating: Critically analyse the validity of information in primary and secondary sources and evaluate the approaches used to solve problems ACSIS172 • Communicating: Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations ACSIS174
10	Science Understanding • Physical Sciences: The motion of objects can be described and predicted using the laws of physics ACSSU229 Science as a Human Endeavour • Nature and Development of Science: Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries ACSHE192 • Use and Influence of Science: People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities ACSHE194 • Use and Influence of Science: Values and needs of contemporary society can influence the focus of scientific research ACSHE230 Science Inquiry Skills

	• Questioning and Predicting: Formulate questions or hypotheses that can be investigated scientifically ACSIS198 • Planning and Conducting: Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods ACSIS199 • Planning and Conducting: Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately ACSIS200 • Processing and Analysing Data and Information: Use knowledge of scientific concepts to draw conclusions that are consistent with evidence ACSIS204 • Evaluating: Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data ACSIS205 • Evaluating: Critically analyse the validity of information in primary and secondary sources and evaluate the approaches used to solve problems ACSIS206 • Communicating: Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations ACSIS208

Western Australian Curriculum - Design and Technologies (V8.1- V9)

Years	Content Outcomes
7	Knowledge and Understanding • Competing factors, including social, ethical and sustainability considerations, in the development of technologies ACTDEK029 • Material and technology decisions and processes influence the selection and combination of materials, systems, components, tools and equipment ACTDEK034 Processes and Production Skills • Define and break down a given task, identifying the purpose WATPPS39 • Consider components/resources to develop solutions, identifying constraints WATPPS40 • Design, develop, review and communicate design ideas, plans and processes within a given context, using a range of techniques, appropriate technical terms and technology WATPPS41 • Follow a plan designed to solve a problem, using a sequence of steps WATPPS42 • Safely make solutions using a range of components, equipment and techniques Independently apply given contextual criteria to evaluate design processes and solutions WATPPS43 • Work independently, and collaboratively when required, to plan, develop and communicate ideas and information, using management processes WATPPS45
8	Knowledge and Understanding • Social, ethical and sustainability considerations, in the development of technologies and designed solutions, to meet community needs for economic, environmental and social sustainability ACTDEK029 • Development of products, services and environments through the creativity, innovation and enterprise of individuals and groups ACTDEK030 • The process for the selection and combination of materials, systems, components, tools and equipment ACTDEK034 Processes and Production Skills • Investigate a given need or opportunity for a specific purpose WATPPS46 • Evaluate and apply a given brief WATPPS47

	• Consider components/resources to develop solutions, identifying constraints WATPPS48 • Design, develop, evaluate and communicate alternative solutions, using appropriate technical terms and technology WATPPS49 • Produce a simple plan designed to solve a problem, using a sequence of steps WATPPS50 • Develop contextual criteria independently to assess design processes and solutions WATPPS52 • Work independently, and collaboratively when required, to plan, develop and communicate ideas and information when managing projects WATPPS53
9	Knowledge and Understanding • Social, ethical and sustainability considerations that impact on designed solutions ACTDEK040 • Development of products, services and environments, with consideration of economic, environmental and social sustainability ACTDEK041 • Technologies can be combined and used to create designed solutions ACTDEK047 Processes and Production Skills • Identify and define the needs of a stakeholder, to create a brief, for a solution WATPPS54 • Investigate a selection of components/resources to develop solution ideas, identifying and considering constraints WATPPS55 • Apply design thinking, creativity and enterprise skills WATPPS56 • Design solutions assessing alternative designs against given criteria, using appropriate WATPPS57 • Select, and safely implement and test appropriate technologies and processes, to make solutions WATPPS58 • Evaluate design processes and solutions against student-developed criteria WATPPS59 • Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach WATPPS60
10	Knowledge and Understanding • Social, ethical and sustainability considerations that impact on designed solutions, complexity of design, and production processes involved ACTDEK040 • Impact of emerging technologies on design decisions, and/or economic, environmental and social sustainability ACTDEK041

	• Designed solutions within a range of technologies specialisations, using combined technologies ACTDEK047 Processes and Production Skills • Identify the needs of the client/stakeholder to determine the basis for a solution WATPPS61 • Investigate components/resources to develop increasingly sophisticated solutions, identifying and considering associated constraints WATPPS63 • Apply design thinking, creativity, enterprise skills and innovation to develop, modify and communicate design ideas of increasing sophistication WATPPS64 • Design possible solutions, analysing designs against criteria, including functionality, accessibility, usability and aesthetics, using appropriate technical terms and technology WATPPS65 • Select, justify, and safely implement and test appropriate technologies and processes, to make solutions WATPPS66 • Analyse design processes and solutions against student-developed criteria WATPPS67 • Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach WATPPS68

Western Australian Curriculum – Digital Technologies (V8.1- V9)

Years	Content Outcomes
7	Knowledge and Understanding • Different types of networks, including wired, wireless and mobile networks ACTDIK023 • Hardware components of a network ACTDIK023 • Digital systems represent text, image and audio data ACTDIK024 Processes and Production Skills • Define and break down a given task, identifying the purpose WATPPS39 • Consider components/resources to develop solutions, identifying constraints WATPPS40 • Design, develop, review and communicate design ideas, plans and processes within a given context, using a range of techniques, appropriate technical terms and technology WATPPS41 • Follow a plan designed to solve a problem, using a sequence of steps WATPPS42 • Safely make solutions using a range of components, equipment and techniques Independently apply given contextual criteria to evaluate design processes and solutions WATPPS43 • Work independently, and collaboratively when required, to plan, develop and communicate ideas and information, using management processes WATPPS45
8	Knowledge and Understanding • Methods of data transmission and security in wired, wireless and mobile networks ACTDIK023 • Specifications of hardware components and their impact on network activities ACTDIK023 • Binary is used to represent data in digital systems ACTDIK024 Processes and Production Skills • Investigate a given need or opportunity for a specific purpose WATPPS46 • Evaluate and apply a given brief WATPPS47 • Processes and Production Skills: Consider components/resources to develop solutions, identifying constraints WATPPS48

	• Design, develop, evaluate and communicate alternative solutions, using appropriate technical terms and technology WATPPS49 • Produce a simple plan designed to solve a problem, using a sequence of steps WATPPS50 • Develop contextual criteria independently to assess design processes and solutions WATPPS52 • Work independently, and collaboratively when required, to plan, develop and communicate ideas and information when managing projects WATPPS53
9	Knowledge and Understanding • Role of hardware and software in managing, controlling and securing the movement of data in a digital system ACTDIK034 • Different methods of manipulation, storage and transmission of data ACTDIK035 Processes and Production Skills • Identify and define the needs of a stakeholder, to create a brief, for a solution WATPPS54 • Investigate a selection of components/resources to develop solution ideas, identifying and considering constraints WATPPS55 • Apply design thinking, creativity and enterprise skills WATPPS56 • Design solutions assessing alternative designs against given criteria, using appropriate WATPPS57 • Select, and safely implement and test appropriate technologies and processes, to make solutions WATPPS58 • Evaluate design processes and solutions against student-developed criteria WATPPS59 • Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach WATPPS60
10	Knowledge and Understanding • Role of hardware and software in managing, controlling and securing access to data, in networked digital systems ACTDIK034 • Simple compression of data and how content data is separated from presentation data ACTDIK035 Processes and Production Skills • Identify the needs of the client/stakeholder to determine the basis for a solution WATPPS61

	• Investigate components/resources to develop increasingly sophisticated solutions, identifying and considering associated constraints WATPPS63 • Apply design thinking, creativity, enterprise skills and innovation to develop, modify and communicate design ideas of increasing sophistication WATPPS64 • Design possible solutions, analysing designs against criteria, including functionality, accessibility, usability and aesthetics, using appropriate technical terms and technology WATPPS65 • Select, justify, and safely implement and test appropriate technologies and processes, to make solutions WATPPS66 • Analyse design processes and solutions against student-developed criteria WATPPS67 • Work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach WATPPS68

Western Australian Curriculum - Mathematics (V8.1- V9)

Years	Content Outcomes
7	• Number and Algebra: Investigate, interpret and analyse graphs from authentic data ACMNA180 • Measurement and Geometry: Establish the formulas for areas of rectangles, triangles and parallelograms, and use these in problem-solving ACMMG159 • Statistics and Probability: Identify and investigate issues involving numerical data collected from primary and secondary sources ACMSP169
8	• Measurement and Geometry: Choose appropriate units of measurement for area and volume and convert from one unit to another ACMMG195 • Solve problems involving duration, including using 12- and 24-hour time within a single time zone ACMMG199
9	• Measurement and Geometry: Calculate areas of composite shapes ACMMG216
10	• Measurement and Geometry: Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids ACMMG242

Western Australian Curriculum – English (Adapted from Australian Curriculum V9)

Years	Content Outcomes
7	• Language: Identify and describe how text structures and language features vary in texts according to purpose WA7ELAT1 • Literature: Create and edit literary texts that experiment with language features and literary devices encountered in texts WA7ELICR1 • Plan, create, edit and publish written and multimodal texts, selecting subject matter, and using text structures, language features, literary devices and visual features as appropriate to convey information, ideas and opinions in ways that may be imaginative, reflective, informative, persuasive and/or analytical WA7ELYC1
8	• Language: Explain how text structures and language features vary depending on their purpose, recognising that some texts are hybrids that combine different genres or elements of different genres WA8ELAT1 • Literature: Create and edit literary texts that experiment with language features and literary devices for particular purposes and effects WA8ELICR1 • Literacy: Plan, create, edit and publish written and multimodal texts, organising and expanding ideas, and selecting text structures, language features, literary devices and visual features for purposes and audiences in ways that may be imaginative, reflective, informative, persuasive and/or analytical WA8ELYC1
9	• Language: Examine how authors and creators adapt text structures and language features by experimenting with spoken, written, visual and multimodal elements and their combination WA9ELAT1 • Literature: Create and edit literary texts, which may be hybrid, that experiment with text structures, language features and literary devices for purposes and audiences WA9ELICR1 • Literacy: Plan, create, edit and publish written and multimodal texts, organising, expanding and developing ideas, and selecting text structures, language features, literary devices and multimodal features for purposes and audiences in ways that may be imaginative, reflective, informative, persuasive, analytical and/or critical WA9ELYC1
10	• Literature: Create and edit literary texts with a sustained 'voice', selecting and adapting text structures, literary devices, and language, auditory and visual features for purposes and audiences WA10ELICR1 • Literacy: Plan, create, edit and publish written and multimodal texts, organising, expanding and developing ideas through experimenting with text structures, language features, literary devices and multimodal features for specific purposes and audiences

	in ways that may be imaginative, reflective, informative, persuasive, analytical and/or critical WA10ELYC1

Western Australian Curriculum – Humanities and Social Sciences V8.1- V9

Years	Content Outcomes
8	• Geography: The different types of landscapes in Australia and their distinctive landform features ACHGK048 • The spiritual, cultural and aesthetic value of landscapes and landforms for people, including Aboriginal and Torres Strait Islander Peoples ACHGK049
9	• Geography: The way transportation, and information and communication technologies are used to connect people to services, information and people in other places ACHGK066