

Year 9 Digital Technologies: Introduction to Hardware, Software & Networks

Achievement Standard: By the end of Year 10, students explain the control and management of networked digital systems and the security implications of the interaction between hardware, software and users. They explain simple data compression, and why content data are separated from presentation.

Students plan and manage digital projects using an iterative approach. **They define and decompose complex problems in terms of functional and non-functional requirements.** Students design and evaluate user experiences and algorithms. They design and implement modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities. They take account of privacy and security requirements when selecting and validating data. Students test and predict results and implement digital solutions. **They evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise.** They share and collaborate online, establishing protocols for the use, transmission and maintenance of data and projects.

Unit Specific Information: [various forms e.g. assessment focus, context, etc]

Students will look at the relationship between hardware and software. Students will learn about the different types of software. Students will learn about data compression.

Students will design and evaluate a variety of network scenarios

Guiding Questions:

Why is data protection important in Digital Technology?
What are the security implications of hardware software interaction?

- What is data compression?
- What evidence do you need to show you have evaluated a digital solution?
- How can you show your thinking about risk, sustainability, innovation and enterprise?

Assessment Details:

Summative Task:

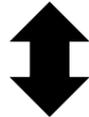
Students will develop digital solutions to scenarios. Students will create a virtual computer package for a client according to criteria

Key Skill/s: Hardware/Software knowledge networking, basic data base development, evaluation and reflection.

Conditions: Project in class for 4 weeks.

READING / VIEWING / LISTENING:
Core Text 1: OneNote tutorials

COMPREHENSION SKILL FOCUS:
Determining Importance



THINKING:
Decompose
Design
Implement
Evaluate



EXAM

In Class Exam featuring VB programming code
HIGHLY VALUED LANGUAGE FEATURE FOCUS:
Elaborating clauses

Priority Standards (Proficiency Scale – level 2/3)

	Knowledge & Understanding	Processes & Production Skills
3	I can understand computer hardware and software interaction I can understand basic networked digital systems I can understand security implications of digital systems	I can evaluate information systems / digital solutions in terms of risk, sustainability and potential for innovation and enterprise. I can create digital solutions for clients according to criteria.
2	Recognise or describe key vocabulary and concepts: <ul style="list-style-type: none"> • Security • Privacy • Network • Compression • Risk • Sustainability • Innovation • Enterprise 	Recognise and apply key vocabulary and concepts: <ul style="list-style-type: none"> • Functional requirements • Non-functional requirements • Data compression • Risk, sustainability, innovation, enterprise Perform basic processes such as: <ul style="list-style-type: none"> - Define and decompose complex problems (using functional/non-functional requirements) - Explain networked digital systems - Explain simple data compression - evaluate digital solutions

Learning Goals:

Strands and Sub-Strands	Australian Curriculum Content Descriptors	Kirwan High Learning Goals
Knowledge & Understanding	<ul style="list-style-type: none"> • Explain the control and management of networked digital systems • Explain the security implications of the interaction between hardware, software and users 	<ul style="list-style-type: none"> • Students will understand different types of hardware • Students will understand different types of software • Students will understand the relationship between hardware and software • Students will understand networking hardware • Students will understand how data is transferred on digital networks
Processes & Production Skills	<ul style="list-style-type: none"> • Explain simple data compression 	<ul style="list-style-type: none"> • Students will understand simple compression of data
	<ul style="list-style-type: none"> • Select and validate data, taking account of privacy and security requirements. 	<ul style="list-style-type: none"> • Students will be able to how to set up networks with consideration of privacy and security
	<ul style="list-style-type: none"> • Define and decompose complex problems in terms of functional and non-functional requirements 	<ul style="list-style-type: none"> • Students will be able to develop a basic plan for digital solution for a client
	<ul style="list-style-type: none"> • Evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise 	<ul style="list-style-type: none"> • Students will be able to carry out and document their test plan • Students will be able to evaluate their product and the process and make future recommendations

Possible Habit of Mind:

<p>Exploring Meaning of the HOM By the end of this unit students will be able to:</p>	<p>Expanding Capacity for using the HOM By the end of this unit students will be able to:</p>	<p>Increasing Alertness for the HOM By the end of this unit students will be able to:</p>	<p>Extending Values of the HOM By the end of this unit students will be able to:</p>	<p>Building Commitment towards the HOM By the end of this unit students will be able to:</p>
--	--	--	---	---

General Capabilities: This unit provides opportunities for students to engage in following capabilities:

<p>Literacy</p> <ul style="list-style-type: none"> <input type="checkbox"/> Comprehending texts through listening, reading and viewing <input type="checkbox"/> Composing texts through speaking, writing and creating <input type="checkbox"/> Text knowledge <input type="checkbox"/> Grammar knowledge <input type="checkbox"/> Word knowledge <input type="checkbox"/> Visual knowledge <p>Numeracy</p> <ul style="list-style-type: none"> <input type="checkbox"/> Estimating and calculating with whole numbers <input type="checkbox"/> Recognising and using patterns and relationships <input type="checkbox"/> Using fractions, decimals, percentages, ratios and rates <input type="checkbox"/> Using spatial reasoning <input type="checkbox"/> Interpreting statistical information <input type="checkbox"/> Using measurement 	<p>ICT</p> <ul style="list-style-type: none"> <input type="checkbox"/> Applying social and ethical protocols and practices when using ICT <input type="checkbox"/> Investigating with ICT <input type="checkbox"/> Creating with ICT <input type="checkbox"/> Communicating with ICT <input type="checkbox"/> Managing and operating ICT <p>Critical and creative thinking</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inquiring - identifying, exploring and organising information and ideas <input type="checkbox"/> Generating ideas, possibilities and actions <input type="checkbox"/> Reflecting on thinking and processes <input type="checkbox"/> Analysing, synthesising and evaluating reasoning and procedures 	<p>Personal and social capability</p> <ul style="list-style-type: none"> <input type="checkbox"/> Self-awareness <input type="checkbox"/> Self-management <input type="checkbox"/> Social awareness <input type="checkbox"/> Social management <p>Ethical understanding</p> <ul style="list-style-type: none"> <input type="checkbox"/> Understanding ethical concepts and issues <input type="checkbox"/> Reasoning in decision making and actions <input type="checkbox"/> Exploring values, rights and responsibilities <p>Intercultural understanding</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recognising culture and developing respect <input type="checkbox"/> Interacting and empathising with others <input type="checkbox"/> Reflecting on intercultural experiences and taking responsibility
---	---	---

Cross Curriculum Priorities:

<ul style="list-style-type: none"> <input type="checkbox"/> Aboriginal and Torres Strait Islander histories and cultures 	<ul style="list-style-type: none"> <input type="checkbox"/> Asia and Australia's engagement with Asia 	<ul style="list-style-type: none"> <input type="checkbox"/> Sustainability
--	---	--

Differentiation [for small groups or individuals]:

--