

DIG9_Unit 1: Introduction to General Purpose Programming (Visual Basic)

6 Weeks

Year 10 Australian Curriculum 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 Overview: *Students will learn the concepts of algorithms and programming in a general programming language and builds on the general programming language concepts. Students will then use this knowledge to complete an exam covering these concepts.*

Assessment Overview:

Formative Tasks

Students will complete activities and tutorials set in class. The activities will act as the first step of the formative assessment. Students will do formative tests to monitor their level of understanding.

Summative Task

Students will complete an exam.

Key Skill/s: MS Visual BASIC skills especially the coding, analysis of the given requirements, designing, implementing (including testing) of the solution.

Conditions: In class
Supervised
2 Lessons
On Computers

Guaranteed Vocabulary:

IF statement (Selection)
CASE statement (Selection)
Properties

Design Question Four Strategy

How will I design and deliver lessons that help students deepen their understanding and develop fluency in skills and processes?
• Element 9 Using structured practice

Design Question Five Strategy

What will I do to help students apply what they have learned to unique situations?
• Element 13 Providing Resources and Guidance (p49-50 NASoT)
○ Using proficiency scales

21st Century Skill:

Critical Thinking

Object ASSIGNMENT statement CONDITIONAL statement	sessions (p 38-39 NASoT) a. Modelling b. Guided practice c. Close monitoring d. Varied practice e. Worked examples (gradual release of responsibility) f. Practice sessions before testing	<ul style="list-style-type: none"> ○ Providing Resources ○ Teaching research skills ○ Circulating around the room ○ Collecting informal assessment information 	
Guaranteed Skills/Language Features:	Reading Comprehension Skill and Strategy	Cognitive Verbs	ICT to Enhance Learning:
Exam	Determining Importance (Traffic Lights – tutorial) (Crystal Ball – tutorial) (School Bag Helper – tutorial)	<p>define - give the meaning of a word, phrase, concept or physical quantity; state meaning and identify or describe qualities</p> <p>decompose (analyse) - dissect to ascertain and examine constituent parts and/or their relationships; break down or examine in order to identify the essential elements, features, components or structure; determine the logic and reasonableness of information;</p> <p>examine or consider something in order to explain and interpret it, for the purpose of finding meaning or relationships and identifying patterns, similarities and differences</p> <p>design - produce a plan, simulation, model or similar; plan, form or conceive in the mind;</p> <p>implement - put something into effect, e.g. a plan or proposal</p> <p>test - take measures to check the quality, performance or reliability of something</p>	Students will collect, select, analyse, organize, extend, transform and present knowledge using ICT

Learning Goals:

Strands and Sub-Strands	Australian Curriculum Content Descriptors	Kirwan High Goals – Students will know and/or be able to
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Processes and production skills Defining	<ul style="list-style-type: none"> Precisely define and decompose real-world problems, taking into account functional and non-functional requirements and including interviewing stakeholders to identify needs (ACTDIP038) 	<ul style="list-style-type: none"> Students will be able to create an analysis document Students will be able to create a solution specification document
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Possible Habit of Mind: Striving for accuracy

Exploring Meaning of the HOM	Expanding Capacity for using the HOM	Increasing Alertness for the HOM	Extending Values of the HOM	Building Commitment towards the HOM
By the end of this unit students will be able to: Know what for accuracy is, identify when they need to use it and have some basic strategies to help them create imagine and innovate. For example create a section of code and then test it.	By the end of this unit students will be able to:	By the end of this unit students will be able to:	By the end of this unit students will be able to:	By the end of this unit students will be able to:

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

Literacy X Comprehending texts through listening, reading and viewing X Composing texts through speaking, writing and creating <input type="checkbox"/> Text knowledge <input type="checkbox"/> Grammar knowledge X Word knowledge X Visual knowledge Numeracy X Estimating and calculating with whole numbers X Recognising and using patterns and relationships X Using fractions, decimals, percentages, ratios and	ICT <input type="checkbox"/> Applying social and ethical protocols and practices when using ICT X Investigating with ICT X Creating with ICT <input type="checkbox"/> Communicating with ICT X Managing and operating ICT Critical and creative thinking X Inquiring - identifying, exploring and organising information and ideas X Generating ideas, possibilities and actions	Personal and social capability X Self-awareness X Self-management X Social awareness X Social management Ethical understanding <input type="checkbox"/> Understanding ethical concepts and issues X Reasoning in decision making and actions <input type="checkbox"/> Exploring values, rights and responsibilities Intercultural understanding <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
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rates X Using spatial reasoning <input type="checkbox"/> Interpreting statistical information <input type="checkbox"/> Using measurement	X Reflecting on thinking and processes X Analysing, synthesising and evaluating reasoning and procedures	responsibility
Cross Curriculum Priorities:		
<input type="checkbox"/> Aboriginal and Torres Strait Islander histories and cultures	<input type="checkbox"/> Asia and Australia's engagement with Asia	<input type="checkbox"/> Sustainability
Differentiation [for small groups or individuals]:		
<p>Formative practice will be checked and feedback given Students will need to apply feedback until an acceptable standard is reached. Project progress will be monitored and feedback will need to be applied and time caught up outside of class time either with teacher or independently. Advanced students will develop their own in class project to meet specific needs.</p>		
Specific Student Differentiation		