Stage 5 Information and Software Technology Year 10

Unit 4: Authoring and multimedia (Option 2) program

Unit title: Personal profile

Duration: 15 weeks **Sequence:** Week 6 Term 1 – Week 10 Term 2

Project overview	**Personal profile** During Term 4 you will be participating in the Year 10 Oral Presentations and Interviews. You can use the following project to present and discuss at your interview.

Syllabus outcomes

A student:

5.2.1 describes and applies problem-solving processes when creating solutions
5.2.2 designs, produces and evaluates appropriate solutions to a range of challenging problems
5.2.3 critically analyses decision-making processes in a range of information and software solutions
5.3.1 justifies responsible practices and ethical use of information and software technology
5.3.2 acquires and manipulates data and information in an ethical manner
5.5.1 applies collaborative work practices to complete tasks
5.5.2 communicates ideas, processes and solutions to a targeted audience
5.5.3 describes and compares key roles and responsibilities of people in the field of information and software technology
5.1.2 selects, maintains and appropriately uses hardware for a range of tasks
5.1.1 selects and justifies the application of appropriate software programs to a range of tasks

Assessment outcomes

A student:

5.2.3 critically analyses decision-making processes in a range of information and software solutions
5.3.2 acquires and manipulates data and information in an ethical manner
5.5.2 communicates ideas, processes and solutions to a targeted audience
5.1.2 selects, maintains and appropriately uses hardware for a range of tasks

Assessment tasks

Project

Present a multimedia presentation to demonstrate aspects of your school experiences from year 7 to 10 and to profile yourself
Your project must present your responses to the following key questions in an innovative, interactive manner:

- Personal profile
- How have the past four years at high school changed you? Or how has the past years at school changed you
- What benefits has school given you? Friendships, sporting, learning, work experiences, other…
- Select one success (academic or other) your have had during your four years at high school or during your life. Describe the project, success or task and explain why you succeeded at it.

- In five years time you would like to be…

Assessment

There are three components which will be assessed in this project:

- Written report
- Process
- Presentation

The table below documents the assessment requirements for this project.

Outcome A student:	**Assessment component**	**Activity**	**Mark**
5.5.2 communicates ideas, processes and solutions to a targeted audience 5.2.3 critically analyses decision-making processes in a range of information and software solutions	**Report**	• Describe your audience. • Outline the purpose of your presentation. • How has the audience impacted on the navigation structure and data types you have used in your presentation? • Outline the process you undertook to complete the presentation. • What problems did you encounter? How did you overcome them? • Evaluate the effectiveness of your presentation. Use the following criteria as a guide: – Show your mentor teacher the presentation. Did the presentation interest and engage them? Why? Why not? – What improvements would you make to the presentation? Why? • Compare your first storyboard of your presentation to the final storyboard. Identify changes and decisions you have made. Justify those changes and decisions.	
5.1.2 selects, maintains and appropriately uses hardware for a range of tasks	**Process**	• Collect images using a range of hardware peripherals – scanner, digital still camera, digital video camera. • Consider the display of your presentation. List ideas and hardware for the effective presentation of your project to your interview panel.	
5.3.2 acquires and manipulates data and information in an ethical manner	**Presentation**	• Create a *Flash* animation of your name as an introduction. • Include a sound file (original, digitised, sound effect). • Create a menu system using *Flash* buttons, designed by you, to navigate the areas of the project.	

		• Include referenced still and animated images.	

Core syllabus component:
Design, produce and evaluate Management Communication techniques Collaboration & group work Data handling Data transmission types Data compression techniques Hardware Hardware functions Hardware components Microprocessors Hardware care & maintenance Software Factors affecting hardware Interface design Features and elements of the GUI

Project planning task

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Management • planning • resources such as – time – finances – people	• apply management plans and techniques	**Project planning task** • The teacher using the project assessment activity sheet discusses importance of identifying the audience for the presentation. • Students open a new *Word* document. In the document they describe the audience for their presentation. • Teacher explains the needs of the audience impacts on the presentation, e.g. presentation, text and data types. • Students draft the requirements of the audience and select appropriate content and resources. • Teacher outlines the purpose of the presentation, students record this into the *Word* document. Save the document as project.doc. • Student using the previous notes on purpose and audience draft a project statement. • Students using project statement break project into its sub projects, e.g. personal profile, collection of resources, editing, graphics, developing *Flash* animation etc. • Students insert a table into project.doc containing four columns, headed Sub project, Resources. Hardware, Time. Students complete table by filling in details. • See example table. • Students open *Excel*. Create a timeline with teacher's assistance. (See sample). • Students discuss and record (in their project.doc) the role of the critical friend, outlining the benefits and tasks they will undertake.		
Communication techniques including • verbal • written • graphical and visual	• document decision-making and problem-solving in the development of solutions • outline a range of communication techniques appropriate to the solution • communicate ideas, processes and solutions to a targeted audience			
Collaboration and group work • criteria for group formation such as expertise and group dynamics • effective collaboration strategies	• identify and negotiate roles and responsibilities of group members • outline and reflect on the benefits/advantages of collaboration during group work • apply collaborative work practices when developing solution			

Transmission data types task

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Data transmission types • serial • parallel • USB • Firewire	• define transmission types • investigate the advantages and disadvantages of serial and parallel transmission methods	**Transmission data types task** • Identify difference in all four transmission types. • Identify two serial, two parallel and two USB devices, i.e. printer, lap link, camera.	Upgrading and repairing PCs in PDF.	
Data compression techniques • lossy • lossless	• explain the purpose of data compression techniques • perform data compression on a file	**Data compression techniques activity** • Teacher demonstrates the theory of compression algorithms for sound files. • Students create two sound files using both lossy and lossless formats. • Students right click on each sound file and check files properties noting the file size. • Teacher describes the theory of compression algorithms for graphic files. • Students create two graphic files using both lossy and lossless formats. • Students right click on each graphic file and check files properties noting the file size. • Students discuss why compression is used and the most appropriate compression technique to be used for their presentation.		

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Functions that hardware performs • input • process • output • storage • control	• describe and classify hardware devices • identify and use hardware devices in the context of the chosen option		Graphics terms using web search.	
Hardware components • Components of a hardware system and their functions such as – motherboard – central processing unit (CPU) – co-processor chips/ Dual processors – memory: random access memory (RAM) read only memory (ROM) – hard disk – controller cards – graphics adapter cards – power supply – expansion slots – bus lines – input/output ports – display –	• examine a hardware system and identify the components and their functions	• Complete check list of hardware devices. • Students tick list of hardware devices they have used and explain reason for their choice of the device. **Under the hood activity** • Teacher using *Under the hood* artifact to demonstrate and explain hardware componentry. • Jigsaw activity (teacher distributes loose hardware and explanatory theory sheets). • In home groups students allocated a component for their expert group, e.g RAM-ROM. • Student s break into expert groups to read and discuss their component. • From discussion students draft explanation of function of their component and label the worksheet. • Students return to their home group and share explanations and labels.	Hardware device list. Photo / diagram	

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
• Microprocessors such as those found in – cameras – digital watches – monitoring devices • Care and maintenance of hardware systems	• identify and describe the use of microprocessors in a range of devices • develop basic procedures for the care and maintenance of hardware	• Situational analysis of RTHS LAN network: • Types of computer systems: – Stand alone – LAN/Intranet – WAN – Internet • Use Internet research to find how digital cameras process image data. • What is a PDA? Define and list. • What is AIBO? What monitoring devices does it have?	http://www.fingertech.co.uk/qtek_1010.html	
Factors affecting hardware requirements such as • central processing unit (CPU) speed • demands on memory • communication and peripheral devices	• discuss how software packages affect hardware requirements • calculate memory requirements for specific purposes	http://www.sonystyle.com/is-bin/INTERSHOP.enfinity/eCS/Store/en/-/USD/SY_DisplayProductInformation-Start;sid=JAY4JVFQKY04IG6WvPoyLh5dYIAjpuJz_EQ=?ProductSKU=ERS7%2fW		
Interface design • the function of the user interface • interactivity with the user • communication with application and operating systems	• explain the function of the user interface • compare and contrast types of user interfaces	Run as component of : *Data compression techniques* • Teacher demonstration / class discussion of user interface.		

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Features and elements of a graphical user interface (GUI) such as • consistency of elements • functionality • navigation • radio buttons, list boxes • borders and white space • instructions to the user inclusive design factors	• explain the features and elements of GUI in a range of applications • design, produce and manipulate features of GUI • establish the criteria for the evaluation of GUI • evaluate the effectiveness of GUI features and elements for a specific purpose			
Multimedia products for areas such as • education • entertainment • information	• define and describe the types of multimedia products • assess the effectiveness of a range of multimedia products • recognise the integrated nature of multimedia products	• Conduct evaluation of multimedia products. (9 Titles) • PMI. • GUI elements.	*9 Titles* • Maths blaster. • Thomas the tank. • Sims / Sim city 2000. • Aibo product tour. • Welcome to windows. • Flight sim 2000. • Reader rabit. • Welcome to Myself tour. • *Film Victoria.	

Students learn about:	Students learn to:	Teaching and learning strategies	Resources	Reg
Data types • commonly used in multimedia products • features of data types imported to multimedia products	• recognise features of data types for multimedia products • describe the processes of acquiring and/or capturing, manipulating, storing, displaying and distributing data types	• List data types, e.g. Still, Animation, Sound, Hypertext/ text.		
Data types such as • text and hypertext • graphics • audio • video • animation	• describe and manipulate data types for a range of purposes			
Authoring software systems • the combining of data types into a multimedia presentation using existing application products such as HyperStudio and Macromedia software	• discuss advantages and limitations of authoring software • justify the selection of the authoring software to be used for the multimedia product			
Project development • processes and techniques • GUI design for the multimedia product • design principles including layout and balance of data types • innovation in a selected data type such as animation	• design, produce and evaluate a simple project for a real-world application either separately for this option, or integrated with other option/s • apply interface design features used for the production of the multimedia product • examine and analyse design principles used in a range of multimedia products • create a storyboard and script • research in detail a data type and produce an original product	• Define and discuss multimedia software. • Diagram / title., *Photoshop*, *Flash*, *Word*. • Function and speciality. • Import export format. • Advantages / disadvantages of software package, i.e. flexibility of design, wser interface, GUI, cost, using and learning. **Project** • Cell based. • Path based animated. • Morphing. • Warping.		

Project planning task

Overview: Students identify class member to act as a critical friend. With critical friend discuss projects, sub projects, resources and time allocation.		
Resources:		
Skills	**Related theory**	**Teaching and learning strategies**
• Identify and draft project statement • Identify sub projects • Brainstorm tasks for each sub project • Brainstorm resources for each sub task • List Hardware devices required to collect / edit resources. • Allocate time to tasks • Develop timeline • Discusses roles of critical friend.	Management Communication techniques Effective collaboration strategies	• The teacher using the project assessment activity sheet discusses importance of identifying the audience for the presentation. • Students open a new *Word* document. In the document they describe the audience for their presentation. • Teacher explains the needs of the audience impacts on the presentation, e.g. presentation, text and data types. • Students draft the requirements of the audience and select appropriate content and resources. • Teacher outlines the purpose of the presentation, students record this into the word document. (Save the document as project.doc) • Students using the previous notes on purpose and audience draft a project statement. • Students using project statement break project into its sub projects, e.g. personal profile, collection of resources, editing, graphics, developing flash animation etc. • Students insert a table into project.doc containing four columns, headed Sub project, Resources. Hardware, Time. Students complete table by filling in details. • See example table. • Students open *Excel*. Create a timeline with teachers assistance. (See sample) • Students discuss and record (in their project.doc) role of critical friend, outlining the benefits and tasks they will undertake.

Data compression techniques activity

Overview: Using sound editing software students compress audio file using lossy and lossless compression techniques**.**		
Resources: ***Photoshop*, *Windows* media player, QUE Upgrading and Repairing PC's 14th Edition.**		
Skills	**Related theory**	**Teaching and learning strategies**
• Describes the way sound files can be copied using lossless and lossy techniques (wav, MP3). • Copy a supplied sound file using a lossless copying technique. • Copy a supplied sound file using a lossy compression technique. • Describes the way graphic files can be copied using lossless and lossy techniques (BMP, JPG). • Copy a supplied graphic file using a lossless copying technique. • Copy a supplied graphic file using a lossy compression technique.	• Theory of conversion of sound and graphic files using lossless compression techniques. Lossless – after compression there is no data loss from original file. • Theory of conversion of sound and graphic files using lossy compression techniques. Lossy – redundant data is lost during compression.	• Teacher demonstrates the theory of compression algorithms for sound files. • Students create two sound files using both lossy and lossless formats. • Students right click on each sound file and check files' properties noting the file size. • Teacher describes the theory of compression algorithms for graphic files. • Students create two graphic files using both lossy and lossless formats. • Students right click on each graphic file and check files' properties noting the file size. • Students discuss why compression is used and the most appropriate compression technique to be used for their presentation.

Functions that hardware performs

Overview		
Resources		
Skills	**Related Theory**	**Teaching and learning resources**
• Classification of hardware devices.	• IPO storage and control.	• Student opens *Students Functions that hardware performs.doc* • Teacher describes IPO storage and control. Students use IPO chart to complete a checklist of hardware devices used in the project. • Explain the functions of each device. • Teacher explains primary and secondary storage. • Teacher explains the role of the control unit.
• Selects and uses a variety of hardware devices.	• IPO chart.	

Under the hood task:

Practical task

Overview of concepts: Students are investigating, examining and identifying components of a hardware system.		
Resources: Under the hood artifact, worksheets, associated loose hardware componentry.		
Skills:	**Related theory**	**Teaching and learning activities**
• Listening skills. • Note taking and observation skills.	• Worksheets and artifacts on the following componentry: – Motherboard – CPU – Dual processors – Co-processses – RAM – ROM – Hard disks – Floppy drive – CD ROM – Controller cards (Nic's etc) – Graphic adaptor cards – Power supplying – Expansion slots – Bus lines – Input/output ports – Display.	• Teacher using "Under The Hood" artifact to demonstrate and explain hardware componentry. • Jigsaw Activity (teacher distributes loose hardware and explanatory theory sheets. • In home groups students allocated a component for their expert group. Eg RAM-ROM. • Student break into expert groups to read and discuss their component. • From discussion students draft explanation of function of their component and label the worksheet. • Students return to their home group and share explanations and labels.