

Hobart High School Key Stage 3 Curriculum Map – Year 7

Department: IT and Computing

	Unit Title	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Multimedia Presentation 'About Me'.	<p>Skills:</p> <ul style="list-style-type: none"> • Applying appropriate Formatting features. • Applying editing techniques. • Designing and accessing templates. • Research images and image types. • Present information using technology. • Create hyperlinks and construct action buttons to add interest and provide a platform for navigation. • Saving, sending and sharing files. <p>Knowledge:</p> <ul style="list-style-type: none"> • This is an introduction to advanced PowerPoint skills and an opportunity to address the variation in student's abilities from the various feeder school. • They will learn how to save and share files, this includes using their school email accounts and cloud storage to transport work to and from their school accounts. • They will have an opportunity to add media to their work to add interest with a focus on explaining the activities and interests they have so that they can include interesting content. 	Formatting and editing covering design and content. Application of skills	<p>Students have an opportunity to present their information, this unit is designed to help students introduce themselves to each other and present to their peers.</p> <p>Independence – students will need to become confident that they can use the school email system, they can access work from the student area and save and retrieve files from a variety of sources to enable independent study.</p>
Autumn 2	Spreadsheet modelling 'Sid's Snowboard shop'.	<p>Skills:</p> <ul style="list-style-type: none"> • Students will perform calculations, this includes using pre-programmed formulae to add. • They will create their own formulae and apply absolute cell references. • They will learn how to format and design the model to suit the user. • Creating and formatting graphs. 	Set tasks and Q and A to demonstrate they can perform a range of formatting and software based tasks. Q and A to test the model using different variables ('What if' scenarios).	An early introduction into finance, money management, budgeting and calculating profit, income and expenditure.

		<p>Knowledge:</p> <ul style="list-style-type: none"> • Creating spreadsheets to model a shops sales, the cost of the stock and applying sales discounts. • Spreadsheet terminology. • How to explore their model to answer ‘what if’ scenarios based on changing variables. 		
Spring 1	Designing a leaflet in Publisher ‘Birds in my garden’.	<p>Skills:</p> <ul style="list-style-type: none"> • Creating a 6 page leaflet using different template designs. • Researching from reliable sources. • Formatting and editing content. • Analysing data. • Creating graphs to model results. • Identifying trends or changes in data and explaining the reasons for those trends or changes. <p>Knowledge:</p> <ul style="list-style-type: none"> • Based on the Big Garden Birdwatch. Students will complete their own birdwatch and use the results to compare with previous students at Hobart. • They will be learning about the changes in the bird population locally and identifying those changes. • They will develop ideas to help and support the local bird population. • Their leaflet is designed to advertise the local bird wildlife, raise awareness of local nature and challenge young people’s perception of nature and what can be done to support the environment. 	Formatting and editing. Graphing data, modelling and explaining results.	To challenge young people to embrace their outdoor environment and use technology to interact with it, rather than use technology purely as an entertainment facility.
Spring 2	Coding and game design - Scratch software.	<p>Skills:</p> <ul style="list-style-type: none"> • Designing a game and block coding it using a free online platform (Scratch). • Use and design an algorithm to model how the game will function. • Logic building and design. • Use of generic programming terminology: Creation of variables, use of iteration (loops) and conditional statements. • Game testing. 	Planning the game. Game design. Coding content (logical structure). Testing and evaluation.	Help students plan and create a completed game that encourages a methodical step by step logical approach. Logical thinking and developing strategies to problem solve that can be applied in many situations.

		<p>Knowledge:</p> <ul style="list-style-type: none"> • Build an understanding of programming terminology. • Introduction to programming languages (Block coding and text based languages). • Free online coding resources. • Logic thinking and problem solving techniques. 		
<p>Summer 1</p>	<p>Python coding - Micro bit project.</p>	<p>Skills:</p> <ul style="list-style-type: none"> • Using coding to demonstrate conditional statements, syntax structure and using variables as containers for data. • Students will be able to program a device to output information, which will culminate with a rock, paper, and scissors game. <p>Knowledge:</p> <ul style="list-style-type: none"> • Introduction to a free open source text based programming language (Python). • Reinforce generic programming terms used across all programming platforms. • Apply a range of coding instructions to gain desired outcomes. 	<p>Planning, coding skills (syntax structure and evidence of testing).</p>	<p>Students will move from using a block coding platform (Scratch) to a text based programming language which can be used free as an online resource. The aim is to spark an interest in coding languages and providing an insight into the opportunities that exist.</p>

Hobart High School Key Stage 3 Curriculum Map – Year 8

Department: IT and Computing

	Unit Title	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	'Beat Bullying' Campaign.	<p>Skills:</p> <ul style="list-style-type: none"> • Plan how ICT can be used to produce an awareness campaign (designing a photoshoot to capture a theme). • Creating a digital image. • Applying editing effects to enhance an image (using free online image editing software). • Creating a multimedia presentation in a group to promote a chosen campaign image. • Saving images in different formats (PNG, BITMAP and JPEG). • Adding effective captions to the campaign image using alternative software. <p>Knowledge:</p> <ul style="list-style-type: none"> • Recognise the different types of bullying (themes for photoshoot – cause, action and consequences). • Recognise inappropriate content, contact and conduct. • Choosing the appropriate software to develop a campaign image and present a chosen image. • Understand how to add emphasis to an image. • How to deal with the different types of bullying appropriately. • How students can safeguard themselves against online abuse and how they can protect their online identity. • Learn the different image file types and the impact they have on file size. • Pixels, a definition and their role in computing technology. 	Planned image and campaign strategy. Image effects applied. Presentation of image and evaluation of campaign success.	The project provides students with the opportunity to address the topic of bullying using their own interpretations and experiences and modelling them in an innovative and creative way. This helps highlight the varying types of bullying that are inflicted on people both in the school environment and the home. The students have full ownership of their photoshoot and become significantly more aware of the causes, actions and consequences attached to bullying, which we believe impacts positively on the whole school.
Autumn 2	Algorithmic thinking – Automating systems.	<p>Skills:</p>	Students will have 3-4 systems to automate (these are called mimics which are available in software called Flowol). They will be assessed on	Giving the students a practical opportunity to design, use and evaluate computational solutions

		<ul style="list-style-type: none"> • Analysing new technology and decide on areas where algorithms can be used to provide a computational solution. • Use software to model a system and create a suitable algorithm to automate that system. • Select the appropriate programming constructs, link constructs and explain how their algorithm works. • Test a proposed solution and document areas for improvements. <p>Knowledge:</p> <ul style="list-style-type: none"> • Students can identify the different constructs used in the creation of an algorithmic diagram (Inputs/outputs, processes, selection and start/stop elements). • Problem solving skills, looking at a system and its requirements and applying abstraction and decomposition techniques. • System inputs require sensors, these can be digital or analogue. • Iteration and selection and how to identify conditional statements and where a program needs to loop. • The characteristics of a successful algorithm. 	<p>a workable solution, the explanation of that solution (how it behaves when tested) and the testing phase to demonstrate how their solution is fit for purpose.</p>	<p>that model the state and behaviour of real-world problems will help them to become more inquisitive and develop their overall problem solving skills.</p>
<p>Spring 1</p>	<p>Quiz/game design – Designing a multimedia ‘Impossible’ quiz.</p>	<p>Skills:</p> <ul style="list-style-type: none"> • Block coding an impossible quiz using Scratch software online. • Students can choose to design their quiz using hyperlinks and action button in PowerPoint. • Designing a plan for their game. • Block coding, creating broadcast to move from one stage to another (creating levels using conditional statements). • Designing a pathway to navigate through the quiz in a logical and engaging fashion. • Testing and evaluating their design and documenting areas for improvement and recording areas of good design or good challenge. 	<p>Evaluation which will be teacher assessed. The main assessment will be peer assessment.</p>	<p>Designing a quiz where the student has to think about what is interesting for their age group and what level of challenge to provide. Students taking ownership so that they can add interest and improve levels of engagement.</p>

		<ul style="list-style-type: none"> • Creating a way to capture feedback and reviewing what their feedback said from players. <p>Knowledge:</p> <ul style="list-style-type: none"> • Students will work in pairs or individually and will be expected to choose and select the platform to design their quiz on (Block coding will provide a greater opportunity for a higher assessed level due to the programming element). • They will learn how to develop transitions and where to place challenging hyperlinks to provide challenge for their audience. • They will develop their understanding of block coding so that they can create levels that change based on the game players answers. • They will develop an awareness of what challenge will look like to their audience, this will be based on the research they do prior to designing their own quiz. 		
<p>Spring 2</p>	<p>Video creation – Designing a drinks brand.</p>	<p>Skills:</p> <ul style="list-style-type: none"> • There is an opportunity to design a video clip, this can be completed as a stop motion video using PowerPoint or a traditional video using Movie Maker. • Inserting components (still images and moving footage). • Cutting, trimming and splitting film. • Applying effects to components. • Using audio-editing software (Audacity). • Adding a commentary. • Inserting a soundtrack. • Converting a file into a completed movie file (Conversion to MP4). • Producing a prototype. <p>Knowledge:</p> <ul style="list-style-type: none"> • Students will consider seasonal ingredients from the UK only and learn about local produce and the benefits of selecting locally sourced ingredients. 	<p>Peer assessment for the video, product prototype and the final presentation.</p> <p>There is a formal assessment in the form of an evaluation, which is based on the video components and their (the student) understanding of the ethical elements of their idea, their choice of advertising platform and their knowledge of the legislation which impacts on their design.</p>	<p>To raise an awareness of the ways in which young people can behave ethically when using a product or a service and how businesses are meeting the needs of consumers who more than ever want to see the brands and businesses they use behave in an ethical way.</p>

		<ul style="list-style-type: none"> • They will develop an ethical brand and promote ethical awareness amongst their target market (Recycled packaging, collaborative unions with charities, sponsoring events etc.). • How to divide the market of prospective buyers into a specific market segment. • Which media platforms are the best choices for their advertisement and why. • Copyright, royalties and trademark laws, e.g. Copyright laws that impact on the use of music tracks. 		
<p>Summer 1</p>	<p>Website design – Creating a website using a web design program.</p>	<p>Skills:</p> <ul style="list-style-type: none"> • Drag, drop and edit text boxes. • Design a web structure with a home page and 2 linked pages. • Create a navigation system using themed graphics that follows a logical order. • Design a gallery to be inserted onto a suitable page within the site. • Preview the site in a web browser. • Add a search option onto a site. • Customise the site by formatting and editing the content. <p>Knowledge:</p> <ul style="list-style-type: none"> • Students will learn the structure and design of a site, the relationship between web pages (Parent and child and the relevance of a master page). • Students will have an introduction into basic HTML, this will provide an understanding of how a website is written and how it is displayed by a web browser. • Web hosting and domain names. • Accessibility (ensuring the design and content can be accessed by all – those with disabilities, socio-economic groups with restricted bandwidth and low Internet speeds). 	<p>Peer assessment covering design and content. Teacher assessment on functionality, navigation and accessibility.</p>	<p>There is an opportunity to look at site accessibility. Student will discuss third world countries and their lack of access to a modern, high speed Internet infrastructure.</p>

Summer 2	Introduction to binary and the use of circuits in computing.	Skills: <ul style="list-style-type: none">• Completing a truth table based on the combination of inputs.• Converting decimal numbers to a binary numbers and binary to decimal.• Adding binary numbers together.• Identifying overflow errors.• Converting binary streams to hexadecimal values.• Converting a name to a binary equivalent. Knowledge: <ul style="list-style-type: none">• Boolean logic (The use of AND, OR and NOT gates in circuits and computing).• The way instructions are processed in a computer.• Why binary is used in computational thinking.	Teacher assessment. Starters for 10. Set question and answer exercises.	Students will have an understanding computer architecture, how they are designed, how they process information
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Hobart High School Key Stage 3 Curriculum Map – Year 9

Department: IT and Computing

	Unit Title	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Cloud Storage – Feasibility Report.	<p>Skills:</p> <ul style="list-style-type: none"> • Selecting and justifying which storage facility is more effective for a given context (Hobart – a school). • Formatting and editing a publisher document into the style of an A4 article. • Researching information and interpreting it so that it's free from plagiarism. • Applying formatting techniques to add emphasis. • Explaining GDPR and the laws that protect identity. <p>Knowledge:</p> <ul style="list-style-type: none"> • Understand the difference between primary and secondary data storage facilities (E.g. Understanding terms like solid state storage). • Explain the difference between on site and off site storage. • Understand that data is stored on a server. • An awareness of how cloud storage works (virtualisation). • Understand the advantages and disadvantages attached to cloud storage. • How to make a decision with evidence that supports a recommend course of action (Should the school adopt cloud storage or continue to use physical servers). 	<p>Formal assessment based on the advantages and disadvantages discussed and the recommendation a student makes.</p> <p>Objective judgements.</p>	<p>This is an opportunity to contextualise cloud storage and for students to be aware of the implications when saving data, so that they understand where their personal information may be held and how secure it may be.</p>
Autumn 2	Subway Enterprise Challenge. (A marketing project).	<p>Skills:</p> <ul style="list-style-type: none"> • Formatting and editing a video advertisement. • Creating and designing a marketing board using DTP software. • Analysing the market place and creating a marketing map to model the market. 	<p>Peer assessment based on concept or theme, the nutritional value, the pricing strategy and the marketing strategy.</p>	<p>There is an opportunity to look at the fast food sector and analyse the nutritional values of these types of products, this helps students make</p>

		<ul style="list-style-type: none"> • Creating a spreadsheet to calculate the nutritional value of a sandwich. • Branding a product (creating a slogan and designing the text to promote their theme). • Presenting information to peers. <p>Knowledge:</p> <ul style="list-style-type: none"> • The marketing Mix (4ps). • Target markets and market segments • How to calculate product costs and profit. • How to analyse the nutritional value of a food product. • The promotion of a new idea or concept. • Understanding demographics (age, gender and income) and using that to establish a target market. • Creating a USP (A unique selling point or special factor) to make a product stand out. 		<p>an informed decision about the food types they purchase. We use a site that enables the student to look at the nutritional values of most major fast food retailers and how certain ingredients impact on our health and wellbeing.</p>
<p>Spring 1</p>	<p>NHS App Design. Algorithmic thinking and Python coding.</p>	<p>Skills:</p> <ul style="list-style-type: none"> • Analysing a proposed new technology (an emergency services app that can take a live stream, with patient information to improve types and rates of response). • Decide on areas where algorithms can be used to provide a computational solution. • Identifying problem areas and providing possible solutions (abstraction and decomposition). • Select the appropriate programming constructs, link constructs and explain the variables and how an algorithm works. • Test a proposed solution and document areas for improvements. • Converting an algorithmic design into programmable code using appropriate program commands. • Creating and executing a programmed solution using Python coding. • Designing a test table to test and evaluate the coded solution. 	<p>Peer assessment to test the reliability of the coded solution.</p> <p>Teacher assessment to check:</p> <ul style="list-style-type: none"> • The program fully addresses the requirements of the problem with minor omissions. • A full solution has been built with little or no logic errors, showing the effective use of debugging skills. • Subprograms, programming constructs, data validation and the choice of data types and structures lead to an overall program which is fully functional. • The program has been fully decomposed into subprograms and computing techniques are used to make the program clear and easy to understand. 	<p>Students will look at a first aid tutorial, this is in video format with real emergency situations that the viewer can interact with using the keyboard. This provides an induction into first aid with printable certificates at the end of the training from the resuscitation council.</p>

		<p>Knowledge:</p> <ul style="list-style-type: none"> • Students can identify the different constructs used in the creation of an algorithmic diagram (Inputs/outputs, processes, selection and start/stop elements). • Problem solving skills, looking at a system and its requirements and applying abstraction and decomposition techniques. • System inputs and how to identify the user inputs that will be required in the design phase. • Iteration and selection and how to identify conditional statements and where a program needs to loop. • The characteristics of a successful algorithm. • Further practise using free open source text based programming language (Python). • Reinforce generic programming terms used across all programming platforms. • Apply a range of coding instructions to gain desired outcomes. • How to test and evaluate a programmed solution. 		
<p>Spring 2</p>	<p>Python Coding Exercises.</p>	<p>Skills:</p> <ul style="list-style-type: none"> • Creating and executing a programmed solution using Python coding. • Performing mathematical operations using integers and float numbers. • Selecting appropriate data type commands (Boolean, char and string). • Defining variables and constants. • Creating conditional statements (If, else and elif commands) • Creating lists (arrays) and using search and sort commands • Identifying errors in code. <p>Knowledge:</p> <ul style="list-style-type: none"> • Learn a range programming data types. • Learn a range of programming commands. 	<p>Self-assessment based on a range set tasks and problems with model answers to self-assess against.</p>	<p>Using a higher level text based programming language which can be used free as an online resource. The aim is to develop an interest in coding languages and providing an insight into the career opportunities that exist.</p>

		<ul style="list-style-type: none"> • Understand sequencing, selection and iteration (looping). • Identifying syntax errors. • Learning techniques to ensure programs are easy to read and understand (Adding comments, using descriptive names, Indentation and white spacing). 		
Summer 1	E-Waste. A4 Publisher article.	<p>Skills:</p> <ul style="list-style-type: none"> • Identifying components used in computing • Identifying hazardous substances within computer components. • Analysing the ways in which computer components are disposed of, e.g. Burnt or landfill. • How the materials or components identified protect or improve performance. • Explain how a material is harmful. • Explain what options there are to improve the effects of harmful materials on the environment. • Identify the legislation that computer components must adhere to in the manufacture and disposal stage. • Formatting and editing design and content. <p>Knowledge:</p> <ul style="list-style-type: none"> • RoHS (The restriction of Hazardous Substances 2002/95/EC). The European Union directive which restricts the use in harmful materials in products in the EU market from 2006. • Identification and understanding which materials used (raw material extraction) in production are non-renewable and harmful. • Which energy efficient measures exist and how the use of renewable energy reduces the carbon footprint of Computing Technology. 	Formal assessment based on the identification of at least 3 harmful substances, the discussion relating to the impact on the environment and the discussion of the use of legislation to reduce environmental issues.	Almost all students have some form of technology. It is important they gain an insight into how the manufacture, use and disposal of computing technology is having a significant impact on the environment, using up resources of non-renewable materials, which is creating large piles of harmful e-waste. This links in with the large quantities of energy being used and the potential damage to people's health. This should influence positive student behaviour in relation to usage and disposal.
Summer 2	E-safety game. (There is an option to create a traditional board game, or an interactive quiz on Power Point or Scratch).	<p>Skills:</p> <ul style="list-style-type: none"> • Block coding an impossible quiz using Scratch software online. • Students can choose to design their quiz using hyperlinks and action button in PowerPoint. • Designing a plan for their game. 	Peer assessment based on suitability for audience, interactive opportunities and the games outcomes (themes on e-safety and the use of technology).	Students need to develop an awareness of new ways to protect their online privacy and identity, and how to report the range of

- Block coding, creating broadcast to move from one stage to another (creating levels using conditional statements and variables to provide a scoring system).
- Designing a pathway to navigate through the game in a logical and engaging fashion.
- Testing and evaluating their design and documenting areas for improvement and recording areas of good design or good challenge.
- Creating a way to capture feedback and reviewing what their feedback said from players.

Knowledge:

- Students will work in pairs or small groups and will be expected to choose and select the platform to design their game on (Block coding will provide a greater opportunity for a higher assessed level due to the programming element).
- They will learn how to develop transitions and where to place challenging hyperlinks to provide challenge for their audience.
- They will learn how to design a traditional game, with cards and counters if this is the option the group selects.
- They could develop their understanding of block coding so that they can create levels that change based on the game players answers.
- They will develop an awareness of what challenge will look like to their audience, this will be based on the research they do prior to designing their own quiz.
- They will focus on their experience of e-safety and how technology can affect online safety.
- Learning new ways to protect people's online privacy and identity, and how to report a range of concerns.
- How to tailor their experiences to their audience (Year 7 students starting Hobart in September).

concerns. They need to consider the different age ranges and use their experiences to provide a positive message to younger students.