

S2 Computing Science

WB	Content	Organiser	Es and Os	Benchmark	Homework
1 June	Computer Animation <ul style="list-style-type: none"> Intro to animation using Pivot Stopframe animation using drawplus Stopframe animation using drawplus 	Using digital products and services in a variety of contexts to achieve a purposeful outcome	I can explore and use the features of a range of digital technologies, integrated software and online resources to determine the most appropriate to solve problems. TCH 3-01a	Uses the most appropriate applications and software tools to capture, create and modify text, images, sound, and video to present and collaborate.	
2 June	Computer Animation <ul style="list-style-type: none"> Keyframe animation using Drawplus Keyframe animation using Drawplus Mini project on Keyframe or stopframe animation 	Using digital products and services in a variety of contexts to achieve a purposeful outcome	I can explore and use the features of a range of digital technologies, integrated software and online resources to determine the most appropriate to solve problems. TCH 3-01a	Uses the most appropriate applications and software tools to capture, create and modify text, images, sound, and video to present and collaborate.	

3 June	Computer Animation <ul style="list-style-type: none"> • Mini project on Keyframe or stopframe animation • Mini project on Keyframe or stopframe animation • Mini project on Keyframe or stopframe animation 	Using digital products and services in a variety of contexts to achieve a purposeful outcome	I can explore and use the features of a range of digital technologies, integrated software and online resources to determine the most appropriate to solve problems. TCH 3-01a	Uses the most appropriate applications and software tools to capture, create and modify text, images, sound, and video to present and collaborate.	
4 Aug	Computer Systems <ul style="list-style-type: none"> • Hardware basics including binary • Processor and Von Neumann Architecture • Memory and Von Neumann Architecture 	Understanding and analysing computing technology	I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other. TCH 3-14b	Demonstrates an understanding of the von Neumann architecture and how machine code instructions are stored and executed within a computer system	Hardware and Animation 1
5 Aug	Computer Systems <ul style="list-style-type: none"> • Selecting the correct hardware – Project • Selecting the 	Searching, processing and managing information responsibly	I can use digital technologies to process and manage information responsibly and can reference sources accordingly. TCH 4-02a	Gathers, evaluates and combines data and information from a range of sources to create a publication, presentation or information resource.	

	<p>correct hardware – Project</p> <p>Selecting the correct hardware - Project</p>				
6 Sep	<p>MakeCode</p> <ul style="list-style-type: none"> • Introduction to Make:Code and using the online code editor • Using the Kitronik and downloading games to the device • Cherry Pickr Game and Lesson on Variables 	<p>Understanding and analysing computing technology</p>	<p>I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other.</p> <p style="text-align: right;">TCH 3-14b</p> <p>I can explain the overall operation and architecture of a digitally created solution</p> <p style="text-align: right;">TCH 4-14b</p>	<p>Demonstrates an understanding of basic coding principles such as assignment and iteration.</p> <p>Demonstrates an understanding of how computers represent and manipulate information in a range of formats</p>	
7 Sep	<p>MakeCode</p> <ul style="list-style-type: none"> • Monster Truck Racer and Piskel Lesson • Shark Attack • Mini Project 	<p>Designing, building and testing computing solutions</p> <p>Understanding and analysing computing technology</p>	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements</p> <p style="text-align: right;">TCH 3-15a</p> <p>I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other.</p> <p style="text-align: right;">TCH 3-14b</p>	<p>Writes code which receives and responds to real world inputs (in a visual language).</p> <p>Demonstrates an understanding that computers translate information processes between different levels of abstraction</p>	

8 Sep	MakeCode <ul style="list-style-type: none"> • Happy Flower and Bee • Save the Forest Game • Mini Project 	Designing, building and testing computing solutions Understanding and analysing computing technology	I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other. TCH 3-14b	Writes code which receives and responds to real world inputs (in a visual language). Demonstrates an understanding that computers translate information processes between different levels of abstraction	
9 Sep	MakeCode <ul style="list-style-type: none"> • Mini Project • Mini Project • Mini Project 	Designing, building and testing computing solutions Understanding and analysing computing technology	I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other. TCH 3-14b	Writes code which receives and responds to real world inputs (in a visual language). Demonstrates an understanding that computers translate information processes between different levels of abstraction	
10 Oct	Computer Security and staying safe Online <ul style="list-style-type: none"> • How safe are you 	Cyber resilience and internet safety	I can explore the impact of cyber-crime for business and industry and the consequences this can have on me. TCH 4-03a	Evaluates the digital footprint of industry and identifies good practice	Security 1

	<p>online and digital footprint</p> <ul style="list-style-type: none"> • Biometrics and Firewalls • Encryption an security 			Identifies the main causes of security breaches in industry.	
11 Oct	<p>Computer Security and staying safe Online</p> <ul style="list-style-type: none"> • Malware, bots and viruses • Computer related laws and examples of breaches • Safe disposal of data and devices 	Cyber resilience and internet safety	<p>I can explore the impact of cyber-crime for business and industry and the consequences this can have on me.</p> <p>TCH 4-03a</p>	<p>Demonstrates understanding of how cyber security breaches in industry can impact on individuals</p> <p>Demonstrates understanding of how industry collects and uses personal data ethically and how this relates to data security legislation.</p>	
12 Oct	<p>Creating Websites</p> <ul style="list-style-type: none"> • How the Internet works and anatomy of a browser • Hardware • Revision of HTML tags and wireframing 	Designing, building and testing computing solutions	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements</p> <p>TCH 3-15a</p>	Designs and builds web pages using appropriate mark-up languages.	Security 2

13 Nov	HTML <ul style="list-style-type: none"> Using images (alt, width and height) Linking to other pages using (a) tag Creating ordered and unordered lists 	Designing, building and testing computing solutions	I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a	Designs and builds web pages using appropriate mark-up languages.	
14 Nov	Creating Websites <ul style="list-style-type: none"> Using foreground and background colours Using DIV tag and STYLE tags 	Designing, building and testing computing solutions	I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a	Designs and builds web pages using appropriate mark-up languages.	HTML 1
15 Nov	Creating Websites <ul style="list-style-type: none"> Create a school website Create a school website Tables extension 	Designing, building and testing computing solutions	I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a	Designs and builds web pages using appropriate mark-up languages.	HTML 2
16 Nov	Creating Websites <ul style="list-style-type: none"> Tables extension Adding interactivity with Javascript 	Designing, building and testing computing solutions	I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions. TCH 4-15a	Design and build web pages which includes interactivity.	Assessment 1

17 Dec	<p>Game Design and Development</p> <ul style="list-style-type: none"> • Top 5 Games • Tutorial 1 & 2 • Heroes & Villains <p>* Optional MakeCode Chase the Pizza</p>	Designing, building and testing computing solutions	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables.</p> <p>Can find and correct errors in program logic.</p>	
18 Dec	<p>Game Design and Development</p> <ul style="list-style-type: none"> • Tutorial 3 • Tutorial 4 • Tutorial 5 <p>* Optional MakeCode Free Throw</p>	Designing, building and testing computing solutions	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables.</p> <p>Can find and correct errors in program logic.</p> <p>Writes code which receives and responds to real world inputs</p>	
19 Dec	<p>Game Design and Development</p> <ul style="list-style-type: none"> • SDD Process • Tutorial 6 • Polygons • Tutorial 7 <p>* Optional MakeCode Winter</p>	Designing, building and testing computing solutions	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables.</p> <p>Can find and correct errors in program logic.</p> <p>Writes code which receives and responds to real world inputs</p>	

20 Jan	<p>Game Design and Development</p> <ul style="list-style-type: none"> • Tutorial 8 • Variables • Tutorial 9 <p>* Optional MakeCode Galaga</p>	Designing, building and testing computing solutions	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables.</p> <p>Can find and correct errors in program logic.</p> <p>Writes code which receives and responds to real world inputs</p> <p>Interprets a problem statement, and identifies processes and information to create a physical computing and/or software solution.</p>	
21 Jan	<p>Game Design and Development</p> <ul style="list-style-type: none"> • Tutorial 10 • Top 5 Enemies • Tutorial 11 pt.1 • Tutorial 11 pt.2 <p>* Optional MakeCode Jungle Jump Platformer</p>	Designing, building and testing computing solutions	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables.</p> <p>Can find and correct errors in program logic.</p> <p>Writes code which receives and responds to real world inputs</p> <p>Interprets a problem statement, and identifies processes and information to create a physical computing and/or software solution.</p>	
22 Jan	<ul style="list-style-type: none"> • Game JAM 	Designing, building and testing computing solutions	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables.</p> <p>Can find and correct errors in</p>	

			<p>refine computing solutions based on requirements</p> <p>TCH 3-15a</p>	<p>program logic. Writes code which receives and responds to real world inputs Interprets a problem statement, and identifies processes and information to create a physical computing and/or software solution.</p>	
23 Jan	<ul style="list-style-type: none"> Game JAM 	<p>Designing, building and testing computing solutions</p>	<p>I understand language constructs for representing structured information</p> <p>TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements</p> <p>TCH 3-15a</p>	<p>Designs and builds a program using a visual language combining constructs and using multiple variables. Can find and correct errors in program logic. Writes code which receives and responds to real world inputs Interprets a problem statement, and identifies processes and information to create a physical computing and/or software solution.</p>	
24 Feb	<p>Microbit</p> <ul style="list-style-type: none"> Introduction to microbit(parts of the microbit and using the block editor Using the display Variables and 	<p>Understanding and analysing computing technology</p>	<p>I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other.</p> <p>TCH 3-14b</p> <p>I can explain the overall operation and architecture of a digitally</p>	<p>Demonstrates an understanding of the von Neumann architecture and how machine code instructions are stored and executed within a computer system</p> <p>Demonstrates an understanding of how computers represent and manipulate information</p>	

	inputs from sensors		created solution TCH 4-14b	in a range of formats	
25 Feb	Microbit <ul style="list-style-type: none"> • More complex programs • Mini Project • Mini Project 	<p>Designing, building and testing computing solutions</p> <p>Understanding and analysing computing technology</p>	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p> <p>I can describe the structure and operation of computing systems which have multiple software and hardware levels that interact with each other. TCH 3-14b</p>	<p>Writes code which receives and responds to real world inputs (in a visual language).</p> <p>Demonstrates an understanding that computers translate information processes between different levels of abstraction</p>	
26 Feb	Database <ul style="list-style-type: none"> • Introduction to flat file database (structure) • Field types and creating first access table from a data dictionary • Using filters to find information quickly 	<p>Understanding and analysing computing technology</p> <p>Designing, building and testing computing solutions</p>	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Demonstrates an understanding of structured information in programs, databases or webpages</p> <p>Identifies a set of characteristics describing a collection of related items that enable each item to be individually identified</p> <p>Represents and manipulates structured information in programs, or databases for example, works with a list data</p>	Database 1

				structure in a visual language, or a flat file database.	
27 Feb	Database <ul style="list-style-type: none"> • Sorting a database • Using queries • Problem solving using access database 	<p>Understanding and analysing computing technology</p> <p>Designing, building and testing computing solutions</p>	<p>I understand language constructs for representing structured information TCH 3-14a</p> <p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Identifies a set of characteristics describing a collection of related items that enable each item to be individually identified</p> <p>Represents and manipulates structured information in programs, or databases for example, works with a list data structure in a visual language, or a flat file database.</p>	
28 Feb	Database <ul style="list-style-type: none"> • Database project at level 3/4 • Database project at level 3/4 • 	<p>Designing, building and testing computing solutions</p>	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a</p>	<p>Represents and manipulates structured information in programs, or databases for example, works with a list data structure in a visual language, or a flat file database.</p>	Database 2
29 Mar	Programming in VB.Net <ul style="list-style-type: none"> • User interface and the form and toolbox • Working with text 	<p>Designing, building and testing computing solutions</p>		<p>Understands basic control constructs such as sequence, selection repetition, variables and numerical calculations in a textual language</p> <ul style="list-style-type: none"> • Demonstrates an understanding of how visual 	Revision homework 2

	<ul style="list-style-type: none"> and variables Practical work 			<p>instructions and textual instructions for the same construct are related</p> <ul style="list-style-type: none"> Identifies and explains syntax errors in a program written in a textual language 	
30 Mar	<p>Programming in VB.Net</p> <ul style="list-style-type: none"> Types of variables Using textboxes for input and output Practical work 	Designing, building and testing computing solutions	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions.</p> <p>TCH 4-15a</p>	Writes a program in a textual language which uses variables within instructions instead of specific values where appropriate.	
31 Mar	<p>Programming in VB.Net</p> <ul style="list-style-type: none"> Practical work Arithmetic and concatenating text and variables Practical work 	Designing, building and testing computing solutions	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions.</p> <p>TCH 4-15a</p>	Writes a program in a textual language which uses variables within instructions instead of specific values where appropriate.	
32Mar	<p>Programming in VB.Net</p> <ul style="list-style-type: none"> Designing using pseudocode, DFD and structure 	Designing, building and testing computing solutions	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions.</p>	Creates a design using accepted design notations for example, pseudocode storyboarding, structure diagram, data flow diagram, flow chart	Assessment 2

	<ul style="list-style-type: none"> diagrams Using Inputbox for input Practical work 		TCH 4-15a		
33 April	Programming in VB.Net <ul style="list-style-type: none"> Simple selection using the IF statement Practical work Using conditional loops <p>* Optional MakeCode Hour of Code/Save the Forest & Global Warming Lesson – Earth Day 22nd April</p>	Designing, building and testing computing solutions	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions.</p> <p>TCH 4-15a</p>	<p>Debugs code and can distinguish between the nature of identified errors e.g. syntax and logic.</p> <p>Writes test and evaluation reports</p>	
34 April	Programming in VB.Net <ul style="list-style-type: none"> Practical work Using Fixed loops Complex conditions using AND, OR and NOT with selection 	Designing, building and testing computing solutions	<p>I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions.</p> <p>TCH 4-15a</p>	<p>Writes a program in a textual language which uses variables and constructs such as sequence, selection and repetition.</p> <p>Can make use of logical operators – AND, OR, NOT.</p>	
35 May	Programming in	Designing, building and testing	I can select appropriate development tools to design, build, evaluate and	Interprets a problem statement, and identifies processes and	

	VB.Net <ul style="list-style-type: none"> • Practical project “Scotland’s got Talent” – this covers aspects of level 3 and 4 Outcome for programming • Practical project • Practical project 	computing solutions	refine computing solutions based on requirements TCH 3-15a	information to create a physical computing and/or software solution. Can find and correct errors in program logic	
36 May	Programming in VB.Net <ul style="list-style-type: none"> • Practical project • Practical project • Practical project 	Designing, building and testing computing solutions	I can select appropriate development tools to design, build, evaluate and refine computing solutions based on requirements TCH 3-15a	Interprets a problem statement, and identifies processes and information to create a physical computing and/or software solution. Can find and correct errors in program logic	
37 May	Programming in VB.Net <ul style="list-style-type: none"> • Practical project • Practical project • Practical project <p>* Optional MakeCode Happy Flower World Bee Day IDL Lesson (May 20th)</p>	Designing, building and testing computing solutions	I can select appropriate development tools to design, build, evaluate and refine computing solutions to process and present information whilst making reasoned arguments to justify my decisions. TCH 4-15a	Identifies and explains syntax errors in a program written in a textual language Analyses problem specifications across a range of contexts, identifying key requirements. Writes a program in a textual language which uses variables and constructs such as sequence,	

				<p>selection and repetition</p> <p>Creates a design using accepted design notations for example, pseudocode storyboarding, structure diagram, data flow diagram, flow chart.</p> <p>Debugs code and can distinguish between the nature of identified errors e.g. syntax and logic.</p> <p>Writes test and evaluation reports.</p>	
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