Alcester Academy Curriculum Planning: Key Stage 3 – Year 8 2021-22

Pupils in year 8 have two (1 hour) lessons of ICT & Computing each week.

Department: *ICT & Computing*							
Term	Topic/Subject	Assessment Objectives	Knowledge Acquisition	Skill building & intent	Wider reading opportunities, including numeracy & SMSC.	Assessment Task	SEND & PP
Aut 1	**(1) Fusion Introduction**	• Be able to learn how to use the Fusion 2.5 game design software. • Be able to add objects, movement properties, and events in correct sequence.	Pupils learn how to create a breakout style game, using industry standard game design engine software - Clickteam Fusion 2.5.	Introduction to Fusion 2.5, video showing professional games produced, discussion about game design as career choice. Pupils then begin to produce initial 'Chocobreak' breakout style game, following explanations on skill card resources & tutorial videos on shared area of network. Pupils to extend basic game design, own level, bonus features, power-ups etc.	Resources are introduced, and demonstrated to pupils visually. A Combination of pdf based instructions, and tutorial videos are then used throughout. Discussion about game design as career choice, importance of game design industry in south Warwickshire area. Keywords: Events, conditions, sequencing, timings. https://www.clickteam.com/clickteam-fusion-2-5	Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs.	Techniques are demonstrated & explained during lessons, highlighting how to use features of software. Pupils can use skill card pdf resources, supported by tutorial videos showing process of creating game.
	(2) OSA E Safety	• Understand how to complete the Online Safety Alliance e-safety course requirements.	Pupils learn how to identify appropriate risks of online activity, and how to report these concerns.	Using OSA online e-safety resources pupils will complete a variety of online tests to check understanding & knowledge of topics including online bullying, grooming, live streaming, safe smartphone use, digital footprints, health risks, consequences of poor choices, and how to report concerns.	Resources are introduced, and demonstrated to pupils visually. A Combination of website based based instructions, and tutorial videos are then used throughout. Safe use of internet, dangers to be aware of with other technologies. Topics to be covered include online bullying, use of smartphones, staying safe & healthy, digital citizenship, cybersecurity, consequences, and how to report concerns.	Pupils will complete online tests for each section of the OSA course, and require a pass rate of at least 80%. They will receive a certificate on completion of this course.	Additional support to be provided where required for both SEND & PP pupils to help access resources.

					Keywords: E-Safety terms, including grooming, streaming, digital footprints. https://certificate.onlinesafetyalliance.org/#home-page-carousel		
Aut 2	**(3) Html Website Design**	• Understand what Html coding is, and how to start to write simple code. • Understand how to use hyperlinks in html, and how to insert images. • Understand how to use CSS to change the colour of website content. • Understand how to use DIV tags. • Understand how to use lists - both ordered and unordered in html code.	Pupils learn how to create website resources, using html textual coding.	Introduction to Html coding, to create interactive website designs. Pupils complete a range of activities relevant to the raspberry pi foundation online resources, including creating a personalised birthday/greetings card, telling a story in cartoon style layout, creating a wanted poster, and finally a recipe.	Resources are introduced, and demonstrated to pupils visually. Importance of computer programming/Html & website design coding skills, opportunities in career development. Keywords: Html tags, layout, cascading style sheets, ordered & unordered lists. Hyperlinks. Inserting images.	Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs.	All resources are delivered to pupils using visual explanations. Raspberry pi foundation based website resources are supported by tutorial videos each lesson. Additional support provided to PP/SEND where required.
	(4) Mobile App Development	• Identify when a problem needs to be broken down • Implement and customise GUI elements to meet the needs of the user • Recognise that events can control the flow of a program • Develop a partially complete application to include additional functionality • Identify and fix common coding errors	Pupils learn how to create basic app designs, using an online block code editor - App Lab through www.code.org organisation.	In a world where there's an app for every possible need, this unit aims to take the learners from designer to project manager to developer in order to create their own mobile app. Using App Lab from code.org, learners will familiarise themselves with the coding environment and have an opportunity to build on the programming concepts they used in previous units before undertaking their project. Learners will work in pairs to	Resources are introduced, and demonstrated to pupils visually. Importance of computer programming/App design coding skills, opportunities in career development. Keywords: decomposition, sequencing, variables, selection, operators, event handling.	Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs.	Techniques are demonstrated & explained during lessons, highlighting how to use features of software. Additional support provided to PP/SEND where required.

		- Pass the value of a variable into an object - Establish user needs when completing a creative project - Apply decomposition to break down a large problem into more manageable steps - Use user input in a block-based programming language - Use a block-based programming language to create a sequence - Use variables in a block-based programming language - Use a block-based programming language to include sequencing and selection - Use user input in a block-based programming language - Use variables in a block-based programming language - Reflect and react to user feedback		consider the needs of the user; decompose the project into smaller, more manageable parts; use the pair programming approach to develop their app together; and finish off by evaluating the success of the project against the needs of the user. This unit focuses on the development of the following key techniques: - Event handling - Sequencing - Variables - Selection - Operators Design, use, and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables, or arrays]; design and develop modular programs that use procedures or functions Create, reuse, revise, and repurpose digital artefacts for a given audience, with attention to trustworthiness, design, and usability https://docs.google.com/document/d/1K4mSVrXeaQlqvNlQvskQMdUgoM6VDCev4mhzxNKP_L0/edit?usp=sharing			

| Spr 1 | (5) Introduction to Python Programming | • Describe what algorithms and programs are and how they differ
• Recall that a program written in a programming language needs to be translated in order to be executed by a machine
• Write simple Python programs that display messages, assign values to variables, and receive keyboard input
• Locate and correct common syntax errors
• Describe the semantics of assignment statements
• Use simple arithmetic expressions in assignment statements to calculate values
• Receive input from the keyboard and convert it to a numerical value
• Use relational operators to form logical expressions
• Use binary selection (if, else statements) to control the flow of program execution
• Generate and use random integers
• Use multi-branch selection (if, elif, else statements) to control the flow of program execution
• Describe how iteration (while statements) controls the flow of program execution | Pupils learn to use a textual based programming language - Python. | This unit introduces learners to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration. Emphasis is placed on tackling common misconceptions and elucidating the mechanics of program execution.

A range of pedagogical tools is employed throughout the unit, with the most prominent being pair programming, live coding, and worked examples.

Pupils will learn to:
• use two or more programming languages, at least one of which is textual, to solve a variety of computational problems
• understand how instructions are stored and executed within a computer system
• design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems

https://docs.google.com/document/d/1m3yBMLAAmBdOH6kCk-zjO2xHDS7_wrwsnF1b-nH5IP8/edit?usp=sharing | Resources are introduced, and demonstrated to pupils visually.

Importance of computer programming/Html & website design coding skills, opportunities in career development.

Keywords: Functions, syntax, variables, data types, lists, dictionaries, iteration, modulus operator, repetition. | Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms.

Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs. | All lesson content is demonstrated and delivered through visual resources, with supporting tutorial videos outlining each stage of concepts delivered. Extension tasks are available through online raspberry pi foundation resources, again with live animated graphics and step by step instructions. Additional support provided to PP/SEND where required. |

Spr 2	**(5) Introduction to Python Programming - cont.**	• Use iteration (while loops) to control the flow of program execution • Use variables as counters in iterative programs • Combine iteration and selection to control the flow of program execution • Use Boolean variables as flags				Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs	
Spr 2 cont.	**(6) Ultimate Breakout**	• Understand how to produce a multimedia moodboard. • Understand how to plan out each stage of your game using a Storyboard format. • Understand how to design and create graphics for game using Serif DrawPlus software.	Pupils build on knowledge from Fusion tutorial, extending this to include theme/target audience analysis using moodboards, and graphics creation & individual game features.	Introduction to use of multimedia moodboards during design process, how to create, methods used, and reasons why designers use them. Pupils to create a multimedia moodboard in powerpoint, export finished design as a video file. Introduction to use of DrawPlus software to create graphics needed for initial stages of game design.	Resources are introduced, and demonstrated to pupils visually. A Combination of pdf based instructions, and tutorial videos are then used throughout. Discussion about game design as career choice, importance of game design industry in south Warwickshire area. https://www.clickteam.com/clickteam-fusion-2-5 Keywords: Trigger Event Action Frame editor Event editor Storyboard editor Path movement Sideways shooter Numeracy – use of coordinates, angles, timings, frequency.	Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs.	All lesson content is demonstrated and delivered through visual resources, with supporting tutorial videos outlining each stage of concepts delivered. Additional support provided to PP/SEND where required.

					Target audience, purpose, requirements.		
Sum 1	**(6) Ultimate Breakout - cont.**	• Understand how to create design using Fusion 2.5 game design software. • Understand how to create design using Fusion 2.5 game design software. • Understand how to add background music and sound effects to game designs. • Understand how to create a test table to check functionality of fusion game work.		Pupils to create logo for game, then graphics for menu and instruction screens. Pupils to export graphics into suitable file format. Pupils to create suitable levels for game using Fusion 2.5 software & exported graphics from DrawPlus (menu, instructions, levels 1-3, game over, high score). Pupils to add background music and sound effects to game designs, using links & sound files on shared area. Pupils to use audacity to convert mp3 files to wav format. Pupils to begin to check and test functionality of game designs, by creating & using test tables effectively.	https://www.clickteam.com/clickteam-fusion-2-5 Trigger Event Action Frame editor Event editor Storyboard editor Path movement Sideways shooter Numeracy – use of coordinates, angles, timings, frequency. Target audience, purpose, requirements.	Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs.	All lesson content is demonstrated and delivered through visual resources, with supporting tutorial videos outlining each stage of concepts delivered. Additional support provided to PP/SEND where required.
Sum 2	**(7) Blender Animations**	• Add, delete, and move objects • Scale and rotate objects • Use a material to add colour to objects • Add, move, and delete keyframes to make basic animations • Play, pause, and move through the animation using the timeline • Create useful names for objects	Films, television, computer games, advertising, and architecture have been revolutionised by computer-based 3D modelling and animation. In this unit learners will discover how professionals create 3D animations using the industry-standard software package, Blender. Links are made throughout to computer science, computational thinking, and the world of	By completing this unit learners will gain a greater understanding of how this important creative field is used to make the media products that we consume. Sessions will take learners through the basics of modelling, texturing, and animating; outputs will include 3D models, short videos, and VR.	Resources are introduced, and demonstrated to pupils visually. A Combination of .doc based instructions, and tutorial videos are then used throughout. Links are made throughout to computer science, computational thinking, and the world of work. Tools and techniques learnt in this unit can also be used for 3D printing.	Assessed through continual assessment techniques during lessons, and pupils complete multiple-choice quiz at end of the unit on Google Forms. Assessment results & teacher feedback then recorded by pupils on their own online individual learning logs.	

		• Join multiple objects together using parenting • Use edit mode and extrude • Use loop cut and face editing • Apply different colours to different parts of the same model • Use proportional editing • Use the knife tool • Use subdivision • Add and edit set lighting • Set up the camera • Compare different render modes • Create a 3–10 second animation • Render out the animation	work. Tools and techniques learnt in this unit can also be used for 3D printing.		Numeracy - coordinates, scale, rotation. Keywords: keyframe animation, parenting, rendering.	

Last updated: June *2021*