ICT & COMPUTING

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The ICT department offers stimulating and engaging curriculum. All KS3 pupils are taught skills in communicating information, developing ideas (coding), evaluating information and finding information

Schemes of work:

Year 7	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Introduction to Word Processing Word processing software on a computer and PAGES on iPad • How to locate WP software types • Creating a blank document • Adding text, images and shapes to a document • Formatting place and position on a document • Creation of document types based on an objective • Add a simple table and edit it • Know the basic tool tabs and the options available • Open, save and edit documents • Using a keyboard and mouse to navigate the software and organise data on screen • Practice using both onscreen keyboards as well as hardware •	**Introduction to CODING** Computer Sciences *Sequencing *Instructions *Recording *LOGO *HOUR OF CODE *BBC MICROBIT • To identify that computers can be used to make things happen specifically • Explore the ways personal computer and video gaming use can be linked to ICT use • Explore modern and older computerised games and identify what they all have in common in terms of components • identify that games operate using commands we create known as codes • Explore the relationship between instructions and coding • To explore basic commands that can be created using different software programs and languages to make things happen • Pupils explore the use of the BBC Microbit hardware and software to create codes that contain 'strings' of code to create simple programs that can be physically used via hardware. • Explore ways that codes can be created and edited to fulfil an outcome specifically needed	**Handling Data** Introduction to SPREADSHEETS *RECORDING DATA WITH NUMBERS & WORDS • Identify spreadsheet software and recognise what a column, row and cell is • Explore navigating a spreadsheet using cell referencing using the FILL tool to record the location of a cell • Look at cell contents and identify numerical or text based data • Explore how spreadsheets can be used to solve problems using mathematical operations • Explain what is meant by the term formula and how they are created and used to work out the answers to problems • Create the basic formulas for (=add, =subtract, =multiply and =divide) • To select cells using different inputs and selections • Use the various tab tools to edit contents of a spreadsheet including borders, fills and shape options	**Introduction to presenting information** PRESENTATION SOFTWARE (PPT & KEYNOTE) Key tools Basic uses Improving Creating own basic • Identify different ways that information can be presented to people and how each fulfils a different expectation • Explore using software to present information for a specific purpose • Locate and select Presentation software from a selection of software choices • Explore and use the key tab tools to add text, shapes and images to a slide. • Identify the ways shortcuts can be used across most Microsoft software programs • Explore a range of presentations and investigate the positive and negative elements, stating what could be changed • Locate and use the various FORMAT menu tools to edit the content of selecting information. • Add multimedia to a presentation by locating and importing it onto the software	**HOW COMPUTERS WORK** Computer history Language of computing Main components • Understand the key components of a computer and what they do in terms of use • Explore the different types of hardware that can be found and used with a computer • Explore different types of software available on different platforms and how they can be used as well as for what purposes • Understanding the language of computers. What is Binary and how does this get used by a computer to control the different elements used by people • Investigate the historical evolution of computers and the changes that have occurred • Investigate the way that RAM and ROM are used to store and control data • Explore the different types of input and output devices that are linked to computers • Mobile technologies and the use of tablets and phones	**Combining ICT** Coding variables Using BBC Microbit and SCRATCH (MIT) to animate Different INTERFACES to create media • Recap the IDE for the BBC Microbit and how the control is split into different categories • Explore using PAUSE functions and timings to control how a created code operates • Locate 'bugs' within a code and ways of correcting errors by 'debugging' and logically thinking about what is happening and what should be happening • Explore using the random functions to create a code which results in an unknown outcome for a specific result • Investigate creating simple programs that result in a randomised outcome and then testing the program using hardware. • Explore creating movement using X and Y on a smaller set of quadrants and controlling them using an accelerometer built into a piece of hardware • Use coding principles from one language on another.

Year 8	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	GRAPHIC MANIPULATION Introduction to Adobe Photoshop • Explore types of digital image and 'traditional' image media • Location of Graphic media software and types • Opening and creating a new file to work on. • Basic tools to create images exploration and keyboard shortcuts • recreation of images using brush and palette tools • Saving and editing different file types • Using layers and transparency tools • Use of extraction tools to remove images and image components. • Importing media onto software types and arranging elements.	Introduction to GAME CREATION: SCRATCH Coding physical effects, making different simple games Follow guides to create and a game • Create a logon for Scratch (MIT based coding software) • Explore the content of created programs and user created content • Explore the IDE of the software and the format of block based coding system • Use the 'create' area to design and edit sprites • Explore using the IF, ALSO systems of blocks to create strings of code to make things happen in relation to events or interactions • Link mathematical knowledge of movement in quadrants of X and Y to control movement more precisely • Design and animate sprites using the IDE as well as control coding to make objects move • Explore ways to input control of objects using IF – THEN codes • Use the knowledge of games to identify key components and implement them in creating a simple game with controls • Create codes that involve interactions between different objects	FEATURES OF WEBSITE CREATION Hyperlinking Fake web design on PowerPoint • Identify the features of websites and how they can be located • Look at different websites and the key components they have in common • To identify that websites are navigated using linking from menus • Explore planning methods to organise information using both handwritten and software tool methods • Use software tools to create key features of websites and experiment with layout and content for information • Look at ways of adding multimedia (sound and video) to a page and control how it looks • Explore formatting pages by designing using website templates • Control the way users interact with a webpage by creating and controlling hyperlinks throughout a document • Add hyperlinks to navigation and GUI tools • Design and create web page style document through the use of hyperlinks. • Selecting, copying, editing and pasting information	DATABASES Sorting data Branching databases Introduction to locating information by searching methods • Explore what is meant by the terms data and information • Explore different types of information that can be used. Create different lists of data • Identify the ways that data can be used to locate specific information • Introduce the concept of BOOLEAN searches and use this to organise data in different ways • Experiment with ways of creating branching data to organise it in a way that results in organisation • Select a variety of types of information and use Boolean branching to locate specific results • Use organisational skills and logical reasoning to organise information • identify ways that questioning can be used alongside databases to locate specific information • Begin to express data in more complex ways through the use of records and further organised using fields • Explore ways of presenting search results from databases to present key information	ANIMATION Exploring animation software types iPads Sticknodes (iPad) PIVOT V5 Procreate Dreams • Identify different types of film genres and examples historically • Explore the components of video media specifically animation in relation to narrative and storytelling content • Investigate ways of planning key features of a story using different techniques • Locate animation software programs from a directory • Create a new animation and select content from the options • Investigate using Frames to add and sequence content so that motion is created • Experiment with the mechanics of movement to sequence motion and events of both action and reaction • Use tools to create and edit animation content to enhance both content and effects • Generate sequences and short clips which can be combined to create larger sequences • Look at the options for saving work and the most suitable file type. • Add sequences to other software and further edit by adding sound and video effects • Look at different exporting methods of videos in order to save as well as further edit	GAME CREATION Explore coding physics effects Create physics based game - PONG Alter the game and modernise • Explore the principles of how objects interact with each other in the real world • Use software to investigate how physics changes the results of different outcomes. • Create codes that simulate gravity on an object and investigate how variables can be changed to alter the way users interact with them • Experiment with Scratch coding blocks to create and alter physical phenomena which can be related to a used program • Use knowledge of basic mathematical principals such as angles and velocity to plan ideas for an interactive program • use the Variable IDE element on Scratch to create codes for a program • Identify the main features of a simple game that uses physics which can be replicated • Generate a functional game using the IDE for a game that includes score, timers and variables

Year 9	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	PRESENTING INFORMATION features of formatting tools planning and developing work Adapting for an audience Posters/leaflets • Exploration of planning techniques to organise idea and evaluate successes • Identify the ways different information is presented and the formatting techniques used, cross curricular links to Literacy • Identify key features of adverts and create them using different types of software and tools. • How to create and organise information using a variety of tab tools • Explore the different types of ways people can interact with software and hardware using GUIs • To explain the importance and creation of data security methods including password protection and strength techniques • To locate different types of online information and select it for uses • The available online search methods and ways to refine searches to locate specific data • Creation of folder and file system to save data and locate documents in a clear and organised structure	**TYPES OF DESIGN USING SOFTWARE** Create different documents and layouts by answering questions Using multiple software programs Exam style questions • Identify the ways image searches can be used and refined to find specific information • Explore the key features of copyright and patenting within ICT and explore content that gets 'pirated' the most • Look at the reason for the copyright and patenting act, whom does it protect and how does it help? • Investigate the difference between fact and opinion. Explore online texts, blogs etc and locate fact and opinion. Use identified knowledge to select information and edit it using different software • Compile information and create and format graphs on a spreadsheet about gathered data and explore using formatting tools to present it in a variety of ways • Gather and organise information using a range of sources including web searching • Explore creating presentations using editing tools and adding multimedia as well as controlling it on the slide show	**DIGITAL GRAPHICS AND MULTIMEDIA** Advanced Photoshop formatting, creating locating, downloading sound, image & videos • Explore the creation of different sized documents/canvases and how to create pre-set sizes. • Consolidate how to lasso an item in an image to create a new image. Using eraser tools to tidy an image or selected element • Extract a subject and alter it so that it is in another image. • Alter the filter and colour settings so that an images becomes a different style image • Create an image in a style used in advertising using appropriate canvas size and font settings. • create and adjust the font by either altering preloaded fonts or generating them online then editing • Explore using layers to create elements of an image and them adjusting the components to later merge the sections to create new images • Identify different file types and what the most appropriate types are used for a specific purpose • Experiment using enhancement tools to adjust lighting effects on photographs and images	**SOLVING PROBLEMS USING SPREADSHEETS & DATABASES** Formula types SUM,IF,COUNT, GRAPHS Solving and presenting answers to questions • Recall and recap the key features of using a spreadsheet • What can be placed inside a cell and how the tools can be used to edit the style and location • Use the formulas to work out the answers to basic 4 operations problems • Locate cells containing information and their cell reference then solve an variety of problems • Explore how text based formulas can be created and used to work out different results from data • Use of =sum • use of =max • use of =min • use of =average • use of =% • Use selections within cells to select specific data and interact with it in order to work out requested information • Select information and then convert it into a graph or chart • use the format tools to edit a graph or chart by altering the layout or style • Ensure that graphs and charts have appropriate labels and titles	**CODING A GAME AND PROMOTING IT** Follow guides to create game components :- Shark Game Create adverts for product, poster and video • Recap the ways to login and locate content on Scratch (MIT) coding software • Identify the interactive components of a video game which has cross linked components • Create and edit sprits using the design IDE and extend them by creating different costumes in order to create more professional looking content • Investigate backgrounds and ways of gaining user focus to add to a program • Explore and create different strings of code to create movement, adding the most suitable by designing using the IDE • Creating a home/start screen for a game which has command driven interactions • Create variables to control random movement of sprites • Use knowledge of IF variables to identify ways to generate timers as well life counters that interact across sprites • Design and create menus that can be added to a game • use software to publish games and edit descriptions	**KS 3 BASIC SKILLS REVIEW** planning process GUIs Fact and opinion Computer misuse Software types/uses Presenting information • Identify and record data regarding things people are interested in, look at news stories and record main facts using software tools • Identify how an audience can affect the presentation and content of a document as well as the selected contents • Explore different editing techniques on software by using the Format tab across different Microsoft programs • Identifying the elements of a created piece of work and what can be changed in relation to the outcome • Select file types when saving documents • Locate a document within a folder structure and open, edit and resave it with a clear organisational structure • Use emails to send and respond to communications from others whilst being aware of the responsibility to stay safe and ensure the safety of others • Add attachments to an email as well as embed information within one as a means to convey information • Explore ways of solving problems using software

Presenting information

Careers in ICT/computing:

1438_My Learning My Future_Computer_Science_Final.pdf (careersandenterprise.co.uk)