ICT/COMPUTING

Teachers: Ross Fincham

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	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 GRAPHIC MANIPULATION	Autumn 2 Introduction to GAME	Spring 1 FEATURES OF WEBSITES	Spring 2 DATABASES	Summer 1 ANIMATION	Summer 2 GAME CREATION
	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.	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	 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 	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	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	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	Look at different exporting methods of videos in order to save as well as further edit Summer 1	Summer 2
	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	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	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 image 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	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 a 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 =min • use of =max • use of =werage • 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	Follow guides to create game components: - Create a functional game with common features. 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	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
	and organised structure	presentations using editing tools and adding multimedia as well as controlling it on the slide show	appropriate types are used for a specific purposeExperiment using enhancement tools to	Ensure that graphs and charts have appropriate labels and titles	 across sprites Design and create menus that can be added to a game 	 information within one as a means to convey information Explore ways of solving problems using software

adjust lighting effects on photographs and images	use software to publish games and edit descriptions	

Presenting information

Careers in ICT/computing:

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

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The ICT department offers a stimulating and engaging curriculum which is tailored specifically to pupils who have social, emotional, behavioural and mental health needs. Every unit of study is specifically aimed at allowing children to develop skills that they can build on as they progress through their school journey and use later in life either in a further education setting or in employment. All KS3 pupils are taught skills in communicating information, developing ideas (coding), evaluating information and finding information as well as ways to be creative using a variety of software and hardware.

When pupils reach Key Stage 4, ICT is still taught as a compulsory subject however there are options as to what areas can be developed. Pupils continue to work on a tailor-made curriculum with achievable outcomes and skill development however the aim is to begin working towards qualifications offered that they could use. The pupils develop skills linked to the AQA exam board short courses that focus on the key software and tasks that are most likely to benefit them as the approach the time they move on from Oakfield School and into either further education or employment opportunities.

ICT is also offered as an option to Key Stage 4 pupils, where at the end of Year 9 they can choose to study in more detail. During Year 10 they will explore key skills and develop their knowledge they have developed during Key Stage 3 so that they can enter the Pearson Edexcel (Exam Board) Functional Skills ICT Entry Level 3 exam, which is an online exam that allows them to use their skills to achieve a qualification in the subject. Once they have passed this qualification, they will then have the opportunity to move on and study in more depth to work on the Pearson Edexcel (Exam Board) Functional Skills Level 1 qualification.

Schemes of work:

Year 10 COMPULSARY UNITS OF STUDY

Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
CREATING A MULTIMEDIA	INPUTTING DATA INTO A	CODING USING SCRATCH	MICROSOFT WORD: EDITING AND	CONSTRUCTING AND USING A	APPLYING BASIC PHOTOSHOP SKILLS
PRESENTATION USING	SPREADSHEET AND USING		PRESENTING INFORMATION	SIMPLE DATABASE	
PRESENTATION USING POWERPOINT Ioad the multimedia program PowerPoint. use a design presentation template to create a minimum of four different slides. add text into the slides import graphics stored on the hard drive or from the Internet into the slides use animation to enhance the presentation incorporate slide transitions involving sound and effects run the PowerPoint demonstration slide show	 SPREADSHEET AND USING FORMULAE IN EXCEL input a given list of data into a spreadsheet use the correct formulae to calculate a total for each row and a final total print a copy of the spreadsheet. open a Microsoft Excel worksheet sort data within Excel insert a formulae using +, -, * or / to perform a simple calculation within the worksheet, eg total cost multiplied by quantity use the autosum facility within Excel, eg SUM, AV, 	 open up the Scratch coding application on a PC follow the instructions to produce a simple code run the code and check it works move sprites forward add text speech to a sprite spin a sprite around make a sprite change colour make a sprite glide follow instructions to make a simple game run the coded game to check it works watching demonstrations on how to perform the above tasks, either by 	 turn on the computer and printer select Microsoft Word using the mouse open a new document type or copy a piece of text into the document identify and delete given words and sentences from the document check the spelling in the document using the spell check function label an image save the edited file to their folder print the document out in full colour 	 the meaning of the terms record, field, and file access a database software package design a database structure save the database to an appropriate filename input data print out the database perform a simple search of the database print out the result of the search add at least one new field to the database and enter appropriate data 	 the key things that Adobe Photoshop is used for at least two things that Photoshop can and cannot do create a new project in Photoshop use the basic tools inside photoshop, including the brush tools and shape tools use layers in Photoshop use at least two blend modes, setting the layer opacity to blend between layers adjust the colours and exposure of the image layers crop the layers, remove the backgrounds and use the eraser tool on a layer flatten the layers to combine

 print the PowerPoint slides. 	 print out the worksheet, showing formulae save the spreadsheet with an appropriate name exit the Microsoft Excel Program. 	video or by the teacher/tutor. •	 close the program turn the computer off correctly. 	 save the amended database print out the amended database exit software correctly. 	 add text to an image layer save and export an image from Photoshop as .PNG or another suitable image format.
EAR 10 – OPTIONAL- EDEXCEL FU	JNCTIONAL SKILLS ENTRY LEVEL 3 UI	NITS OF STUDY Spring One	Spring Two	Summer One	Summer Two
Overall introduction to Digital	apply system settings	Creating and editing	Transacting	safe and responsible online	Working with technology ensuring
 consider what ICT they think they use most, why and how important it is in life/work contexts. Using devices and handling information Device types - desktop, laptop, mobile, smart, Connectivity - wired, wireless (Wi-Fi, Bluetooth), Features - input (keyboard, touchscreen, mouse, mousepad, scanner, microphone, camera), Features - output (monitor/screen, speaker, printer, camera) Using devices and handling information Uses - Communication (phone/video call, email, social media), Creating/editing documents, Media (images, text, video, audio, stream, livestream), Lifestyle (entertainment, games, health and fitness, social media), Online transactions (services, financial) Applications - () 	 Learners create a fact sheet about system settings. navigate online content to locate required information ways they currently use the internet (online) to navigate and find information, etc online. carry out searches on the internet Learners use at bookmarks. use files to read and store information set up files and folders on shared network/Cloud for learners to find and retrieve files and information and download/resave. create files and save them in folders on shared network, on Cloud, on removable media – peer feedback on names chosen for files and where they are stored. find and download specific information (text, images) and choose where to store it. create simple flyers or draft social media posts about how, when and where to save information such as files, graphics, etc. These should highlight the importance of organization to aid retrieval. 	 Use a suitable application to ether, edit and format text. to provide a range of documents produced by word processing – poster, flyer, etc) and a suitable slide show that includes a range of information (text, images) identify a suitable application to use in a given context. They should know the purpose of a range of documents and presentation(s). entering, editing and formatting text and numbers. Use a suitable application to enter, edit and format graphics use resources to create a specific document or slide show for a specific audience. choose appropriate formatting techniques. FOLLOW SPECIFIC INSTRUCTIONS TO ACHIEVE AN OUTCOME Combine different types of information for a given purpose combine types of information within a given work or real-life context for a specific purpose and ensure that the 	 Complete and submit an online form (including personal details) and comply with data validation. The focus on online forms used for a range of transactions. Know what is meant by a digital footprint, understand the implications of a digital footprint and know the range of digital activities that leave a digital footprint. know how to complete and submit and online form, complying with data validation and verification checks. Purpose of online forms: Registration Application Request a service Financial transaction Book and appointment Make an enquiry Report a problem Make an online purchase Comply with verification checks to complete an online transaction create a new document using software of their choice and list everything they consider to 'personal details. 	 Understand the need to stay safe and respect others when using the internet and communicating online. Recognise the online risks and consequences. They will be able to take steps to respect others online and develop skills to avoid inappropriate behaviours. E SAFETY Stay safe Respect Internet Online communication' Online risks Hacking Personal data compromised or stolen Fraud Identity theft Phishing Pharming Malware Shoulder surfing Unauthorised access Links in unsolicited emails, message, pop-ups Communicate with appropriate language Consider opinions of others Trolling 	 Know of and know how to minimise the effects of physical stress that may result from using devices Physical stress Pain (poorly positioned equipment or poor posture) Repetitive strain injury (RSI) Eye strain Headaches Ways to minimise stress Adjust position (not too close or too far away from device and peripherals (mouse and keyboard)) Adjust screen height and distance Adjustable chair Wrist support for peripherals (keyboard and mouse) Suitable lighting Regular breaks from the screen REVIEW OF KEY SKILLS AND SOFTWARE TYPES AND TOOLS TO ACHIEVE OUTCOMES: 1 - WORD PROCESSING SKILLS 2 - PRESENTATION: POWERPOINT SKILLS 3 - SPREADSHEET: EXCEL SKILLS

System settings Offensive behaviour combination of the two is • use files and folders to organise • Internet (menu, hyperlink, Harassing others online suitable for the audience. and retrieve information navigation controls, Capture digital media and • Learners will be able to identify search criteria) • Know simple methods to view in a suitable application Storage – organize and storage on a range of devices. protect personal information • identify types of digital media. retrieve information (files, • Know when there is a problem and privacy online They will be able to capture folders, storage with a device or software and • Protect personal information images and video including a (local/remote)) know the difference between o Personal information – system errors and user errors identifying an individual:

- Problems (device and software system errors
- Technical problems -files, sound, print, crash/freeze, internet connection
- restart/reboot, file
 name/location, sound,
 printer [paper, jam,
 connection], login details,
 internet connection
- the main features and uses of different types of devices
- Desktop, laptop, mobile, smart
- Wired, wireless (Wi-Fi, Bluetooth)
- Keyboard, touchscreen, mouse, mousepad, scanner, microphone, camera
- Monitor/screen, speaker, printer, camera
- Phone/video call, email, social media
 - Devices and connectivity
 - Device features
 - Communication
 - Media
 - Lifestyle
 - Online transactions
- know what an application is and the main types of application software
- Email
- Web browser
- Mobile (lifestyle, social media, news, entertainment)
- Word processor
- Presentation software
- learners choose application software to present findings and learning about applications.

- System errors:
 - Device freeze or crash
 - Slow response from a device
 - No connection to the internet
 - User error:
 - Incorrect credentials (login details including password)
 - Hardware incorrectly connected
 - Sound cannot be heard
- apply a solution to a simple technical problem
- create a simple presentation
 (using software of their choice)
 to list simple technical problems
 and possible solutions that they
 could apply. Problems should
 be defined as system or user.

- screenshot using a camera on a device where appropriate.
- Communicating information
- Create and edit details in a contacts list.
- Create new contact
- Edit existing contact
- Compose online communication – email
- Text content
- Digital content
- Email (new, to, subject, reply, reply to all, message. greeting, close, send)
- Attachment document, image, video
- Compose and reply to online communications comprising text and other digital content to individual and multiple recipients
- take a screenshot of a final contacts list

- name, date of birth, telephone number, home address, email address, bank details, photographs
- Methods to protect personal information:
- Padlock next to website address (URL)
- Website address includes 'https://'
- Sharing personal information for a specific purpose
- Minimize use of personal data across platforms
- Social Media profiles
 (private)
- Passwords (strong/hard to guess)
- Not sharing passwords
- Methods to protect privacy:
- Social Media profiles (private)
- o Pseudonyms
- Screen lock(s)
- Set up and use security features (including authentication methods) to access devices and online services.
- Security features
- Authentication methods
- Access devices
- Access online services
- Strong passwords:
- Mix of upper/lower case letters, numbers, special characters
- Unique
- Biometrics (fingerprint, facial or voice recognition)
- Pin codes
- Pattern unlock
- Screen lock(s)
- Understand the benefits of security software to protect against online risks.

Year 11 COMPULSARY UNITS OF STUDY

Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
DEVISING A POWERPOINT	USING FORMULAE AND GRAPHS	CODING USING SCRATCH AND	MICROSOFT WORD: EDITING AND	CREATING AND INTERROGATING A	PHOTOSHOP: USING FILTERS AND

YEAR 11 – OPTIONAL- EDEXCEL FUNCTIONAL SKILLS LEVEL 1 UNITS OF STUDY

Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Functional Skills Level 1 Key	Reviewing Skills 1	Reviewing Skills 2	Reviewing Skills 3	Reviewing Skills 4	Exam Series
 Components To ensure that folder creation skills are secure – name, copy duplicate folders. To ensure that documents created on software are 	 Spreadsheet formulas review for questions – identify the main operation formula use to solve a problem Spreadsheet formulas review for questions – identify the main 	then present requested information. • subscription costs and	 Record information about a location using internet searches. present the data in a clear way for later use. 	 Use internet to locate and then present requested information Convert a text document to a spreadsheet apply a formula to calculate % convert data to graphs as asked 	

Syllabus materials KS4:

Edexcel Digital Functional Skills | Pearson qualifications

Careers in ICT/computing:

1438 My Learning My Future Computer Science Final.pdf (careersandenterprise.co.uk)

generate lists and presenting

them from data.