

5 Year Curriculum Plan

**The Academy of
St. Francis of Assisi**

2021 - 2022

Department:

**ICT & Computer
Science**

**Head of
Department:**

Mrs J Haig

Department Vision & Curriculum Intent

Department Vision

To inspire and equip students with the skills and knowledge they need to move forward in the digital world.

Curriculum Intent

Our intention of the ICT and Computer Science curriculum is to allow students to develop their love of practical computing by collaborating, planning, analysing and solving problems, guiding them to be e-confident. The curriculum will give students opportunities to use different pieces of industry used software to enhance their digital skills and become confident users of technology where skills can be transferred into other areas of life.

| Year 7 | Unit 1 | | | Unit 2 | | | Unit 3 | | | Unit 4 | | |
|-------------------------------------|--|---|--|---|------------------------------|---|---|---|---|--|---|---|
| | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link |
| | Basic Computer Skills/Multimedia Project | Select, use and combine a variety of software to achieve a given goal | Undertake creative projects that involve selecting, using, and combining multiple applications | Hardware, Software & Networks | Understand computer networks | Understand how instructions are stored and executed within a computer system/ understand the hardware and software components that make up computer systems | Algorithms & Programming Programming Language: Microsoft Small Basic | Use sequence, selection & iteration/ work with variables/ use logical reason to solve simple algorithms | Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems | Data Modelling | Select, use and combine a variety of software to achieve a given goal | Develop and apply their analytic, problem solving and design skills |
| Rationale: | In previous years, Year 7 pupils have started ASFA without the basic computer skills they need to access the curriculum planned for their year. This can be for a variety of reasons including; pupils not having access to computers, primary schools using touch screen devices and applications. By teaching them basic computer skills and showing them how to use common software such as PowerPoint, Word & Publisher, pupils can use these skills in other subjects and it will enable them to access the rest of the ICT curriculum. | | | Pupils need to be able to understand the physical components that make up a computer and the software that runs to allow them to use the computer. Pupils will learn the names and functions of the hardware that make up a computer as well as be able to understand what software is and be able to identify different pieces of software and what they are used for. In addition, they need to be able to understand the basic concepts of how computers can connect to a network and share data. As part of this topic, pupils will cover; different types of network (LAN and WAN) basic network topologies and hardware needed to connect to a network. | | | According to the KS2 Programme of Study, pupils should start Year 7 with basic knowledge of sequence, selection, iteration and variable however in previous years, this has not been the case. Pupils will start by learning the keywords and being able to identify where they are being used in pre-written programs. They will be learning Microsoft Small Basic which is a text-based programming language which has 15 keywords and uses predictive text so it's accessible to EAL pupils and helps them build their coding skills. Once pupils understand the programming concepts (sequence, selection and iteration), they will then embed them into code when they are writing programs to demonstrate their understanding and to develop their knowledge. | | | Within this unit of work, pupils will build the skills to be able to complete simple tasks that will allow them to manipulate and represent data in different ways. This is using a piece of software that they can use across other subjects, for example, in science, creating graphs for an experiment. They will also learn and understand how to do simple formulas such as SUM, MIN, MAX, AVERAGE, IF. | | |
| Key Stage 4 Link: | BTEC Digital Information Technology - Unit 1, Learning Aim B - Creating a User Interface | | | GCSE Computer Science - Component 01 - Computer Systems | | | GCSE Computer Science - Component 02 - Algorithms, Computational Thinking and Programming | | | BTEC Digital Information Technology - Unit 2 Representing Data | | |
| Key Concepts & Language: | Logging onto the school network, file management, sending emails, keyboard skills/shortcuts, appropriate use of software (Microsoft Word, PowerPoint and Publisher) | | | Input and output, peripherals needed to connect to a computer, types of software, appropriate uses of software, networks, how networks are connected together, different types of network, network hardware | | | Algorithms (flow charts and pseudocode), programming fundamentals: sequence, selection, iteration, programming skills in Microsoft Small Basic, variables, inputting and outputting data | | | Microsoft Excel skills, basic formulas (SUM, MIN, MAX, AVERAGE), creating basic graphs such as bar charts or pie charts, cell referencing | | |
| Culture Capital: | ICT Technician - demonstration of building a computer, KS3 Robotics Club, cross curricular with History – Black History Month – PowerPoint project | | | | | | | | | | | |

| <h1>Year 7</h1> <p>Nurture Group</p> <p>Students in the nurture group will follow a similar curriculum but less units so the units they do study can be spread out over a longer period of time to ensure a better understanding</p> | Unit 1 | | | Unit 2 | | | Unit 3 | | |
|---|--|---|--|---|------------------------------|---|--|---|---|
| | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link |
| | Basic Computer Skills/Multimedia Project | Select, use and combine a variety of software to achieve a given goal | Undertake creative projects that involve selecting, using, and combining multiple applications | Hardware, Software & Networks | Understand computer networks | Understand how instructions are stored and executed within a computer system/ understand the hardware and software components that make up computer systems | Algorithms & Programming Programming Language: Microsoft Small Basic | Use sequence, selection & iteration/ work with variables/ use logical reason to solve simple algorithms | Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems |
| Rationale: | In previous years, Year 7 pupils have started ASFA without the basic computer skills they need to access the curriculum planned for their year. This can be for a variety of reasons including; pupils not having access to computers, primary schools using touch screen devices and applications. By teaching them basic computer skills and showing them how to use common software such as PowerPoint, Word & Publisher, pupils can use these skills in other subjects and it will enable them to access the rest of the ICT curriculum. | | | Pupils need to be able to understand the physical components that make up a computer and the software that runs to allow them to use the computer. Pupils will learn the names and functions of the hardware that make up a computer as well as be able to understand what software is and be able to identify different pieces of software and what they are used for. In addition, they need to be able to understand the basic concepts of how computers can connect to a network and share data. As part of this topic, pupils will cover; different types of network (LAN and WAN) basic network topologies and hardware needed to connect to a network. | | | According to the KS2 Programme of Study, pupils should start Year 7 with basic knowledge of sequence, selection, iteration and variable however in previous years, this has not been the case. Pupils will start by learning the keywords and being able to identify where they are being used in pre-written programs. They will be learning Microsoft Small Basic which is a text-based programming language which has 15 keywords and uses predictive text so it's accessible to EAL pupils and helps them build their coding skills. Once pupils understand the programming concepts (sequence, selection and iteration), they will embed them into code when they are writing programs to demonstrate their understanding and to develop their knowledge. | | |
| Key Stage 4 Link: | BTEC Digital Information Technology - Unit 1, Learning Aim B - Creating a User Interface | | | GCSE Computer Science - Component 01 - Computer Systems | | | GCSE Computer Science - Component 02 - Algorithms, Computational Thinking and Programming | | |
| Key Concepts & Language: | Logging onto the school network, file management, sending emails, keyboard skills/shortcuts, appropriate use of software (Microsoft Work, PowerPoint and Publisher) | | | Input and output, peripherals needed to connect to a computer, types of software, appropriate uses of software, networks, how networks are connected together, different types of network, network hardware | | | Algorithms (flow charts and pseudocode), programming fundamentals: sequence, selection, iteration, programming skills in Microsoft Small Basic, variables, inputting and outputting data | | |
| Culture Capital: | ICT Technician - demonstration of building a computer, KS3 Robotics Club, cross curricular with History – Black History Month – PowerPoint project | | | | | | | | |

| Year 8 | Unit 1 | | | Unit 2 | | | Unit 3 | | | Unit 4 | | |
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| | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link |
| | REVISIT: Algorithms & Programming Programming Language: Python Programming | Use sequence, selection & iteration/ work with variables/ use logical reason to solve simple algorithms | Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems | Data Modelling | Select, use and combine a variety of software to achieve a given goal | Develop and apply their analytic, problem solving and design skills | Multimedia Project | Recognise common uses of information technology beyond school | Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability | Data Representation & Logic | Understand logic | Understand simple Boolean logic/ understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers |
| Rationale: | This unit of work builds on the Year 7 programming unit however, this time, they learn a second text-based programming language, Python which is used in industry. As well as learning to code in a new programming language, they will revisit the 3 programming constructs from Year 7 and implement them into their code. They will build upon their knowledge of the programming concepts and use more advanced ways of implementing them into their code such as using nested IF statements. They will also learn how to use more than one programming concept within one program such as selection and iteration together. | | | Within this unit of work, pupils will build the skills to be able to complete simple tasks that will allow them to manipulate and represent data in different ways. This is using a piece of software that they can use across other subjects, for example, in science, creating graphs for an experiment. They will also learn and understand how to do simple formulas such as SUM, MIN, MAX, AVERAGE, IF which not only links to Unit 2 but also cross curricular in mathematics. | | | To give pupils exposure to ICT modules as well as Computer Science modules, they will complete a multimedia project which allows them to demonstrate their creative and technology skills. Pupils are given a scenario and are taught different skills on different, more advanced pieces of software which will enable them to complete the project. Pupils will create a brochure which will include hyperlinks and navigation bars as well as producing a basic animation that will also be placed on their brochure. | | | Within this unit of work, pupils will build the skills to be able to complete simple tasks that will allow them to manipulate and represent data in different ways. This is using a piece of software that they can use across other subjects, for example, in science, creating graphs for an experiment. They will also learn and understand how to do simple formulas such as SUM, MIN, MAX, AVERAGE, IF which not only links to Unit 2 but also cross curricular in mathematics. | | |
| Key Stage 4 Link: | GCSE Computer Science - Component 02 - Algorithms, Computational Thinking and Programming | | | BTEC Digital Information Technology - Unit 2 Representing Data | | | BTEC Digital Information Technology - Unit 1 Creative iMedia | | | BTEC Digital Information Technology - Unit 2 Representing Data | | |
| Key Concepts & Language: | Algorithms (flow charts and pseudocode), programming fundamentals: sequence, selection, iteration, programming skills in Python, variables, inputting and outputting data, complex selection (nested IF statements), adding more than one concept into a program (e.g. selection & iteration) | | | Microsoft Excel skills, basic formulas (SUM, MIN, MAX, AVERAGE), creating basic graphs such as bar charts or pie charts, cell referencing | | | What is multimedia, target audience, purpose, colour scheme, mood boards, hyperlinks, navigation bars, master page, PowerPoint skills | | | Microsoft Excel skills, basic formulas (SUM, MIN, MAX, AVERAGE), creating basic graphs such as bar charts or pie charts, cell referencing | | |
| Culture Capital: | Guest Speaker: Programmer of Python in industry, Girls Allowed Barclays Trip/ Disney Land Conference in Computing Trip, Bletchley Park Outreach (Enigma Demo), Hidden Figures film work, The Imitation Game - Alan Turing (diversity/homosexuality) | | | | | | | | | | | |

Year 8

Nurture Group

Students in the nurture group will follow a similar curriculum but less units so the units they do study can be spread out over a longer period of time to ensure a better understanding

| | Unit 1 | | | Unit 2 | | | Unit 3 | | |
|-------------------------------------|--|---|--|--|---|---|---|---|---|
| | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link |
| | REVISIT: Multimedia Project Advanced Skills | Select, use and combine a variety of software to achieve a given goal | Undertake creative projects that involve selecting, using, and combining multiple applications | Data Modelling | Select, use and combine a variety of software to achieve a given goal | Develop and apply their analytic, problem solving and design skills | Diversity in ICT - Alan Turing/ Hidden Figures | Recognise common uses of information technology beyond school | Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability |
| Rationale: | To give pupils exposure to ICT modules as well as Computer Science modules, they will complete a multimedia project which allows them to demonstrate their creative and technology skills. Pupils are given a scenario and are taught different skills on different, more advanced pieces of software which will enable them to complete the project. Pupils will create a brochure which will include hyperlinks and navigation bars as well as producing a basic animation that will also be placed on their brochure. | | | Within this unit of work, pupils will build the skills to be able to complete simple tasks that will allow them to manipulate and represent data in different ways. This is using a piece of software that they can use across other subjects, for example, in science, creating graphs for an experiment. They will also learn and understand how to do simple formulas such as SUM, MIN, MAX, AVERAGE, IF which not only links to Unit 2 but also cross curricular in mathematics. | | | To raise awareness of the pioneers within ICT and how diverse they are, pupils will be taught about the significance Alan Turing had on England in WW2. Bletchley Outreach will show them a demonstration of the Enigma machine, before they learn about the different types of codes that they can use to encrypt messages linking with how encryption is used in society today. Around the time that this unit of work is delivered, we celebrate Alan Turing's birthday on 23 rd June. This will also be the anniversary of him appearing on the new £50. | | |
| Key Stage 4 Link: | BTEC Digital Information Technology - Unit 1 | | | BTEC Digital Information Technology - Unit 2 Representing Data | | | GCSE Computer Science/BTEC ICT - Encryption/Decryption (Component 01 Theory & Unit 3) | | |
| Key Concepts & Language: | What is multimedia, target audience, purpose, colour scheme, mood boards, hyperlinks, navigation bars, master page, PowerPoint skills | | | Microsoft Excel skills, basic formulas (SUM, MIN, MAX, AVERAGE), creating basic graphs such as bar charts or pie charts, cell referencing | | | Encryption, decryption, code breaking, Alan Turing, Bletchley Park, Enigma machine, World War 2, Joan Clark, diversity within computing (homosexuality) | | |
| Culture Capital: | Disney Land Conference in Computing Trip, Bletchley Park Outreach (Enigma Demo), Hidden Figures film work, The Imitation Game - Alan Turing (diversity/homosexuality) | | | | | | | | |

| Year 9 | Unit 1 | | | Unit 2 | | | Unit 3 | | | Unit 4 | | |
|-------------------------------------|--|---|---|--|---|---|--|---|--|---|---|---|
| | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link | Topic | Key Stage 2 Link | National Curriculum Link |
| | NEW UNIT: Website Design/Development REVISIT: Multimedia Project | Select, use and combine a variety of software to achieve a given goal | Develop and apply their analytic, problem solving and design skills | REVISIT: Data Modelling | Select, use and combine a variety of software to achieve a given goal | Develop and apply their analytic, problem solving and design skills | NEW UNIT: Flash Animation | Select, use and combine a variety of software (including internet services) on a range of digital devices to design | Undertake creative projects that involve selecting, using, and combining multiple applications | Computational Thinking Skills REVISIT: Algorithms | Select, use and combine a variety of software (including internet services) on a range of digital devices to design | Develop and apply their analytic, problem solving and design skills |
| Rationale: | During this unit of work, pupils will be able to experience a unit of work which is covered in both the Creative iMedia and BTEC DIT qualification that they have on offer for their options. Pupils will learn how to design and develop a website from scratch including the theory and design tips behind website development such as; colour schemes, navigation bars, rollovers, hot spots, purpose and target audience. Pupils have been exposed to some of these concepts as part of the Year 8 multimedia project so they should be able to apply this knowledge to this unit of work. | | | Pupils learnt basic data modelling knowledge and skills at the end of Year 7 however, if they choose BTEC ICT as a GCSE option, they will need to know more advanced formulas and features of spreadsheets. This unit of work will look at formulas such as COUNTIF, more complex graphs such as Pivot Graphs to represent data for making decisions. Case studies will be used within this unit of work so pupils gain experience analysing scenarios to find out which data modelling techniques are best and be able to justify their decisions. Financial budgets/management will be incorporated into this unit of work to give pupils a chance to experience a little bit of business studies. | | | Pupils will learn about the different types of animation and be able to recognise these types of animation in films that they are familiar with. Pupils will learn animation skills such as key frame animation, shape and motion tweening. Once the skills have been taught, pupils will be given a scenario as a project to create their own animation from scratch, using the skills they have learnt within the unit work. Pupils will be able to identify key terminology of animation such as timelines, frame rate, properties and shape tools which can be implemented into their final project. | | | Pupils will have an insight to Component 02 of GCSE Computer Science by looking into decomposition, algorithms and abstraction. Pupils will already understand algorithms as they covered this in Year 7 and Year 8 during the programming unit of work. Within this unit of work, they will develop their problem-solving skills by learning and be able to apply techniques such as decomposition, abstraction and algorithmic thinking including the use of flowcharts and pseudocode to find a solution to a given problem. | | |
| Key Stage 4 Link: | Creative iMedia GCSE – Website Design BTEC Digital Information Technology - Unit 1 | | | BTEC Digital Information Technology - Unit 2 Representing Data Business Studies – Unit 3 – Finance | | | Creative iMedia – Digital Graphics | | | GCSE Computer Science - Component 02 - Algorithms, Computational Thinking and Programming | | |
| Key Concepts & Language: | What is a website, the internet, target audience, purpose, colour scheme, hyperlinks, navigation bars, master page, buttons, rollovers, hot spots, animated text | | | Microsoft Excel skills, review of basic formulas (SUM, MIN, MAX, AVERAGE), creating basic graphs such as bar charts or pie charts, cell referencing, pivot tables and charts, introduction to complex formulas (COUNTIF, IF) | | | Types of animation, Adobe Flash Animation, frames, frame rate, frame per second, timelines, free transform tool, tweening, frame by frame animation | | | Decomposition, abstraction, algorithms, problem solving, breaking problems down to find a solution | | |
| Culture Capital: | Barclays Girls Allowed Trip (November and April) Trip to the National Science and Media Museum in Bradford External speaker about Algorithmic thinking and problem solving (CAS / NCEE related) | | | | | | | | | | | |

| Year 10 Computer Science | Unit 1 | Unit 2 | Unit 3 | Unit 4 |
|---|---|--|--|--|
| | Component: 02 Algorithms, Computational Thinking & Programming | Component: 02 Algorithms, Computational Thinking & Programming | Component: 01 Computer Systems | Component: 02 Algorithms, Computational Thinking & Programming |
| | KS3 Link: Year 7 – Algorithms and Programming (Microsoft Small Basic) Year 8 – Algorithms and Programming (Python) | KS3 Link: New content for KS4 specification | KS3 Link: Year 7 – Hardware and Software | KS3 Link: Year 7 & Year 8 – Algorithms and Programming |
| | Topics Covered: Sequence, Selection, Iteration Data Structures (Arrays) Reading and Writing to a Text File File Handling Storing Data Constants and Variables Boolean Operators Data Types | Topics Covered: Defensive Design Integrated Development Environment Testing Translators and Compilers | Topics Covered: Operating Systems Types of Software Memory Secondary Storage Embedded and Dedicated Computer Systems | Topics Covered: Binary Search Linear Search Bubble Sorts Insertion Sort Merge Sort |
| Rationale: | The new reformed spec for GCSE Computer Science states that pupils need to have completed programming skills which has been implemented in place of the NEA task that they have had in previous years. Pupils will revisit programming skills they developed in Year 8 as well as build up skills such as writing to/reading from a text file, arrays, data types and being able to code a program independently based on a given scenario. This is an engaging unit of work where pupils can complete a project-based task over 2 units of work, learning and understanding programming concepts along the way that they will be assessed on as part of Paper 2. | Pupils will have completed a programming project over the course of last term. This unit of work allows pupils to learn and understand the theory behind programming including, how to design a program, where they might write a piece of code and the features of that piece of software, why and how you test a program and how the computer translates their code so it is able to be run. Pupils will use their own program from last term to support the theory they learn within this unit of work. | As pupils have completed two Component 02 topics, they will move onto looking at topics that they will need to know for Component 01. This includes topics that they have learnt about at KS3 but they will go into a lot more detail when studying it for GCSE. | In KS3, pupils learnt what an algorithm is and how to plan a program using an algorithm however, at GCSE level, pupils will learn the different methods used to be able to sort and search algorithms. This is an engaging scheme of work to end Year 10 and will prepare them for the small remaining part of Component 02 that they will cover in Year 11. |
| Key Stage 5 Link: | A Level Computer Science - Component 02 - Problem Solving & Programming | A Level Computer Science - Component 03 - Programming Project | A Level Computer Science - Component 01 - Computer Systems | A Level Computer Science - Component 02 - Problem Solving & Programming |
| Key Concepts & Language: | Python programming, data types, data structures, arrays, text files, reading and writing to a file using programming, variables, constants, sequence, selection and iteration | Using comments in code, input salutation, iterative and final testing, assembly code, high level language, translators, compilers, executable files | Device drivers, user interfaces, user accounts, file and memory management, proprietary and open source software, RAM and ROM, hard drive, solid state drives, virtual memory | Algorithms, binary and linear searches, ordering a list, sorting algorithms, bubble, insertion and merge sorts |
| Culture Capital: | University of Liverpool Taster Day within CS Department (January), Trip to St Nicks to see A Level Computer Science Projects, ICT Technician - Building a Computer Workshop | | | |

| Year 10 BTEC DIT | Unit 1 | Unit 2 | Unit 3 | Unit 4 |
|-------------------------------------|--|--|--|---|
| | Unit: 1 Exploring User Interfaces | Unit: 1 Exploring User Interfaces | Unit: 2 Collecting, Presenting and Interpreting Data | Unit: 2 Collecting, Presenting and Interpreting Data |
| | KS3 Link: Year 8 – Multimedia Project Year 9 – Website Design/Development | KS3 Link: Year 8 – Multimedia Project Year 9 – Website Design/Development | KS3 Link: Year 7 – Data Modelling Year 8 – Data Representation | KS3 Link: Year 7 – Data Modelling Year 8 – Data Representation |
| | Topics Covered: Learning Aim A – Investigate user interface design for individuals and organisations Learning Aim B – Use project planning techniques to plan and design a user interface. | Topics Covered: Learning Aim C – Develop and review a user interface | Topics Covered: Learning Aim A – Investigate the role and impact of using data on individuals and organisations | Topics Covered: Learning Aim B – Create a dashboard using data manipulation tools |
| Rationale: | Pupils will be introduced to the first unit of coursework. They will use this unit of work to complete Learning Aim A which gives an overview to different types of interfaces. Students will be exploring how the design of interfaces impacts their usability and how adaptive interfaces are better suited to the ever-changing ICT device industry. Within Learning Aim B pupils will be planning and designing a user interface based on the scenario set by the exam board. They will already have some knowledge of the theory surrounding this unit of work from the KS3 units of work that they studied including target audience, purpose, hyperlinks, navigation bars etc. Pupils will also explore the different project planning techniques such as GANTT charts, PERT charts and timelines. | Upon completion of Learning Aim A, pupils will start to use the information learnt as part of their work to start planning their own prototype of an interface for a sports stadium. Before pupils start to create their interface, they will learn a series of skill that they can apply to creating an interface using Wix. They will be shown examples from previous years and be able to justify the good and bad points about the interfaces so they can implement these into their own designs. Pupils will also be required to review existing interfaces and be able to annotate the different features that have been used. | This is the final piece of coursework pupils will need to complete. Learning Aim A looks at being able to interpret data and the techniques that organisations use to gather and record data. Students will examine the factors that impact the reliability and bias of data. Pupils will be given a data set from the exam board and they will have to look at it and be able to try and see patterns within the data. They will need to document this and be able to write a report showing that. Some lessons within this unit will be preparation lessons and pupils building their own skills within Excel. | Pupils will be creating their data dashboard using the skills they learnt as part of Learning Aim A to help them complete the tasks set by the exam board. They will need to think about the way they present this data as part of the dashboard so they examiner can clearly see what they are trying to show. During this unit of work, pupils are going to have to use data to make conclusions that companies could use to make decisions. They will have to use formulas and create suitable graphs for the set of data they are analysing and manipulating. |
| Key Stage 5 Link: | BTEC Information Technology Level 3 | BTEC Information Technology Level 3 | BTEC Information Technology Level 3 | BTEC Information Technology Level 3 |
| Key Concepts & Language: | Interface, devices, GUI, text interfaces, menu interfaces, embedded computer systems, accessibility, colour spectrums, design principles, waterfall model, iterative model, SMART targets, constraints, hardware, software, Gantt chart, PERT chart and Critical Path Diagram | File management, naming conventions, assets, templates and master pages, navigation methods, accessibility, usability, interactivity, testing, feedback procedures and feedback analysis. | Data, primary, secondary, collection methods, reliability, biased, datasets, dashboards, formulas, formatting, manipulation and functions. | Pivot tables, pivot graphs, data analysis, trend identification, dashboard improvements, tabs, security, macros, filters and verification. |
| Culture Capital: | Trip to Liverpool One to investigate different types of interfaces, Guest speaker - Accountant (Unit 2 focus of spreadsheet skills) | | | |

| Year 10 Creative iMedia | Unit 1 | Unit 2 | Unit 3 | Unit 4 |
|--|---|---|---|--|
| | Component: R085 Creating Multipage Websites (LO1 & LO2) | Component: R085 Creating Multipage Websites (LO3 & LO4) | Component: R082 Creating Digital Graphics (LO1 & LO2) | Component: R082 Creating Digital Graphics (LO3 & LO4) |
| | KS3 Link: Year 7 –Computer Skills/Multimedia Project Year 9 – Website Design/Development | KS3 Link: Year 7 –Computer Skills/Multimedia Project Year 9 – Website Design/Development | KS3 Link: Year 7 –Computer Skills/Multimedia Project Year 8 - Data Representation & Logic | KS3 Link: Year 7 –Computer Skills/Multimedia Project Year 8 - Data Representation & Logic |
| | Topics Covered: The purpose of multipage websites The features of multipage websites The devices used to access web pages The methods of internet connection Target audiences and client requirements Production of work plans for websites Site maps and visualisation diagrams Assets and legalities of asset use Testing | Topics Covered: Folder structure and naming conventions Asset imports Templates and master pages Website creation Navigation methods and production Accessibility features for usability Evaluation skills Testing and improvements | Topics Covered: Purpose and Uses of digital graphics Image Types File Formats Properties of digital graphics Target audiences and client requirements Production of work plans for digital graphics Visualisation diagrams Assets and legalities of asset use | Topics Covered: Asset identification skills Ensuring technical compatibility of assets Creating digital graphics Graphical manipulation tools Saving and exporting digital graphics Version control Evaluation skills |
| Rationale: | This unit will enable learners to understand the basics of creating multipage websites. It will enable them to develop independent skills to be able to interpret a client brief and then subsequently use planning and preparation techniques when developing a multipage website. This is an engaging unit of work where pupils will design a 5-page website to meet a client brief. This will enhance their understanding of website design and production techniques and their work will be assessed at the end of Unit 2. | Pupils will have completed the analysis and design of a multipage website during Unit 1 over the last term. This section of the unit of work will enable students to demonstrate their creativity by combining components to create a functional, intuitive and aesthetically pleasing website. Students will have to demonstrate that they can create professional websites that allow accessibility to all and that are interactive and engaging to their target audience. Pupils will use their plans from last term to develop their websites in line with exam board requirements and guidelines. | This unit will enable learners to understand the basics of digital graphics editing for the creative and digital media sector. They will learn where and why digital graphics are used and what techniques are involved in their creation. This unit will develop learners’ understanding of the client brief, time frames, deadlines and preparation techniques as part of the planning and creation process. This is an interactive and engaging unit of work where pupils will be using a variety of image manipulation tools to aid them in developing graphics to meet a client brief. This will enhance their confidence and understanding of image manipulation tools and their work will be assessed at the end of Unit 4. | Pupils will have completed the analysis of the client brief and the design stages of their digital graphics pre-production phases. This section of the unit of work will enable students to demonstrate their creativity by combining various image assets and then applying image manipulation skills to them in order to meet the needs of a client. Students will have to demonstrate that they can create professional images for a range of given purposes. Pupils will use their plans from last term to develop their images in line with the exam board guidelines. |
| Key Stage 5 Link: | OCR Level 3 Digital Media (Unit 1 and Unit 2) OCR Level 3 ICT (Unit 9 - Product Development) T Level - Digital Production Design & Development A Level – Media Studies Apprenticeship – Media and Broadcasting | OCR Level 3 Digital Media (Unit 3 and Unit 20) OCR Level 3 ICT (Unit 9 - Product Development) T Level - Digital Production Design & Development A Level – Media Studies Apprenticeship – Media and Broadcasting | OCR Level 3 Digital Media (Unit 1 and Unit 2) OCR Level 3 ICT (Unit 9 - Product Development) T Level - Digital Production Design & Development A Level – Media Studies Apprenticeship – Media and Broadcasting | OCR Level 3 Digital Media (Unit 3 and Unit 20) OCR Level 3 ICT (Unit 9 - Product Development) T Level - Digital Production Design & Development A Level – Media Studies Apprenticeship – Media and Broadcasting |
| Key Concepts & Language | Website purpose, website audience, device features, internet connection methods, client requirements, work plans, planning techniques, legal issues and testing | File management, naming conventions, assets, templates and master pages, navigation methods, accessibility, usability, interactivity and testing. | Digital graphics, image types, file formats, properties, target audience, image manipulation, visualisation planning, work plans, planning techniques and legal issues of asset use. | Asset identification, compatibility, image manipulation, properties, layering, version control and testing. |
| Culture Capital: | Trip to Academy of St Nicholas to view Level 3 Media and ICT courses Trip to the National Science and Media Museum in Bradford Disneyland Paris Media Live International Conference | | | |

| Year 11 Computer Science | Unit 1 | Unit 2 | Unit 3 |
|-------------------------------------|--|--|---|
| | Component: 1 Computer Systems | Component: 1 Computer Systems | Component: 1 Computer Systems |
| | KS3 Link: Year 7 – Hardware, Software and Networks | KS3 Link: Year 8 – Data Representation | KS3 Link: Year 7 – Hardware, Software and Networks |
| | Topics Covered: The CPU Von Neumann Architecture System Performance Ethical, Cultural and Legal Issues Environmental Issues Computer Legislation | REVISIT - Topics Covered: Image and Sound Representation Compression NEW: Characters Binary & Hexadecimal (including Binary Shift) Logic Gates | Topics Covered: Network Hardware Network Types/ Topologies Network Protocols Data Packet Switching Network Security and Preventions |
| Rationale: | This unit is historically one of the trickiest topics that pupils seem to struggle with. These questions in the exam can contain the most marks so do need more time to be focussed on the content and allowing time to incorporate exam technique into lessons. Pupils will learn about the CPU and look in detail at the different parts of the CPU including registers. Pupils will then explore the different issues surrounding computer systems including the legalities of computer systems and will look at recent case studies to support the knowledge they learn. | Pupils will have been taught the theory for this unit in Year 8 so they will have the basic knowledge however they will be taught in more detail about specific topics such as binary; they will learn how to perform binary shift and how to add binary numbers together. They will also revisit logic gates but will be taught how to use truth tables to work out simple and complex logic gates when combining more than one together. A new topic that pupils won't have covered is characters. Pupils will learn how characters are represented within a computer system and how it links with binary and hexadecimal. | Within this unit of work, pupils will learn what hardware is needed to a network, the different structures of networks and what the advantages and disadvantages of these are. They will also learn and explore the different network protocols that are used and what they are used for as well as learning about the network threats and preventions that can be risks for a computer system. |
| Key Stage 5 Link: | A Level Computer Science - Component 1.0 - Structure and Function of the Processor | A Level Computer Science - Component 1.3 - Exchanging Data | A Level Computer Science – Component 1.3.3. Networks |
| Key Concepts & Language: | The CPU, fetch, decode and execute cycle, Von Neumann architecture, registers, arithmetic logic unit, control unit, digital divide, Computer Misuse Act, Copyright, cyberbullying and trolling, censorship and surveillance, social wellbeing, e-waste | Compression, lossy, lossless, characters, ASCII, extended ASCII, hexadecimal, base 2, base 16, decimal, AND gate, NOT gate, OR gate, sound sampling, sample rate, analogue signals, digital signals, binary, binary shift, binary addition | Coaxial cables, fibre optic cables, router, switch, server, LAN, WAN, star topology, mesh topology, protocols, protocol layers, SQL injection, viruses, malware, penetration testing, network forensics, social engineering, phishing, firewalls, data packet switching |
| Culture Capital: | Openreach engineer visit (Networking), university taster day (LJMU), sixth form taster day ASN for A Level Computer Science, Disney Land Paris trip | | |

| Year 11 BTEC DIT | Unit 1 | Unit 2 | Unit 3 |
|---------------------------------------|--|---|--|
| | Unit: 2 Collecting, Presenting and Interpreting Data | Unit: 3 Effective Working Practices | Unit: 3 Effective Working Practices |
| | KS3 Link: Year 7 – Data Modelling Year 8 – Data Representation | KS3 Link: Year 7 – Hardware, Software and Networks | KS3 Link: Year 7 – Hardware, Software and Networks Year 7 & 8 – Algorithms and Programming |
| | Topics Covered: Learning Aim C – Draw conclusions and review data presentation methods | Topics Covered: Topic A – Modern Technologies / Impact of Modern Technologies Topic C – The wider implications of digital systems | Topics Covered: Topic B – Cyber Security/ Threats to Data/ Prevention and management of threats to data Topic D – Planning and communication in digital systems |
| Rationale: | <p>Once the pupils have completed the data dashboard, they need to complete a commentary style report explaining what their data shows, how they have presented it and why. As part of these lessons, pupils will be taught how to justify their work effectively and efficiently. Pupils will need to be able to justify why they have used certain formulas and graphs and how they can help with making decisions by using these analysis/manipulation tools. The work completed within this section directly links to the work that students have completed through their Assignment A and B tasks for Unit 2.</p> | <p>Pupils have two chances to take the Unit 3 exam (February & May of Year 11). Pupils will move onto the theory in preparation for the exam as soon as they have completed Unit 2 coursework.</p> <p>This is the largest topic of the unit and contains the majority of the technical aspects for the examination. Topic A is an essential topic as it gives students the fundamentals to be able to access the remaining topics within the examined unit. Pupils will explore and learn about modern technologies including topics such as networking and cloud computing.</p> <p>In topic C, pupils will learn topics such as accessibility and the impact of ICT on the world today. Students will also explore communication methods and how these have changed with developments in technology.</p> | <p>This is the largest topic of the unit so is left until last to deliver it to the pupils.</p> <p>In topic B, pupils will learn about the threats of data to an organisation and ways that these threats/risks can be prevented. Students will also explore the legalities of using computer systems and how they have impacted the workplace and home/life balances.</p> <p>In topic D, pupils will learn topics such as data flow diagrams and flowcharts that are ways that data can be represented.</p> <p>Historically, it is also the topic that pupils seem to struggle with. As this topic is completed closer to the exam, it allows pupils to eliminate any misconceptions of any of the topic and are able to practice exam style questions to solidify their knowledge.</p> |
| Key Stage 5 Link: | BTEC Information Technology Level 3 | BTEC Information Technology Level 3 | BTEC Information Technology Level 3 |
| Key Concepts & Language: | Pivot tables, pivot graphs, data analysis, trend identification, dashboard improvements, tabs, security, macros, filters and verification. | Ad-hoc, network connections, cloud storage, synchronisation, version control, platform, cloud computing, disaster recovery, system maintenance, modern teams, , collaboration tools, communication tools, accessibility, flexible working and impact of technology. | System attacks and threats, data security methods/controls, malware, social engineering, phishing, pharming, legalities of data breaches, authentication methods, hacking, data level protections, encryptions, shared data, environmental issues, equality, data policies and forms of notation. |
| Culture Capital: | Openreach engineer visit (Networking) Trip to Academy of St Nicholas to view Level 3 Media and ICT courses Disneyland Paris Computing Live International Conference | | |