



# Curriculum Intent

## Subject Computing



### SUBJECT CURRICULUM INTENT

#### **Vision:**

**To appreciate the value of learning the key concepts of Computer Science. We want our students to understand the importance of cyber security, keeping themselves safe online, the positive and negative impacts of technology, and how to use technology effectively. The world continues to develop technological advances at an exponential rate, and we believe that we have an important responsibility to ensure that our students are well equipped with the knowledge and skills that will enable them to achieve their potential.**

**We endeavour for our students to feel empowered and enthused to achieve much more beyond the age of 16**

The computing curriculum is structured in units. For the units to be coherent, the lessons are taught in order. The curriculum has been designed to slowly improve the students understanding of the key principles. With health and safety and online safety beginning the process, before moving onto algorithms breaking down problems into small steps and flowcharts, before moving onto understanding programming constructs block programs before application of this knowledge into textual programming in python, where concepts and skills rely on prior knowledge and experiences.

Our topics will be pitched so that pupils with different starting points can access them although each individual teacher may adapt and change them depending on the group of students in the class. Our lessons will be sequenced so that each builds on prior learning. Our activities will be scaffolded so all children can succeed. We also use a range of scaffolding approaches when teaching programming, ranging from exploring some commands or functions, fixing code with bugs to solving specific problems with code.

The topics we cover have been well thought about, and designed with the KS3 national curriculum in mind, and the needs of our students at the forefront of our plans. Following an internal deep dive in 2021, we have been working hard to improve the students experience at KS3. We decided to rewrite every unit making sure we bring all our recent good practice into each lesson we teach and make sure a more consistent approach is adopted. The feeling amongst the KS3 students was very positive in recent pupil voices. In year 7 and 8 we follow 8 units in total. We read with interest the recent Ofsted computing review, which pleased us to see that many of our practices are already meeting what is seen as the best practice.

Year 7: Topic 1 Network introduction and online safety, Topic 2 Understanding algorithms (control technology), Topic 3 Block based programming (Scratch), Topic 4 Cyber Security and impacts of technology

Year 8: Topic 1 Computer Systems, Topic 2 Data Representation, Topic 3 Network and HTML, Topic 4 Data analysis and creative projects

In year 9 we now have a rotation of groups. Each group completes 6 topics (1 per half term) 2 per teacher. We use the teachers strengths in delivery including units on Creative products and visual identity and design, text based programming and databases, and spreadsheets and market research.

# YEAR 7

|        | KNOWLEDGE  | CONCEPTS      | SKILLS   | RATIONALE   | PERSONAL DEVELOPMENT  |
|--------|--|---------------|--|---|---|
| Term 1 | Essential Knowledge                                      |               |  |   | RSE   |
|        | <b>Topic 1: Intro to computing</b>                       | Online safety | Understand how to access the school network, including files and emails.   | This topic has been recently redeveloped to include the main and most important skills that they need throughout their time at Bedford, including health and safety, and how to stay safe online.   |   |
|        | Understanding how Bedford network operates               |               |  | The current climate for the need of remote learning at times means the topic begins with making sure the students fully understand and engage with the systems that we have in place at the school including email, frog and foldr.                       |   |
|        | Understanding about good strong passwords                |               | Know how to have a good email etiquette  |   | Key Vocabulary  |
|        | Understanding of emails including attachments            |               | Understand what it takes to produce a presentation, and how to present themselves during presentations throughout their school life. | Cyberbullying has grown exponentially since more access to the internet and social media has become available to young adults, we intend to make sure they understand why they shouldn't cyber bully and how to report it if they feel they are a victim. | Biometrics<br>Constructive Feedback<br>Cyberbullying<br>Digital Footprint<br>Email Etiquette<br>E-Safety<br>Hazards<br>Identity Theft<br>Login Details<br>Online Gaming<br>Password<br>Phishing<br>Privacy Settings<br>Social Media |
|        | Understanding of health and safety within the classroom. |               |  | Students will also look at the dangers of being online including issues such as phishing emails and identity theft to ensure their safety at all times.   |   |
|        | Understanding how to stay safe online.                   |               |  | Finally, giving them a clear understanding of how to create presentations is a skill that they can use cross curricular.  |   |
|        | Understanding of cyberbullying.                          |               |  | <i>Links to KS3:<br/>create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</i>  |   |
|        | Knowledge of how to structure presentations in school.   |               |  | <i>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns</i>         |   |
|        | Understand about phishing and other security methods.    |               |  |   |   |

# YEAR 7

| KNOWLEDGE   | CONCEPTS   | SKILLS   | RATIONALE  | PERSONAL DEVELOPMENT  |
|---|--|--|--|---|
| <p><b>Topic 2: Understanding Algorithms using control technology</b></p> <p>Understand what algorithms are</p> <p>Create simple linear algorithms (sequences of steps to do something)</p> <p>Represent algorithms symbolically and explain how simple algorithms work</p> <p>Understand that there are numerous different search algorithms, and that each one is used depending on the data set.</p> <p>Using mimics from the real world situations held within Flowol, create flowcharts that solve the problems faced by them</p> | <p>Problem Solving</p> <p>Computational thinking</p> | <p>Students will be using logical skills throughout this unit, to make sure the problems are fully solved and do what has been requested when tested.</p> <p>Understand how a flow chart is created, including the symbols that are needed.</p> <p>Knowledge on what an algorithm is and how it impacts the world around them.</p> <p>Applying flowcharts to real life mimics using software</p> | <p>One of the concepts that we want to develop our students early in the computing lessons is the ability to problem solve as this is one of the fundamentals of computer science.</p> <p>To kick start their understanding we use real world situations in a program called Flowol so that students can understand how lots of the world that we live in is controlled by technology, so they see how many different career avenues the subject can open up...</p> <p>We start by looking at how to break down an everyday problem and how many steps that would involve, before moving to understand the structure and production of a flow chart with the correct symbols</p> <p><i>Link to KS3 curriculum: Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</i></p> <p><i>understand several key algorithms that reflect computational thinking .use logical reasoning to compare the utility of alternative algorithms for the same problem</i></p> | Key Vocabulary  |
|   |  |  |  | <p>Algorithm</p> <p>linear search</p> <p>Binary search</p> <p>control system</p> <p>flow chart</p> <p>Process</p> <p>Decision</p> <p>Input/output</p> |

Term 1

# YEAR 7

| KNOWLEDGE   | CONCEPTS                                       | SKILLS   | RATIONALE  | PERSONAL DEVELOPMENT  |
|---|--|--|--|---|
| <p><b>Topic 3: Block Based Programming Scratch</b></p> <p>Logical reasoning to predict the behavior of simple programs</p> <p>use logical reasoning to detect and correct errors in program</p> <p>understand what a variable is and how it impacts programs</p> <p>Understand the basic constructs selection, iteration and sequence</p> | <p>Problem Solving</p> <p>Logical thinking</p> | <p>Be able to work in pairs and independently to solve problems and ensure programs run correctly and efficiently</p> <p>Blocked code, including understanding how each one allows a different impact on the sprite.</p> <p>use a programming language to solve computational problems</p> | <p>This is the next unit in the computing schema as it builds on the knowledge that they gained in topic 2 when they broke down problems into flow charts, the next step is to build those skills into programs in scratch</p> <p>We find some students move to Bedford with some basic Scratch skills from primary, but this isn't consistent.</p> <p>This is often just the ability to move blocks and create basic programs without the thought process behind it. This unit is about making sure that students understand the fundamentals of programming and this will be a build up from topic 1 when we looked at sequencing, selection and iteration. The students will also now be introduced to the use of the variables.</p> <p><i>Link to KS3 curriculum</i></p> <ul style="list-style-type: none"> <li><i>use 2 or more programming languages, to solve a variety of computational problems; make appropriate use of data structures. Design and develop modular programs that use procedures or functions</i></li> </ul> | <p>PERSONAL DEVELOPMENT</p>   |
|   |  |  |  | <p>Key Vocabulary</p>   |
|   |  |  |  | <p>algorithm<br/>script<br/>Sprite<br/>stage<br/>Variable<br/>logic error<br/>syntax error<br/>sequencing<br/>iteration<br/>selection</p> |

Term 2

## YEAR 7

|        | KNOWLEDGE   | CONCEPTS  | SKILLS   | RATIONALE   | PERSONAL DEVELOPMENT   |
|--------|---|---|--|---|--|
| Term 3 | <p><b>Topic 4: Network security and impact of technology</b></p> <p>What are the different threats to a computer or network?</p> <p>How can you identify the vulnerabilities of your network?</p> <p>How can you prevent threats and vulnerabilities to your network?</p> <p>Understand the digital divide and how it can impact the world that we live in</p> <p>Understand environmental issues with the use of computers</p> | <p>Online safety</p> <p>Cyber Security</p> <p>Impacts of technology</p> | <p>Be able to recognise a security flaw</p> <p>Be able to understand the precautions that they can take to make sure that a computer system and network stays at a lower risk.</p> | <p>The next unit in the schema builds from topic 1, and now the students will build upon their knowledge of network security before moving further through the course.</p> <p>Network security is a key concept that students should understand as it will impact in some way throughout their lives. Making students aware of how they can protect their family and themselves is vital.</p> <p>Often students don't consider the impact of technology on themselves, environmentally. This unit will make sure that students can go into further study with good understanding of this.</p> <p>We also think it is vitally important that the students understand about the digital divide and what it is, and how it impacts even people within this country.</p> <p><i>Links to KS3 curriculum</i></p> <ul style="list-style-type: none"> <li><i>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concern</i></li> </ul> | <p>RSE</p> <p>SMSC</p>   |
|        |   |   |  |   | <p>Key Vocabulary</p> <p>Environmental<br/>Malware<br/>Virus<br/>Trojan<br/>Spyware<br/>Ransomware<br/>Phishing<br/>Pharming<br/>Shouldering<br/>E-Waste<br/>Digital Divide<br/>Penetration<br/>Testing<br/>Passwords<br/>automatic<br/>software updates<br/>removable media</p> |

# YEAR 8

|               | KNOWLEDGE   | CONCEPTS                                    | SKILLS   | RATIONALE   | PERSONAL DEVELOPMENT   |
|---------------|---|---|--|---|--|
| <b>Term 1</b> | <b>Topic 1: Computer Systems</b><br><br>Understand what a CPU is<br><br>The CPU and the cycle that it uses<br><br>Demonstrate understanding of what kinds of devices can be considered computers<br><br>Understand what several input and output devices are<br><br>Understand the different between hardware and software<br><br>Binary logic- understanding its place in society and the NOT, AND and OR gate | Logical thinking<br><br>Data representation | Students need to become aware of what is around them, often they believe a computer is just a PC or laptop, but this unit will attempt to break the mould, to show the students that the electronic devices that they use day to day are computers.<br><br>Demonstrate understanding of how instructions are stored and executed by computer systems<br><br>Be able to solve truth tables based on logic circuits. | Topic 1 starts with some really important concepts that needs to be understood before moving through the year as it will help them understand and appreciate topics that they will come across. For example understanding how data is processed in a computer system using electrical switches is important to learning networks and data representation.<br><br>Students need to become aware of what is around them, often they believe a computer is just a PC or laptop, but this unit will attempt to break the mould, to show the students that the electronic devices that they use day to day are computers as well.<br><br>Hardware and software is something else that students will look at to understand the differences between the two as well as identify different input and output hardware devices.<br><br>This unit will make students aware about the fetch-decode-execute cycle, the process of a computer, and how computers are made up of a large quantity of electrical circuits that operate using switches.<br><br><i>Links to KS3 Computing:</i> <ul style="list-style-type: none"> <li>understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</li> <li>understand how instructions are stored and executed within a computer system; understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming</li> </ul> | Key Vocabulary<br><br>Computer<br>Hardware<br>Software<br>Central Processing Unit<br>Hard Disk Drive<br>Random Access Memory<br>Motherboard<br>Fetch-Decode-Execute Cycle<br>Logic Gates<br>AND Gate<br>OR Gate<br>Not Gate<br>Operating System<br>Input Device<br>Output Device |

# YEAR 8

| KNOWLEDGE  | CONCEPTS   | SKILLS  | RATIONALE   | PERSONAL DEVELOPMENT  |
|--|--|---|---|---|
| <p><b>Topic 2: Data Representation</b></p> <p>Identify that binary data is made up of 1s and 0s</p> <p>Demonstrate understanding of how binary representation works (e.g. 101 = 5)</p> <p>Convert numbers from binary to decimal and vice-versa</p> <p>Students will understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</p> | <p>Logic thinking</p> <p>Data Representation</p> | <p>Converting between different number systems</p> <p>Create images and sounds used the binary number system.</p> | <p>As the students have now realised that a computer uses electrical circuits and binary, it is the perfect opportunity to move their understanding on to see how binary works in more depth. They need to understand topic 1 and how a computer processes data to be able to make full understanding of this unit.</p>   |   |
|  |  |   | <p>This unit focuses on data representation which takes their understanding of electrical switches and starts to show them how computers use those electrical switches to display images and text, play sound, complete calculations and process instructions.</p> <p><i>Link to KS3 curriculum:</i><br/> <i>understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</i></p> <p><i>understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, conversion between binary and decimal]</i></p> | <p style="text-align: center;">Key Vocabulary</p> <p>Binary<br/>           Bit<br/>           bitmap image<br/>           Byte<br/>           Digital<br/>           Pixels<br/>           Resolution<br/>           Sample<br/>           Sample rate<br/>           Colour depth<br/>           Character set<br/>           ASCII<br/>           Unicode<br/>           Image representation<br/>           Sound representation</p> |

Term 1

# YEAR 8

| KNOWLEDGE | CONCEPTS   | SKILLS   | RATIONALE  | PERSONAL DEVELOPMENT   |
|-----------|--|--|--|--|
| Term 2    | <p>Topic 3: Networks and HTML</p> <p>understand what networks are</p> <p>define the terms LAN and WAN, and know that the internet is an example of a WAN</p> <p>Understand differences, including advantages and disadvantages of wired and wireless networks</p> <p>Understand the different structures of networks Inc. physical and topologies</p> <p>Understand what HTML and CSS is</p> | <p>Networks and communications</p> <p>Cyber security</p> | <p>Using TAGS to create the HTML website.</p> <p>Use CSS to add to the design of the website</p> <p>Use feedback to develop the website further.</p> | <p>Now they have a good foundation of how computers process data and instructions, and how binary data is used to display sound, images and text the next step in for them is to learn about networks and how data and instructions are communicated between devices across the world.</p>   |
|           |  |  |  | Key Vocabulary   |
|           |  |  |  | <p>This topic explores networks, types of networks and what networks they will likely see in homes and businesses. We complete the unit by creating a HTML website with CSS to get them to see the process of how websites can be created and adapted. This is a popular unit for the students, allowing them to use their creativity skills when creating their webpage using CSS</p> <p><i>Link to KS3 curriculum:</i></p> <ul style="list-style-type: none"> <li><i>create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.</i></li> <li><i>understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</i></li> </ul> |



# YEAR 8

| KNOWLEDGE  | CONCEPTS                                     | SKILLS  | RATIONALE  | PERSONAL DEVELOPMENT   |
|--|--|---|--|--|
| <p><b>Topic 4: Data analysis</b></p> <p><b>Identifying good and bad online behaviours</b></p> <p><b>Understand how products are designed for target audiences</b></p> <p>Understand how to use spreadsheets to enter and display data</p> <p><b>Be able to analyse data to influence design</b></p> <p><b>Make appropriate design choices to suit the needs of the target audience</b></p> <p>Understand how to combine data, understanding of their audience and understanding of how to use software to create a short E Safety Animation</p> <p>evaluate and feedback other designs suggesting improvements</p> | <p>Online Safety</p> <p>Logical thinking</p> | <p>Analytical thinking</p> <p>Creativity</p> <p>Design skills</p> <p>Understanding how to meet a brief and make sure the message is clear for the designated target audience</p> <p>make appropriate choices about usability and functionality to suit users' needs</p> | <p>Finally in year 8 we finish with a creative project. We begin the unit with getting the students creating some data capture questionnaires so they start to consider how to meet the needs of target audiences not just creating something for themselves. Once the students have gathered their market research they can analyse this data to make design decisions about their E Safety animation for primary aged children. Students, again enjoy this unit and we felt it is really important that we had further E Safety units within the curriculum alongside the internet safety week and units in year 7.</p> <p>Online safety is a vital fundamental teaching role of our department, and one we cover in lots of depth throughout the KS3 course.</p> <p><i>Link to KS3 curriculum:</i></p> <ul style="list-style-type: none"> <li><i>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analyzing data and meeting the needs of known users</i></li> <li><i>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognize inappropriate content, contact and conduct, and know how to report concerns</i></li> </ul> | <p>RSE</p> <p>SMSC</p> <p>Key Vocabulary</p> <p>Digital Artefact<br/>Data Analysis<br/>Target Audience<br/>Animation<br/>Questionnaire<br/>Spreadsheet<br/>Bar Chart<br/>Pie Chart<br/>Line Graph<br/>Feedback</p> |

# YEAR 9

| KNOWLEDGE | CONCEPTS  | SKILLS   | RATIONALE   | PERSONAL DEVELOPMENT  |  |
|-----------|---|--|---|---|--|
| Term 2    | Topic 1: Micro Python ZS  |  |   |   |  |
|           | <p><b>Use variables, lists and assignment</b></p> <p><b>Use selection in programming (if statements)</b></p> <p>use two-way selection in programming (if, then, else)</p> <p>use repetition in programs</p> <p>use condition-controlled loops</p> <p><b>use iteration (looping) to make programs more efficient</b></p> | <p>Problem Solving</p> <p>Logical thinking</p> | <p>Logical thinking</p> <p>Programming language</p> <p>Sequencing, selection and iteration</p> <p>Assignment of variables &amp; lists</p> | <p>This is a unit that we have been building towards through Year 7 and 8. Students now get to apply their foundations of problem solving in Year 7 topic 2, and their understanding of programming constructs in Year 7 topic 3. Micro Python has links to our chosen programming language at KS4 as well, so it gives the perfect stepping stone for moving into that area of study.</p> <p>Topic 1 starts with introducing the students to how python is used in the real world, giving examples of large businesses that use python. Students are introduced to the concept of variables in micro python and the different types of data that are used. The three main programming constructs are re-introduced in text based programming form (sequencing, selection and iteration). Students are taught programming using the predict, investigate and practice method. Students predict what would happen in a program, investigate the program (answering a range of different types of questions) and then practise creating their own programs for given problems. To increase engagement, micro-bits are used to create animations using these techniques.</p> <p><i>Link to KS3 curriculum:<br/>use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</i></p> | <p>.</p>   |
|           |   |  |   |   | <p style="background-color: #92d050;">Key Vocabulary</p> <p>Variable<br/>List<br/>Sequence<br/>Selection<br/>Iteration</p> |

# YEAR 9

|        | KNOWLEDGE  | CONCEPTS   | SKILLS  | RATIONALE   | PERSONAL DEVELOPMENT  |
|--------|--|--|---|---|---|
| Term 2 | <p><i>Topic 1: Creative Projects</i></p> <p>Understanding what are the key elements in graphic design.</p> <p>Understand how to design to brief and audience</p> <p>Know the key concepts of design and colour</p> <p>Understand software, and how to use them to create a final design</p> <p>Understand how to reflect and improve work.</p> | <p>How to design for a purpose or audience, rather than based on their own thoughts and ideas.</p> <p>How to successfully use colour in design</p> <p>Thought process behind the selection of images and fonts</p> <p>Understanding the use of white space</p> | <p>Understand how professional magazines are put together.</p> <p>Use Photoshop to design a final assessment graphic</p> <p>Learn to take feedback, respond and improve.</p> <p>Reflection on the final product, and improve.</p> | <p>This now builds upon the topic at the end of year 8 where the students started to consider design skills for an audience and design concepts.</p> <p>This unit will allow the students to gain understanding of design, how colour, white space and layout are all vital to good design.</p> <p>They can use these skills to understand how they are used to create designs for specific audiences.</p> <p>The skills that they are shown this year are intentionally chosen for a number of different reasons.</p> <p><i>KS3 computing curriculum that they can undertake creative projects that involve selecting, using, and combining multiple applications, to achieve challenging goals</i></p> <p><i>It is also important for them to create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</i></p> | <p>SMSC</p> <p>Equality and Diversity</p> <p style="background-color: #d9ead3;">Key Vocabulary</p> <p>Target audience<br/>Audience segmentation<br/>Client Brief<br/>White Space<br/>Visualisation<br/>Diagram<br/>Digital Artefact<br/>Colour Psychology<br/>typography<br/>Photoshop<br/>Feedback</p> |

# YEAR 9

| KNOWLEDGE   | CONCEPTS   | SKILLS  | RATIONALE   | PERSONAL DEVELOPMENT                                       |
|---|--|---|---|--|
| <p><b>Topic 1: Spreadsheets</b></p> <p>Students will be introduced to what is a spreadsheet and how these are used by businesses.</p> <p>Students will explore careers that use spreadsheets regularly and gain an understanding of the use of this technology.</p> <p>Students will gain an understanding and skills of the different functions and tools within MS Excel.</p> <p>Students will format and use data within a Spreadsheet to make business recommendations.</p> | <ul style="list-style-type: none"> <li>Layout &amp; presentation of data</li> <li>Use of a spreadsheet to draw conclusions of data</li> <li>Create and reuse a digital artefact for a given purpose</li> </ul> | <ul style="list-style-type: none"> <li>Formatting</li> <li>Functions</li> <li>Formulas</li> <li>Sort</li> <li>Search</li> <li>Graphs</li> </ul> | <p>They looked at spreadsheets in Year 8 for data analysis, and now this will take their knowledge further.</p> <p>Spreadsheets are a widely used piece of technology within many careers in the world of work. The use of spreadsheets is a requirement of employers in most roles. Therefore within this unit of work students will be introduced to what is a spreadsheet and the role they have in Businesses / workplaces and society.</p> <p>A range of careers will be shown to highlight the need of this skill and how it is used. Average salaries will be shared to show how the progression of skill leads to the increase in amounts paid.</p> <p>Students will be introduced to basic formatting to demonstrate how data can be presented to allow the audience to read clearly the information presented.</p> <p>Students will initially be provided with data already in a spreadsheet and be asked to manipulate this. This includes the skills of:</p> <ul style="list-style-type: none"> <li>Formatting</li> <li>Functions</li> <li>Formulas</li> <li>Sort</li> <li>Search</li> <li>Creating Graphs</li> </ul> <p>Ks3 curriculum links:</p> <p><i>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</i></p> <p><i>create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</i></p> | <p>PDE</p> <p>CEIAG</p> <p>Citizenship</p> <p>Numeracy</p> |
|   |  |   | Key Vocabulary  |  |
|   |  |   | <p>Spreadsheet</p> <p>Worksheet</p> <p>Workbook</p> <p>Formatting</p> <p>Cell</p> <p>Active Cell</p> <p>Formula</p> <p>Function</p> <p>AutoSum</p> <p>Sort</p> <p>Filter</p> <p>Graph</p> <p>Data</p> <p>Profit</p> <p>Income / Sales</p> <p>Expenses</p>   |  |

# YEAR 9

| KNOWLEDGE   | CONCEPTS                                       | SKILLS   | RATIONALE   | PERSONAL DEVELOPMENT  |
|---|--|--|---|---|
| <p>Topic 2: Databases &amp; SQL</p> <p><b>Understand the structure of a database and be able to identify the features using the correct terminology</b></p> <p>Be able to insert records into a database use the SQL INSERT command</p> <p>Be able to update data in a database using the SQL UPDATE command</p> <p>Be able to remove data from a database using the SQL DELETE command</p> <p>Be able to retrieve data from one or two tables using the SQL SELECT command using Boolean logic</p> | <p>Problem Solving</p> <p>Logical thinking</p> | <p>Logical thinking</p> <p>Programming language</p> <p>Modifying &amp; retrieving data</p> | <p>During a careers week in 2021 numerous businesses made note of the lack of skills and knowledge that students have for databases now. This topic was introduced as to push the students knowledge on from programming and skills that they can use in multiple career paths.</p> <p>Students are taught how data is stored in businesses and how to insert, modify and retrieve data in a database using SQL (structured query language). After completing the Databases &amp; SQL unit in term 2, students will learn how organisations store and manage their data.</p> <p><i>Link to KS3 curriculum:</i></p> <p><i>use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</i></p> <p><i>understand simple Boolean logic [for example, AND, OR and NOT]</i></p> | <p style="text-align: center;"><b>Key Vocabulary</b></p> <p>Database<br/>Field<br/>Record<br/>Primary Key<br/>Flat-file Database<br/>Structured Query Language (SQL)<br/>Select<br/>Insert Into<br/>Delete<br/>Update</p> |

# YEAR 9

| KNOWLEDGE  | CONCEPTS  | SKILLS  | RATIONALE   | PERSONAL DEVELOPMENT   |
|--|---|---|---|--|
| <p><b>Topic 2 Visual Identity DS</b></p> <p><b>What is meant by visual identity</b></p> <p><b>The component features of visual identity and the elements of visual identity</b></p> <p>Using appropriate elements to create visual identity suitable for different target audiences/<br/>Consumers</p> <p><b>The importance of graphic designs that incorporate visual identity and house style</b></p> <p>Why typography is important to convey clear messages using suitable text fonts and sizes</p> <p>The use of colour and white space in design</p> | <p>Use of technical skills to create the visual identity</p> <p>Use of tools and techniques to create the digital graphic products</p> <p>Design concepts and layout conventions are applied effectively to digital graphic products.</p> | <p>In this unit the students will learn how to develop visual identities for clients. They will also learn to apply the concepts of graphic design to create original digital graphics which incorporate your visual identity to engage a target audience.</p> <p>Logo design</p> <p>Product design</p> | <p>Identity is a vital component of any business, product or brand. This builds on from year 8 topic 4 and creative projects in year 9. The students will use those skills and push their design skills on into creating their own brand.</p> <p>A visual identity communicates values and core principles to the consumer, user or customer. It makes a brand recognisable and helps sell a product or idea to a target audience. Logos, shapes, typography, colour theory and composition are all used to generate visual identities</p> <p><i>Links to KS3 computing curriculum:</i></p> <ul style="list-style-type: none"> <li><i>undertake creative projects that involve selecting, using, and combining multiple applications, to achieve challenging goals, inc meeting the needs of known users</i></li> <li><i>create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</i></li> </ul> | <p>SMSC</p> <p>Key Vocabulary</p> <p>Visual identity<br/>Brand<br/>White Space<br/>Target Audience<br/>Typography<br/>House Style<br/>Colour<br/>Consumers</p> |

# YEAR 9

| KNOWLEDGE  | CONCEPTS  | SKILLS  | RATIONALE   | PERSONAL DEVELOPMENT   |
|--|---|---|---|--|
| <p><b>Topic 2: Data collection &amp; market research</b></p> <p>Students will Identify and explain Digital artefacts; Understand the relevant of reliability and bias.</p> <p>Students will be introduced to careers that use Data collection and gain knowledge of its important to businesses.</p> <p>Students will Understand what is Market research; Explain and give advantages and disadvantages.</p> <p>Students will complete market research, analyse data and design a new product based on the data collected.</p> | <p>Data</p> <p>Data collection</p> <p>Digital Artefact</p> <p>Data analysis</p> <p>Market Research</p> <p>Product Development</p> | <ul style="list-style-type: none"> <li>• ICT</li> <li>• Design</li> <li>• Analysis</li> <li>• Evaluation</li> <li>• Reliability &amp; Bias</li> </ul> | <p>This will build on from early understanding of topic 4 in year 8 about data gathering and data analysis.</p> <p>Students will be introduced data; what it is, why it is important, why businesses want it and how it can be stored.</p> <p>Students move on to how and why data is collected, looking at types of data and evaluating reliability and bias. Pupils will understand different types of Primary &amp; Secondary Research. Listing advantages and disadvantages of each method.</p> <p>Pupils will then complete their own market research to collect data for designing a new chocolate bar.</p> <p><i>KS3 curriculum link:</i></p> <p><i>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</i></p> | <p>PDE<br/>CEIAG<br/>Citizenship</p> <p style="text-align: center;">Key Vocabulary</p> <p>Incomplete</p> |