# Curriculum Map 2021/2022

**ST MARY'S CE HIGH SCHOOL**

## YEAR 9 COMPUTING

The Year 9 curriculum follows the National Curriculum strands of Digital Literacy (DL), IT (IT) and Computer Science (CS). The plan is designed to build understanding of the principles of Computing and improve IT skills with a range of activities. It challenges students to think creatively about what they are learning and how it can be applied in the real world whilst preparing them for KS4, Post 16, higher education and the wider world.

| | Autumn 1a | Autumn 1b | | Spring 2a | Spring 2b | Summer 3a | Summer 3b |
|---|---|---|---|---|---|---|---|
| **CONTENT**<br><br>*Declarative / core / powerful Knowledge – 'Know What'* | Internet Safety, Cyber Security and Encryption: (DL)<br>- Look at a range of malware and the effects they have<br>- Know what precautions to take to maintain safety online<br>- The role of encryption in maintaining safety online<br>- Know about a range of ciphers | Binary and computer logic: (CS)<br>- What is binary and why it is used in computing<br>- How to convert between denary and binary, how binary is used to encode text and images<br>- The concepts of AND, OR and NOT gates and their use in computer programs | | The ethics of Computing: (DL)<br>- The role of algorithms in decision making<br>- The importance of intellectual property and copyright<br>- Consider the ethical implications of using modern information technologies | Programming in Python – iteration: (CS)<br>- How to program count-controlled loops in Python<br>- The concept of nested loops<br>- Develop working programs in Python to solve a wide range of problems | Computing: Past, Present and Future: (CS)<br>- Research important figures in the development of computing<br>- Moore's Law and how computer technology has developed and changed over time<br>- How to format documents and the importance of aesthetics when presenting information and have an awareness of factors that inhibit this | COMPUTER SCIENCE PATHWAY: Networking and the Internet:<br>- How data is sent across a network<br>- The role of basic hardware involved in networking, such as switches<br>- The role of IP addresses, domain names and DNS<br>- A range of Internet services<br><br>DIT PATHWAY: User Interfaces:<br>- The different types of user interfaces, their uses and who might use them<br>- Different design aspects of the different user interfaces<br>- Comprehensive comparison of 2 different users interfaces |
| **Skills** | Demonstrate safe practices when using the internet | Binary and denary conversions | | To be able to make informed judgements about whether | To be able to analyse the requirements of a program | To be able to present knowledge about computing using word | COMPUTER SCIENCE PATHWAY: |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Procedural Knowledge – 'Know How'* | Use a range of ciphers and decrypt text | Encoding and decoding text and images in binary | | activities are morally acceptable or not<br>To ensure that copyright has not been infringed when using resources found online<br>To store data safely with regard to current legislation | To be able to identify the processes needed to solve a problem | processing and presentation software<br>To be able to use formatting appropriately<br>To ensure that appropriate images and text have been selected for presentations | To be able explain how data is sent across a network<br>To be able to name basic hardware involved in networking<br><br>DIT PATHWAY:<br>Complete assignment 1 of component 1 |
| **Key Questions** | Can you identify the key ciphers and how to decrypt them?<br>Can you list the different types of malware?<br>What are the key precautions to maintain safety on the internet? | What is binary made up of?<br>Why do computers use binary?<br>What is the difference between the AND, OR and NOT gates? | | How do we use modern technologies responsibly?<br>How do we tell if something is morally right or wrong? | How do we program count-controlled loops within python?<br>What is the difference between a nested loop and a 'normal loop'? | Who were the influential figures in the development of computing?<br>What is Moore's Law and why is it important?<br>Why is it important to present information appropriately when presenting it? | COMPUTER SCIENCE PATHWAY:<br>How is data sent across a network?<br>What is the basic hardware needed for a basic network?<br><br>DIT PATHWAY:<br>Completion of assignment 1 |
| **Assessment** | Mid-module assessment and end of topic assessment based upon using computers safely and confidently | Mid-module assessment and end of module assessment based upon using binary and computer logic | | Mid-module assessment and end of module assessment based upon ethics in computing | Mid-module assessment and end of module assessment based upon programming in python and iteration | Mid-module assessment and end of module assessment based upon Computing, Past, Present and Future | COMPTER SCIENCE PATHWAY:<br>Mid-module assessment and end of module assessment based upon Networking and the Internet<br><br>DIT PATHWAY:<br>Completion of assignment 1 |