Bishop Milner CATHOLIC COLLEGE

# Year 8 LONG-TERM SEQUENCE for Computing

**The curriculum for this stage of students' education has been designed to further develop and extend computing knowledge acquired from year 7 computing. Predominantly, developing knowledge in the following three areas: computer science, information technology and digital literacy. Knowledge from each of these areas compliments each other and allows students to seamlessly gain both declarative (knowing that) and procedural (knowing how) knowledge. Students are introduced to the core concepts of programming in a text-based programming language. Bishop Milner Catholic College ensures all students receive high quality computing education through well sequenced lessons and structured assessments.**

## HALF TERM 1

**Cybercrime**

**STUDENTS MUST KNOW:**

- The different computer crimes which are a potential threat to the common user.
- What is hacking and how it interlinked with malware.
- How to recognise a fraudulent email and the impact of responding to a fraudulent email.
- The different computer laws which exist to protect computer/digital device users.

**HOW THIS WILL BE ASSESSED:**

Students will take a multiple-choice summative assessment at the end of the unit and their work will be assessed against a rubric. Students' classwork and homework are reviewed and assessed online.

## HALF TERM 2

**Further Computer Systems**

**STUDENTS MUST KNOW:**

- What is the binary number system and why is it used by computers.
- How to convert a binary number to denary and vice versa.
- How to perform basic binary arithmetic (adding, multiplying and identifying odd/even binary numbers).
- The different storages devices which are used to store data digitally and understand the mechanics behind how the data is stored on these devices.

**HOW THIS WILL BE ASSESSED:**

Students will take a multiple-choice summative assessment at the end of the unit and their work will be assessed against a rubric. Students' classwork and homework are reviewed and assessed online.

## HALF TERM 3

**Programming with Python Turtle P1**

**STUDENTS MUST KNOW:**

- What is an algorithm and how algorithms are used in programming.
- The basics of Python Turtle (moving the turtle forward, backwards and rotate).
- How to use the pen_up/pen_down and the fill function.
- How to repeat code using a simple for loop.
- How to use the def function to break up code for a more organised and robust code structure.

**HOW THIS WILL BE ASSESSED:**

Students will take a multiple-choice summative assessment (50%) and sit a practical assessment (50%) at the end of the unit. Students' classwork and homework are reviewed and assessed online.

## HALF TERM 4

**Programming with Python Turtle P2**

**STUDENTS MUST KNOW:**

- How to run a simple program in interactive mode using the input and the print commands.
- The good practice rules, when setting and using variable names in a program.
- The importance of using correct data types.
- How to use nested for loops and the correct selection statements for a given problem.

**HOW THIS WILL BE ASSESSED:**

Students will sit a practical assessment at the end of the unit where they will demonstrate their ability to program independently. Students' classwork and homework are reviewed and assessed online.

## HALF TERM 5

**Programming with HTML**

**STUDENTS MUST KNOW:**

- The key elements when designing and developing a website.
- The key features which make a website successful.
- That HTML is a programming language that supports the creation of webpages.
- How to read and alter HTML code.
- How to create a webpage from scratch using HTML code.

**HOW THIS WILL BE ASSESSED:**

Students will sit a practical assessment at the end of the unit where they will demonstrate their ability to program independently. Students' classwork and homework are reviewed and assessed online.

## HALF TERM 6

**Databases and SQL**

**STUDENTS MUST KNOW:**

- What is a database and why are databases used.
- That the use of a relational database eliminates data inconsistency and data redundancy.
- What is a table, what is a field, what is a primary key and what is a foreign key.
- How to use SQL commands to retrieve, insert, edit and delete data.

**HOW THIS WILL BE ASSESSED:**

Students will sit a practical assessment at the end of the unit where they will demonstrate their ability to independently use SQL commands. Students' classwork and homework are reviewed and assessed online.

**Embedding this knowledge can be supported at home by** Worksheets (via TEAMS class notebook), BBC Bitesize website (KS3), Key word learning from Knowledge Organisers, Quick quizzes, Seneca website, CGP Books and W3Schools website.

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