Bishop Milner

CATHOLIC COLLEGE

videos, Codeacademy website, Khan Academy website and W3Schools website.



 The curriculum for this stage of students' education has been designed to instil a solid foundation in both the practical programming aspects of computer science, and the conceptual theory aspects too. Students are given ample opportunity for practical work both individually and in pairs to maximise their exposure to writing and debugging code, giving students the skills to further their coding ability through further study or individually.

 Half Term 1:
 Half Term 2
 Half Term 3

Stand A - Programming part 1. Sequence: Stand A - Programming part 2. Selection: Stand A - Programming part 3. Selection: Write and comple single Python programs. In our selection works with programming and 8 systax within - Definite and in-definite thration and how to use it in Python. Write programs with take an input and result in an output conduct on tamperate and create logical expressions to direct the execution of cabe to be refer selection) - Definite and in-definite thration on inputs to programs. Write programs with take an input and result in an output conduct selection of cabe to be refer selection) - Definite and in-definite thration on inputs to programs. Write and comple signification programs. - Now to interpret and thration of cabe to be refer selection) - Now to conduct validation on inputs to programs. Strand B - Demander Selection - The components which make op a computer and the program (Now): - Now to conduct and compare the programs. Strand B - Demander Selection - The components which make op a computer and the program (Now): - Now to interpret and works ow this program (Now): Strand B - Demander Selection - The components which make op a computer watch and the program (Now): - Now to interpret and which and compare to program (Now): Strand B - Demander Selection - The components which make op a computer watch and the sense and program (Now): - Now ton with an exen a computer selection (Now):	Half Term 1:	Half Term 2	Half Term 3
STUDENTS MUST NOW: •	Strand A - Programming part 1: Sequence:	Strand A - Programming part 2: Selection:	Strand A - Programming part 3: Iteration:
• Write and complex simple Python programs. • How solection works within programming and its syntax within python • How to interpret and create logical speciasion. • Write programs, within python • Write programs, write python • Write python • Write programs, write python • Write programs, write python • Write python • Write python • Understan how to conduct a binary numbers, python • Understan how to conduct a binary numbers, python • Understan how to conduct a binary numbers, python • Understan how to conduct a binary numbers, python • Understan how to conduct a binary numbers, python • Understan how to conduct a binary numbers, python<	STUDENTS MUST KNOW:	STUDENTS MUST KNOW:	STUDENTS MUST KNOW:
Strand B - fundamentals of Agorithm: Strand B - Computer System: Strand B - Computer System: STUDENTS MUST KNOW: - The components which make up a computer and the parts of CPU's abstraction. - How to safful a due trace tables to debug programs which due to conduct and compare the linear and binary search algorithms. - The different types and purpose of the FDK cype system. - How to scanduct and the trans algorithm is the due to conduct a binary shift. - How to conduct and compare the linear and binary search algorithms. - How to conduct and compare the linear and binary search algorithms. - How to conduct and compare the bubble and merge sort algorithm - How to page and compare computer system characteristics obcioan oppressions. - How to interpret and write basic assembly language programs - How to interpret and write basic assembly language programs How the will be assessed: Students will take a summative assessment. Students' dissowrk and singets at the end of the unit and sit a tost on the algorithm's unit. - How to interpret and write basic assembly language programs - How to interpret and reade substration: Students will take a summative assessment. Students' strating and writing code strate and of the unit and sit a tost on the algorithm's unit. - How to handle and manipulate strates and now to acceler. - How to kill be assessed: Students will take a summative assessment. Students' strates' and compare systems unit. - How to handle and manipulate strates' and how to conduct and assessed online. Students will be assessed: Students will take a summative assessment analysing and writing code at the end of the unit and sit a tost on the algorithm's unit. - Hait Tem 6	 Write and compile simple Python programs. Understand the programming construct of sequence. Write programs which take an input and result in an output considering data types. Use arithmetic expressions in code. 	 How selection works within programming and its syntax within Python How to interpret and create logical expressions to direct the execution of code (use nested selection) 	 Definite and in-definite iteration and how to use it in Python. What is meant by pseudocode and be able to design programs using it How to conduct validation on inputs to programs.
STUDENTS MUST KNOW: 	Strand B – Fundamentals of Algorithms:	<u>Strand B – Computer Systems:</u> STUDENTS MUST KNOW:	<u>Strand B – Data representation:</u> STUDENTS MUST KNOW:
How this will be assessed: How this will be assessed: How this will be assessed: Students will take a summative assessment analysing and writing code sinplext Students will take a summative assessment analysing and writing code sinplext at the end of the unit and sit a test on computer systems unit. Students will take a summative assessment. Image: Students will take a summative assessment analysing and writing code sinplext at the end of the unit and sit a test on computer systems unit. How this will be assessed: Strand A - Programming part 4: Subroutines: Strand A - Programming part 5: Strings and Lists: Strand A - Programming part 5: Strings and Lists: Strand A - Programming part 4: Subroutines: Strand A - Programming part 5: Strings and Lists: Strand A - Programming part 5: Strings and Lists: Strand B - Data Representations: The concept of the array data structure and how to use lists in Python. Python. Strand B - Data Representations: Strand B - Ethical, Legal and environmental impacts of digital technology and data. The concept of wave: How take is represented and how to calculate file size The cultura, ethical, and environmental impacts of or gainst technology: The structure and parts of flat file and relational databases How take as using run length encoding How to write balanced arguments for or against technology: How to interpret written questions to produce relevant SQL queries. Strand B - Belational databases and SQL: Strand B - Relational databases and SQL: How to calculate file size	 STUDENTS MUST KNOW: Understand the terms algorithmic thinking, decomposition, and abstraction. How to construct and use trace tables to debug programs How to conduct and compare the linear and binary search algorithms How to conduct and compare the bubble and merge sort algorithms 	 The components which make up a computer and the parts of CPU's The function and purpose of the FDE cycle The different types and purposes of memory within a computer system How to judge and compare computer system characteristics The AND, OR, NOT, XOR logic gates and use them in circuits and Boolean expressions. How to interpret and write basic assembly language programs 	 How base 2 numbers (binary numbers) are used in computing systems. Understand how to add binary numbers. Understand how to conduct a binary shift. How binary numbers can be used to represent signed numbers. What hexadecimal numbers are and how to convert them between binary/decimal.
Half Term 4 Half Term 5 Strand A - Programming part 4: Subroutines; Strand A - Programming part 5: Strings and Lists; STUDENTS MUST KNOW: How to interpret and create subroutines in Python and pseudocode The difference between functions and procedures How scope works in Python. The best practice for structuring programs Use 2D lists to solve more complex challenges. Strand B - Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy; The difference between lossy and lossless compression How to compress data using run length encoding How to compress data using run length encoding How to compress data using Huffman coding How to compress data using run length encoding How to interpret writting questions to produce relevant SQL How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on the stand B content. Classwork are reviewed and assessed online. Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on data representations unit. Class of the unit and sit a test on data representations unit. Class of the unit and sit a test on data representations unit. Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on data representations unit. Class of the unit and sit a test on data representations unit. Class of the unit and sit a test on data representations unit. Class of the unit and sit a test on dat	How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on the algorithm's unit.	How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on computer systems unit.	How this will be assessed: Students will take a summative assessment. Students' classwork and homework are reviewed and assessed online.
Strand A - Programming part 4: Subroutines: Strand A - Programming part 5: Strings and Lists: Strand A - Programming challenges: Revise STUDENTS MUST KNOW: •	Half Term 4	Half Term 5	Half Term 6
 How to interpret and create subroutines in Python and pseudocode The difference between functions and procedures How scope works in Python The best practice for structuring programs The concept of the array data structure and how to use lists in Python. Use 2D lists to solve more complex challenges. Strand B – Relational databases and SQL: STUDENTS MUST KNOW: How text is stored in computers including ASCII and Unicode How to calculate file size How to compress data using run length encoding How to to compress data using run length encoding How to is will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on data representations unit. How this will be assessed of the unit and sit a test on data representations unit. 	Strand A - Programming part 4: Subroutines: STUDENTS MUST KNOW:	Strand A - Programming part 5: Strings and Lists: STUDENTS MUST KNOW:	Strand A – Programming challenges: Revise STUDENTS MUST KNOW:
Strand B – Data Representations: Strand B – Ethical, legal and environmental impacts of digital • The structure and parts of flat file and relational databases STUDENTS MUST KNOW: • How text is stored in computers including ASCII and Unicode • How images are represented and how to calculate file size • The laws and regulations surrounding technology and data. • The laws and regulations surrounding technology. • How to interpret written questions to produce relevant SQL • How to compress data using run length encoding • How to compress data using Huffman coding • How to site assessed: • How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on data representations unit. • Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on data representations unit. • Students will be assessed on the stand B content. Classwork and homework are reviewed and assessed online.	 How to interpret and create subroutines in Python and pseudocode The difference between functions and procedures How scope works in Python The best practice for structuring programs 	 How to handle and manipulate strings within programs The concept of the array data structure and how to use lists in Python. Use 2D lists to solve more complex challenges. 	Recap sequence, selection, iteration, subroutines and lists in Python. Strand B – Relational databases and SQL: STUDENTS MUST KNOW:
How this will be assessed: How this will be assessed: How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on the stand B content. Classwork and homework are reviewed and assessed online. Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on the stand B content. Classwork and homework are reviewed and assessed online.	Strand B – Data Representations: STUDENTS MUST KNOW: • How text is stored in computers including ASCII and Unicode • How images are represented and how to calculate file size • How sound is represented and how to calculate file size • The difference between lossy and lossless compression • How to compress data using run length encoding	 Strand B – Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy: STUDENTS MUST KNOW: The laws and regulations surrounding technology and data. The cultural, ethical, and environmental impacts of technology. How to write balanced arguments for or against technological topics 	 The structure and parts of flat file and relational databases How to structure and write SELECT, UPDATE, INSERT, and DELETE queries in SQL How to interpret written questions to produce relevant SQL queries.
at the end of the unit and sit a test on data representations unit.	How this will be assessed: Students will take a summative assessment analysing and writing code snippets	How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test on the stand B content. Classwork and homework are reviewed and assessed online	How this will be assessed: Students will take a summative assessment analysing and writing code snippets at the end of the unit and sit a test in relational database and SQL unit. Classwork and homework are reviewed and assessed online.
	at the end of the unit and sit a test on data representations unit.	Sclass notohook) BBC Bitorizo wohsito (KS4, AOA), Koy word loorning from Knowle	dan Organicare, Quick guizzor, Sonoca waheita, CCP Paake, Craig and Dava

Created by: Mrs Mahmood 2024



