St John's
School & Sixth Form College
A Catholic Academy

KS4 Computing Curriculum

2019-2020

Computing

Year 12

What are the aims and intentions of this curriculum?

Within the first year of the course students will study two aspects simultaneously. First of all students will study component 1 which covers Computer Systems and how components successfully work together. The second aspect is their programming project which is 20% weighting of their final grade. Students will analyse, design and develop their solution within this academic year.

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Comp 1 - Computer Systems Comp 3 - Programming Project	Students to work through Characteristics of contemporary processors, inputs, outputs and storage devices. Students will work through the Analysis part of their programming project which includes analysing the problem and recommending a solution.	Understand the use of the CPU, FDE cycle, Von Neumann, CISC & RISC, Input & Output devices, storage, RAM & ROM and virtual memory. Analysing the problem and creating success criteria on how they will measure the success of their solution.	End of unit assessments Coursework
Autumn 2	Comp 1 - Computer Systems Comp 3 - Programming Project	Students to work through the different types of software and software development. Students will complete their analysis section including the success criteria and also already existing solutions.	Understand the use of operating systems, application software, software development, assembly languages, programming languages and OO Programming. Students will be completing the analysis section of their report, reviewing already existing solutions.	End of unit assessments Coursework
Spring 1	Comp 1 - Computer Systems Comp 3 - Programming Project	Students will work through exchanging data units of work such as compression, databases and networks. Students will work through the design section of their project, designing a solution to solve the problem.	Understand Compression & Encryption, Databases, Networks and Web technologies. Students will design a solution using pseudocode and flowcharts as well as top down views of their modules.	End of unit assessments Coursework
Spring 2	Comp 1 - Computer Systems Comp 3 - Programming Project	Students will work through representing data units such as hex, binary addition, normalisation and logic. Students will work through the design section of their project, designing a solution to solve the problem.	Understand Primitives, Data Structures and Logic. Students will be completing the design section of their report, using a range of techniques.	End of unit assessments Coursework
Summer 1	Comp 1 - Computer Systems Comp 3 - Programming Project	Students will work through Legal, moral, cultural and Ethics units of work looking into data protection and other laws and ethics. Students will be developing their solution to the problem described in the analysis and designed.	Understand the different ethics and computer related legislation required within computing. Students will be developing their solution using Python, Tkinter and SQlite.	End of unit assessments Coursework

Computing

Year 13

What are the aims and intentions of this curriculum?

Students will continue studying component 1 - computer systems, however they will cover all of the A level content, not just AS. Students will also complete the testing and evaluation of their final programming project. Once this is completed, students will then cover all of the content of component 2 - algorithms and programming. Students will then have covered the entirety of the specification in time for their summer exams.

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Comp 1 - Computer Systems Comp 3 - Programming Project	Students to revisit work through Characteristics of contemporary processors, inputs, outputs and storage devices. Students will be testing their solution and providing evidence that their solution meets the criteria set in the analysis/design sections.	Understand the use of the CPU, FDE cycle, Von Neumann, CISC & RISC, Input & Output devices, storage, RAM & ROM and virtual memory. Analysing the problem and creating success criteria on how they will measure the success of their solution.	End of unit assessments Coursework
Autumn 2	Comp 1 - Computer Systems Comp 3 - Programming Project	Students to revisit work through the different types of software and software development. Students will complete the evaluation section of their report. They must justify their solution with evidence.	Understand the use of operating systems, application software, software development, assembly languages, programming languages and OO Programming. Students will be completing the analysis section of their report, reviewing already existing solutions.	End of unit assessments Coursework
Spring 1	Comp 1 - Computer Systems Comp 2 - Algorithms	Students will revisit work through exchanging data units of work such as compression, databases and networks. Elements of computational thinking	Understand Compression & Encryption, Databases, Networks and Web technologies. Students will design a solution using pseudocode and flowcharts as well as top down views of their modules.	End of unit assessments Past exam questions
Spring 2	Comp 1 - Computer Systems Comp 2 - Algorithms	Students will revisit work through representing data units such as hex, binary addition, normalisation and logic. Problem solving and programming	Understand Primitives, Data Structures and Logic. Students will be completing the design section of their report, using a range of techniques.	End of unit assessments Past exam questions
Summer 1	Comp 1 - Computer Systems Comp 2 - Algorithms	Students will revisit work through Legal, moral, cultural and Ethics units of work looking into data protection and other laws and ethics. Algorithms to solve problems and standard algorithms	Understand the different ethics and computer related legislation required within computing. Students will be developing their solution using Python, Tkinter and SQlite.	End of Unit assessments Past exam questions