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

KS4 Computing Curriculum

2019-2020

Computing

Year 9

What are the aims and intentions of this curriculum?

Students are to cover Python programming in much more in-depth than what they covered in year 8 as this is the start of their Computing GCSE. Students will cover more complex programming concepts and will use these skills to complete a variety of programming challenges and to complete a practice NEA. Students will then cover theory units such as representing data and hardware which forms part of the GCSE specification.

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Python Programming	Introduction to Python Variables Strings Integers Lists Append, extend and index IF statements Menus	Improving Python skills already learnt from the previous year. Students are to become much competent programmers and more comfortable with more complex tasks.	Python tasks
Autumn 2	Python Programming	Iterations (while loops, for loops, nested loops) Functions (procedures) Random function Time function File handling	Students will cover more complex programming skills using iteration, functions, built in functions and using text files and excel files to store data.	Written Python assessment
Spring 1	Python Programming	Flowcharts & Pseudocode Programming challenge booklet 1 Programming challenge booklet 2	Students will learn how to use flowcharts and pseudocode to plan a solution to a problem. The students will then complete a range of programming challenges using two booklets which increase in difficulty.	Programming challenges
Spring 2	Python Programming	Practice NEA Task OCR Programming challenges	Students will put their skills to use by working through a past NEA which was a previous live NEA. This will give students the ability to work through a GCSE NEA. Students will then work through the programming challenges set by OCR.	Practice NEA Document
Summer 1	Representation of Data	Data units Binary Images Hexadecimal Converting units of data Sound Instructions	Students will start looking into some of the theory within Computing by looking at how data is represented within computers.	Written assessment on representing data
Summer 2	Hardware	Input/Output devices	Students will look at the hardware that makes up	Written assessment on

Computing

Year 10

What are the aims and intentions of this curriculum?

Students are to develop their knowledge of the theory behind Computing.. The students will cover a range of computer systems topics and algorithm topics before working through their live NEA which is submitted to the exam board.

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	System Architecture	CPU Memory Storage	Students are to cover the system architecture topic in detail. Students are to understand what the CPU is and how it works. They will also cover the memory and storage in computer systems.	Written system architecture assessment
Autumn 2	Networks	Wired and wireless networks Network topologies Network protocols	Students are to cover the network topic in detail. The students will cover all of the networks section which includes wired and wireless, topologies and network protocols.	Written network assessment
Spring 1	System Security	Threats to systems Protection methods System software Ethical, legal and cultural concerns	Students are to cover the system security section which includes knowledge such as threats and protection methods, system software and the ethical, legal and cultural concerns surrounding Computing.	Written system security assessment
Spring 2	Programming Project – Practice NEA	Students will work through a practice NEA set from an old NEA set from the exam board. Students are required to use a range of skills to design, create, test and evaluate a solution.	Students are to plan, design, create, test and evaluate a solution to a problem.	NEA report
Summer 1	Programming Project - Live NEA	Students will work through a live NEA set from the exam board. Students are required to use a range of skills to plan, design, create, test and evaluate a solution they created to a problem using computational thinking methods.	Students are to plan, design, create, test and evaluate a solution to a problem.	NEA report
Summer 2	Programming Project - Live NEA	Students will work through a live NEA set from the exam board. Students are required to use a range of skills to plan, design, create, test and evaluate a solution they created to a problem using computational thinking methods.	Students are to plan, design, create, test and evaluate a solution to a problem.	NEA report

Computing

Year 11

What are the aims and intentions of this curriculum?

Students will cover all computer systems topics and algorithm topics which will be on their two exam papers. They will then focus on independent revision based on mock data and their weaker topic areas.

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Algorithms Programming techniques Producing robust programs Translators and facilities of languages	Students will cover a range of topics within the computer systems area of the course. Students will complete past exam questions and work through their revision guides to increase knowledge too.	Students will cover a range of topics and will develop the ability to answer a range of exam style questions.	Past exam questions
Autumn 2	Data representation Logic gates Computational logic	Students will cover a range of topics within the computer systems area of the course. Students will complete past exam questions and work through their revision guides to increase knowledge too.	Students will cover a range of topics and will develop the ability to answer a range of exam style questions.	Past exam questions
Spring 1	System architecture Memory Storage Wired and Wireless Technologies Network topologies, protocols and layers	Students will cover a range of topics within the computer systems area of the course. Students will complete past exam questions and work through their revision guides to increase knowledge too.	Students will cover a range of topics and will develop the ability to answer a range of exam style questions.	Mock exam
Spring 2	System security System software Ethical, legal and cultural considerations	Students will cover a range of topics within the computer systems area of the course. Students will complete past exam questions and work through their revision guides to increase knowledge too.	Students will cover a range of topics and will develop the ability to answer a range of exam style questions.	Past exam questions
Summer 1	Revision	Revision	Revision	Revision