Cardinal Newman Catholic School – Department of Computer Science & iMedia

INTENT: Curriculum Overview Year 7

A learner in Year 7 will understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; be able to recognise inappropriate content, and know how to report concerns. They will be able identify the major components of a computer system's components and explain their functions. They will be able to demonstrate the steps required to purposely plan a project by studying pre-production techniques and put this into practise when developing individual projects in terms 2.2 and 3.2. They will gain knowledge on a number of computing pioneers and understand some of the origins of the modern-day devices we use.	**A learner in Year 7 will be able to:** describe guidelines for keeping their identity secure on the Internet, keep their files in well organised and appropriately named folders and explain what constitutes a "strong" password for an online account and explain the advantages and disadvantages of using online platforms such as social media. They will be able identify the major components of a computer system architecture and explain their functions. They should be able to explain how components of a computer system work together and are therefore used across all modern-day devices. They will be able to define basic programming terms such as variables and objects, and create simple programs using characters, enemies and collectables. By the end of the year they should also be able to demonstrate some block-based programming skills to create a mobile application, understanding different properties available to use within text boxes, buttons and backgrounds.

Term 1	**7.1 E-Safety** This topic introduces year 7 pupils to our school computer system. The topic includes lessons to ensure students know how to keep themselves safe within the classroom and during their social time when they are online. It also educates them on the topic of cyberbullying so they are able to identify it and know how to report it.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** ▫ explain what constitutes a "strong" password for an online account ▫ explain how to use social media appropriately and for the right reasons ▫ list some of the dangers and drawbacks of social networking sites ▫ list some possible responses to cyberbullying ▫ explain what to do if they or others they know are experiencing cyberbullying ▫ explain how to use AI correctly and list some ways to defend against AI ▫ explain what is meant be 'fake news' and identify methods to spot how genuine a website is **Skills:** ▫ How to change/create strong passwords ▫ Navigate through Google classroom keeping files organised ▫ Conduct themselves appropriately online and on social media ▫ Ability to identify cyberbullying traits ▫ Ability to identify fake news stories ▫ Ability to identify the authenticity of a website **Formative Assessment:** Students will complete a pitstop assessment after this topic, it will consist of a series of multiple-choice questions to check the key knowledge covered. **National curriculum link:**	**Knowledge coverage:** ▫ Secure password criteria ▫ Pros and cons of social media platforms ▫ Cyber bulling/Staying safe online ▫ Responsible use of technology ▫ The appropriate use of AI ▫ How to spot fake news **Assessment style/questions:** Multiple choice Assessment of this topic will also be included in the spring assessment and end of year summer assessment

	Bullet point 9 of the KS3 NC: • *Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns*	
Term 1	**7.2 Hardware & Software** This topic teaches students all about computer systems, including; what is the difference between hardware & software, what are the key hardware components required in a computer system, what is meant by system & application software, the need for memory & storage and the categorisation and need for peripheral devices.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** ▫ Explain the difference between hardware and software ▫ Explain the key internal hardware components required in a computer system ▫ Explain the need for storage in a computer system and describe different storage mediums ▫ Define and categorise 'peripheral devices' ▫ Explain the different categories of software giving specific examples **Skills:** ▫ Identify different hardware components in different devices (i.e. desktop/laptop/mobile phone/tablet) ▫ Identify input and output devices including specialised equipment ▫ Explain the difference between memory and storage ▫ Identify a number of storage devices and suggest appropriate choices in a given context ▫ Correctly identify an input or output device and explain how specialised devices can assist people with specific needs ▫ Discuss the roles of an operating system and explain the importance of utility software **Formative Assessment:** Students will complete a pitstop assessment after this topic, it will consist of a series of multiple-choice questions to check the key knowledge covered. **National curriculum link:** Bullet point 5 of the KS3 NC:	**Knowledge coverage:** ▫ Definition of hardware and software ▫ Internal hardware components ▫ Storage and secondary storage ▫ What is a peripheral device ▫ Input & Output devices ▫ Specialist equipment **Assessment style/questions**: Multiple choice Assessment of this topic will also be included in the spring assessment and end of year summer assessment

	• *Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems*	

Term 2	**7.3 Pre-production techniques** Throughout our key stage 3, 4 & 5 journey students are required to 'plan' stages of a project. This topic teaches students the skills required to successfully produce a robust/professional plan that meets a given scenario.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** • Explain the stages of pre-production including research and planning • Explain how to 'research' using a variety of methods • Explain what a mood board is, and the content required to produce a digital mood board • Explain how to use sketches and wireframes as planning tools • Create a workplan/Gantt chart to show the planning stages of a project • Explain what a contingency plan is giving examples **Skills:** • Use research methods effectively • Create a digital mood board using appropriate assets • Create sketches and a wireframe to plan within a given scenario • Choose appropriate layouts and colour schemes for products • Create planning documents to show progress through development **National curriculum link:** Bullet point 7 of the KS3 NC: • *Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users.*	**Knowledge coverage:** ▫ Pre-production methods including; ○ Stages of pre-production ○ Research methods ○ Planning tools ○ Evaluation of choices in relation to the scenario **Assessment style/questions:** The assessment of this topic will be alongside the next topic of study. Assessment of this topic will also be included in the Spring assessment and end of year summer assessment
Term 2	**7.4 Introduction to programming: Kodu Lab** The ability to write programming code is essential in computer science, therefore in year 7 we introduce students to programming using an engaging program called Kodu Lab. Students will learn about the key terms; algorithm, variables,	**Assessment**

	objects and environment through lessons covering; character paths & enemies, scoring & timers and collectable items. Students have the opportunity to demonstrate prior knowledge when they produce pre-production documents when designing their final program.	
	Knowledge: **After studying this topic students will be able to:** ▫ Create a computer program that follows a designed algorithm ▫ Create objects i.e. collectable items and characters ▫ Control movement and camera angles ▫ Create variables i.e. timers and scoring ▫ Use planning tools to design their own product **Skills:** ▫ Produce pre-production planning documents to help create their final product ▫ Create real-world programs in a 3D environment ▫ Use review/evaluative tools to refine products **Formative Assessment**: Through pre-production documentation and practical programming skills based on a given task. During this term students will also complete the Spring assessment which is part of the whole school assessment policy. **National curriculum link:** Bullet point 1 of the KS3 NC: • *Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems* Bullet point 3 of the KS3 NC: • *Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions* Bullet point 7 of the KS3 NC: • *Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users.*	**Knowledge coverage:** ▫ Definitions of objects and variables ▫ Creation of objects ▫ Setting and control of variables ▫ Creation of movement and paths ▫ Setting a game environment **Assessment style/questions:** Students will design a game using pre-production techniques studied in the previous topic. They will then create the game they have designed. We will assess their work in-line with the OCR iMedia coursework units we study at KS4. This will give students a 'working at grade'. **Spring assessment** The spring assessment consists of a series of multiple choice and short-answer questions covering all content from topics taught this year.

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<tr><td>Term 3</td><td>7.5 Computing Pioneers
This topic focusses on computing pioneers who each played their part in the growth of technology. Students will learn about Alan Turing; how to use different encryption methods, Charles Babbage; how to solve problems using logic, George Boole; the use of the AND, OR, NOT logic gates, and Sir Tim Berners-Lee who created the world's first webpage.</td><td>Assessment</td></tr>
<tr><td></td><td>Knowledge:
After studying this topic students will be able to:
Define the term 'encryption' and explain different encryption methods
Use problem solving skills to solve puzzles
Explain the rules for the AND, OR and NOT logic gates
Explain what HTML is and how webpages are created
Skills:
Create simple logic diagrams using the AND< OR and NOT logic gates
Create truth tables for the logic gates
Create an encrypted message using a Pigpen or Caesar cipher
National curriculum link:
Bullet point 4 of the KS3 NC:
Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].</td><td>Knowledge coverage:
Encryption methods
Problem solving techniques including 'divide and conquer'
Logic gates AND, OR, NOT
How webpages are created using HTML
Assessment style/questions:

Assessment of this topic will be included in the end of year summer assessment</td></tr>
<tr><td>Term 3</td><td>7.6 Mobile applications
In this topic students will learn event-driven programming while creating a mobile application. Following on from topic 7.4 these lessons will introduce students to more key terms and programming skills such as; properties, events, debugging, if statements and user input.</td><td>Assessment</td></tr>
<tr><td></td><td>Knowledge:
After studying this topic students will be able to:
Explain key terms used in event-driven programming; properties, events, debugging, if statements, user inputs
Design a mobile application using documents that detail; house style, text styles, size, colour
Create a working mobile application that includes the use of; buttons, sounds and images
Skills:</td><td>Knowledge coverage:
What are the key components in event-driven programming
How to create/edit applications
How to add functionality to an application</td></tr>
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	▫ Using event-driven programming skills to create a functioning mobile app ▫ Debug programs when errors occur ▫ Test programs and obtain user feedback **Formative Assessment**: During this term students will complete the Summer assessment which is part of the whole school assessment policy. **National curriculum link:** Bullet point 1 of the KS3 NC: • *Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems* Bullet point 3 of the KS3 NC: • *Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions*	**Assessment style/questions:** Assessment of this topic will be included in the end of year summer assessment **Summer assessment** The summer assessment consists of a series of multiple choice and short-answer questions covering all content from topics taught this year.