Cardinal Newman Catholic School – Department of Computer Science & iMedia

INTENT: Curriculum Overview Year 9

A learner in Year 9 will study the topic of cybersecurity which includes learning about the many threats that networks face from both internal and external sources. They will complete practical projects in the 'multimedia – video creation' and 'animation' topics, whilst also building on year 8 knowledge in the Python programming term. Students will also learn about the different ethical & legal issues surrounding the use of technology and be able to formulate arguments whilst taking part in debate topics.	**A learner in Year 9 will be able to**: describe the cyber threats that a network faces and explain suitable prevention methods network managers can put in place. Demonstrate video editing skills such as editing pace, composition & colour, transition use and syncing sound. Students will continue to develop Python programming skills; this year they will be able to create programs that implement iteration (repeated lines of code/loops) whilst still improving their skills using selection techniques. In the animation topic, students will create 3D animation incorporating the following skills: move, rotate & scale objects, using frames and object paths, combining objects using parenting methods and creating lighting and camera effects. Students will also be able to discuss relevant ethical & legal implications of using technology in today's society.

Term 1	**9.1 Cybersecurity/The Internet** In this topic students will learn about the world of cybersecurity. What is malware? What are the different ways computer networks can come under attack? What can we do to try and prevent it? Students will be able to describe social engineering techniques and methods we can take to keep our data safe.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** ▫ Describe ways to keep their personal data safe ▫ Categorise different methods of cyber attack ▫ Define social engineering and explain how it differs from a cyber attack ▫ Explain different security methods **Skills:** ▫ Identify different ways to keep data safe ▫ Explain different types of malware and describe how they affect a system ▫ Be able to suggest security methods in response to different types of attack **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: • *Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems* 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.*	**Knowledge coverage:** ▫ What is personal data ▫ Different types of malware ▫ What is social engineering ▫ Different security methods **Assessment style/questions:** Multiple choice Assessment of this topic will also be included in the spring assessment and end of year summer assessment

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<tr><td>Term 1</td><td>9.2 Multimedia: Video Creation
In this topic students will learn how to create/edit video content using industry standard software. They will use a variety of tools within the software to manipulate digital video. At the end of the topic students will create a product in line with the assessment criteria we use in our KS4 Creative iMedia course.</td><td>Assessment</td></tr>
<tr><td></td><td>Knowledge:
After studying this topic students will be able to:
▫ Produce a product to match a set scenario, using a variety of video editing techniques.
▫ Describe and use a variety of tools within video editing software
▫ Apply different tools and effects to a video clip to improve the overall quality
Skills:
▫ Adjust the composition and colour of a video clip
▫ Adjust the pacing of a video clip or portion of video
▫ Use transitions to increase the overall quality of a video
▫ Successfully sync sound clips into a video

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.
Bullet point 8 of the KS3 NC:
• Create, re-use, revise and re-purpose digital artifacts for a given audience, with attention to trustworthiness, design and usability</td><td>Knowledge coverage:
▫ Video editing;
○ Composition & colour
○ Pacing
○ Transitions
○ Sound syncing
○ Colour grading

Assessment style/questions:

Assessment of this topic will be included in the spring assessment and end of year summer assessment</td></tr>
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<tr><td>Term 2</td><td>9.3 Python Programming
This topic continues building students' knowledge and skills in using a textual programming language. Whilst continuing developing programs, students will implement new techniques within their IF statements (selection) and learn a new technique: iteration. Students will implement FOR and WHILE loops into their code.</td><td>Assessment</td></tr>
<tr><td></td><td>Knowledge:
After studying this topic students will be able to:
• Create programs that produce a solution to a given problem.
○ Students will be given a problem to solve, they will use techniques and skills learnt in year 8 and 9 to design, code, test and evaluate the effectiveness of their programs.
Skills:
• Create programs in Python that:</td><td>Knowledge coverage:
▫ Nested IF statements
▫ FOR/WHILE loops
▫ Data types
▫ Casting

Assessment style/questions:</td></tr>
</table>

	○ Use nested IF statements ○ Use WHILE loops ○ Use FOR loops ○ Use different data types when taking user input • Use problem solving and algorithmic thinking methods to write programs that solve a given problem **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 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*	Multiple choice and short answer questions (program lines of code) Assessment of this topic will also be included in the spring assessment and end of year summer assessment
Term 2	**9.4 Multimedia: Animation** This topic introduces students to computer animation, students will use another professional industry standard piece of software to produce 3D animated content. Students will learn how to use a variety of tools within the software package to produce animated products. At the end of the topic students will create a product in line with the assessment criteria we use in our KS4 Creative iMedia course.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** ▫ Produce a product to match a set scenario, using a variety of animation techniques. ▫ Describe and use a variety of tools within animation software **Skills:** ▫ Create 3D objects (move, rotate, scale, colour) ▫ Create animated movement by using keyframes and motion paths ▫ Create complex models using parenting methods ▫ Adjust camera and lighting angles **Formative Assessment**: During this term students will complete the spring assessment which is part of the whole school assessment policy. **National curriculum link:**	Knowledge coverage: ▫ 3D object manipulation ▫ Technical adjustment tools ▫ Adding colour ▫ Creating motion ▫ Keyframes/frames ▫ FPS (frames per second) **Assessment style/questions:** Assessment of this topic will also be included in the spring assessment and end of year summer assessment

	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.*	**Spring assessment** The spring assessment consists of a series of multiple choice and short-answer questions covering all content from topics taught this year.

Term 3	**9.5 Ethical & Legal issues with technology** This topic has a direct link to a topic studied in KS4 GCSE and KS5 A-Level computer science. Students will learn what the terms 'ethics' and 'ethical reasoning' are and the current legislation that covers the use of computers in today's society. Students will take part in discussions relating to topics such as the use of AI in education and formulate arguments to take part in debates.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** ▫ Define the term 'ethical reasoning' and apply it to situations regarding the use of technology in a given scenario ▫ Explain the legislation related to computer science, The Data Protection Act, The Computer Misuse Act, Copyright Designs and Patents Act. **Skills:** ▫ Create arguments for and against a range of computer related topics that contain either ethical or legal issues. ▫ Identify different legislation to a given scenario **National curriculum link:** 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.*	Knowledge coverage: ▫ Ethics ▫ Ethical reasoning ▫ Legislation ▫ Data Protection Act ▫ Computer Misuse Act ▫ Copyright, Designs and Patents Act ▫ Artificial Intelligence (use in education) **Assessment style/questions:** Assessment of this topic will be included in the end of year summer assessment
Term 3	**9.6 Summer Project** Students will be given a scenario (based on past iMedia exam content), they will have to demonstrate a variety of skills learnt across KS3 to create a portfolio of evidence. Evidence will include pre-production documents to show substantial planning, a variety of digital content (image, video, animation) and a review/evaluation of their final product.	**Assessment**
	Knowledge: **After studying this topic students will be able to:** ▫ Demonstrate a range of skills to interpret a scenario and produce a portfolio of evidence which will include multiple documents and content.	Knowledge coverage: ▫ Pre-production documents ▫ Create/edit/manipulate digital content **Assessment style/questions:**

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INTENT: Curriculum Overview Year 9

	Skills: ▫ Use research methods to gather ideas about a task ▫ Use planning documentation to outline what a final product will look like ▫ Use multiple software applications to produce a product **Formative Assessment:** Practical project work based on a given task. During this term students will also complete the summer assessment which is part of the whole school assessment policy. **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.* Bullet point 8 of the KS3 NC: • Create, re-use, revise and re-purpose digital artifacts for a given audience, with attention to trustworthiness, design and usability	Students will create a product using techniques studied in the multimedia topics following a set scenario. 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'. **Summer assessment** The summer assessment consists of a series of multiple choice and short-answer questions covering all content from topics taught this year.