

CURRICULUM INTENT/RATIONALE

FACULTY: Communication

SUBJECT: Computing

Curriculum Vision - "To Provide students with the inspiration to develop a wide range of fundamental skills...."

Exceptional Outcomes for Pupils	Develop necessary skills for the 21 st Century	Provide inspiration.
Curriculum Intent		
Knowledge Rich	Focus on Mastery	Emphasis on long term memory and recall
		Inclusion

COMPUTING INTENT /RATIONALE

The aim of the curriculum is to provide students with the inspiration to develop a wide range of fundamental skills, knowledge and understanding that will ensure that they are computer literate and equipped with the necessary skills for their lives in the 21st Century; appreciate the importance of computer technology in the modern world, its significance, power and influence.

We hope to provide students with the essential knowledge that will enable them to participate effectively and safely in the digital world beyond our school and prepare them for an ever changing digital environment in the 21st Century; to become more confident in their abilities and more independent and develop key life skills such as problem-solving, logical thinking and self-evaluation which will enable them to effectively live their future lives as workers, consumers and members of an increasingly digital world.

In order to realise our vision, our curriculum will provide students with opportunities to be exposed to a thorough and robust IT curriculum. Enabling them to understand computer networks, including the internet, and the opportunities they offer for communication and collaboration; to use search technologies effectively, learning to appreciate how results are selected and ranked. To select, use and combine a variety of software (including internet services) to create a range of programs, systems and content that accomplish given goals; learn how to use technology safely, respectfully and responsibly so they can recognise acceptable and unacceptable behaviour, and identify a range of ways to report concerns about content and contact.

The Computing curriculum has been designed to cover the three main areas of Digital Literacy, Computer Science and Information Technology and is sequenced to allow students to revisit and build on their skills, expanding their knowledge, vocabulary and skills over the three years of ks3 study. A strong emphasis is placed on digital literacy and information technology. The computer science elements we focus on are basic computational abstractions that model the state of behaviour of real-world problems and physical systems. The use of Boolean logic, how numbers can be represented in binary and, and be able to carry out simple operations on binary numbers e.g. binary addition, and conversion between binary and decimal. Hardware and software components that make up computer systems, and how they communicate with one another and with other systems. Students are provided with opportunities to study 2 basic programming languages. Students are supported and encouraged to learn new skills, be inquisitive, and most importantly create new and original work. We encourage critical analysis of own, peers and professional work embedding and extending the knowledge learnt throughout KS3.

In Year 7 students begin the foundation of their study focusing on the **E-Safety Project**, learning how to use technology safely, respectfully and responsibly so they can recognise acceptable and unacceptable behaviour and identify a range of ways to report concerns about content and contact. To enable students to become digitally literate, they are then introduced to the core applications of Ms Office via the **Skill Building Project**. During the summer term our yr7 focus is on **touch-typing**, using Typing Club online that will guide students through individual keys, number and punctuation and all the way to goal of 75 wpm. This allows for a competitive element with parents and staff joining in. These fundamentals then underpin all further skills and knowledge in later years. It is important that students master the basics of Word, PowerPoint, Excel and Publisher and the opportunities they offer for communication and collaboration; to use search technologies effectively, learning to appreciate how results are selected and ranked. To select, use and combine a variety of software (including internet services) to create a range of programs, systems and content that accomplish given goals before being introduced to other elements. It is important because these skills not only form the foundation for further computing study but the foundation for most schoolwork.

Moving into Year 8, students will immediately build upon their digital literacy skills, exploring more complex elements of Word, PowerPoint, Excel and Publisher previously taught in yr7 and apply them when working on the creative **Enterprise Project**, exploring Business and Enterprise, Advertising and Marketing, Planning, Communication and Evaluation. This creative project involves retrieving prior knowledge and developing new schema by selecting, using, and combining multiple applications to achieve challenging goals. Our **Understanding Computers and PC Basics Project** enables an understanding of computer hardware and how it works, computer networks, including the internet, and the opportunities they offer for communication and collaboration; to use search technologies effectively, learning to appreciate how results are selected and ranked. This builds on the previous Enterprise Project enabling pupils to select, use and combine a variety of software (including internet services). The **Pc Basics Project** provides the support and guidance for pupils regardless of ability or background to access an understanding of computers. During the summer term we focus on **E Safety & Cyberbullying Project**, revisiting the E-Safety project taught in yr7. The scheme is designed to provide a range of ways to use technology safely, respectfully, responsibly and securely: including protecting their online identity and privacy; recognising inappropriate content; contact and conduct; and knowing how to report concerns. Moving onto our **Kodu Game Lab Project** introducing the fundamentals of games programming. Kodu lets students create games on the PC and Xbox via a simple visual programming language. Kodu is used to teach creativity, problem solving, storytelling, as well as programming. Allowing pupils to develop a range of key skills which include drawing and sculpting a world, adding characters and objects. The use of When and Do instructions to control characters and objects including the use of paths and pages. Once learners have built their skills they are required to design, create, test and evaluate their own game. Digital literacy skills from the Enterprise Project will provide a platform for the design, creation and testing.

In year 9 students complete their KS3 computing education with the focus on more complex versions of existing projects. We begin in the Autumn Term with our **Creating Computer Graphics Project**, which is a creative project enabling students to understand how to collect, describe, and plan the production of a range of graphic images for a client, to be used on their website. This builds on the digital literacy skills from the yr8 Enterprise Project. Spring Term moves onto the **Take A Break Project**, this is a more complex version of the yr8 Enterprise Project where pupils learn how to plan and develop a project, handle data, sequencing instructions and modelling and find, use and communicate information. Summer Term 1 we revisit our Understanding Computers Project covering more complex knowledge of basic computing theory and how computers work, how reliable computers are and what are the consequences if computers fail and the need for and purpose of secondary storage. Summer Term 2 see us move onto our second programming language in our **Code Combat Project** which makes coding fun and teaches real-world skills. Students type real Python and Java Script while playing games that encourage trial and error,

critical thinking, and creativity. Students then apply the coding skills they learned by developing their own games and websites in project-based courses. Built in assessment combined with personal instruction ensure students understand core concepts with formative and summative assessment.

By the end of year 9, students should be able to use technology safely, respectfully and responsibly so they can recognise acceptable and unacceptable behaviour and identify a range of ways to report concerns about content and contact. Be confident users of the core applications of Ms Office and by being responsible, competent, confident and creative users of information and communication technology can participate effectively and safely in the digital world beyond our school. To be equipped with transferable skills and knowledge e.g. realise that results from a science experiment could be used to create graphs and charts in Excel, digital images in art could be manipulated, In English they could create a comic strip to tell a story. Not only do we want them to make the connection, we want to ensure they are equipped with the knowledge to carry out the skill.

The key curriculum principles that underpin our content and sequencing choices -

- Strong emphasis on challenging **substantive knowledge** (in order to think well, students need to KNOW a lot of IT content) – e.g. they need to know how to use the core applications of MS Office in a confident manner. How to use technology safely, how computers work, how to combine applications for a given goal, the knowledge needs to be rich in order to develop the skill.
- Substantive content is carefully **sequenced to build upon what came before**, serving long-term schema development by ensuring ideas/content are **connected**. In yr7, the PowerPoint Project in skill Building, asks pupils to create their own digital images using the auto shapes feature, timing and transitions are added to create animation frames. In yr8 we build on this, with students using more complex auto shapes and features to create logos and banners in the Enterprise Project. This provides the foundation/scaffold in the yr9 Creating Digital Images Project, where students create logos, web banners and a template for a website using auto shapes. The foundation/scaffold, knowledge and skills are now set for KS4 R082 Project if choosing Creative iMedia. There is a strong emphasis on **vertical progression within 'subjects'** e.g. content is sequenced so that students between year 7 and 11 get better at using the core applications of Microsoft office, which is a foundation/scaffold for both Enterprise and Creative iMedia at KS4.
- The most important content (core knowledge) is **revisited and reviewed periodically** to ensure retention in long-term memory, lessons build on previous knowledge and examples are modelled in teacher explanations e.g. when creating a table in a database, we would refer back to creating tables in word, then explain that a database is the same information, but has been created using access and this enables us to search for a particular part of information (record) and also allows for more complex tables and searches.
- Students are taught **IT disciplinary knowledge** explicitly. E.g. the knowledge of how to save a file (the process, the file type). This is taught during the foundation lessons in yr7 and revisited during do now and exit ticket activities on a regular basis during KS3 and 4
- The knowledge that goes into the curriculum has been carefully thought out to ensure that students cover all 3 strands, so they know how to use the tools available but also to have an element of digital literacy, an awareness of audience and good design principles. Providing experiences of a range of different applications and software, initially the teacher will select the programs students use but over time students are able to make decisions themselves. Ensuring students know how to store and organise their files so that they can easily be found again. Giving them an understanding of the devices, they can use including hard drive, USB sticks, school network server, and the cloud storage on the internet. It enables them to use technology safely. Reinforces their understanding that technology is everywhere, enables them to identify the technology they encounter and have a basic understanding of how it works. This links to projects on programming and algorithms and provides students with an understanding of what algorithms are, this is the basis of what they need to know in order to write computer programs. Reinforcing the fact that each programming language has its own vocabulary and grammar, but they all follow the same type of logic. Providing them with the knowledge and skills they need to keep their personal information private and treat other people with respect. To know if something goes wrong or they see something they don't like they know what to do and where to go for help.
- The content choice is most 'powerful' compared to other content choices that we could have made because it is based on the needs and interests of the students it serves and society. The national curriculum has been taken into consideration; however, the content also ensures they are ready for life in the wider digital world. It is organised in a coherent way, ensuring it builds from year to year. It is cumulative, constructing firm foundations in yr7 from which students can build conceptual understanding and skills over time. It is coherent and ensures that teaching does not jump from topic to topic but enables students to develop knowledge and a love of learning. We have focused on what content should be taught, in what order, whilst reflecting upon what students remember and how they remember it.
- Ongoing assessment is used to check pupils' understanding of the main curriculum elements. Any gaps and misconceptions are then responded appropriately through re teaching. The information captured from assessment will be used not only for identifying gaps in pupils' knowledge, skills and depth of understanding, but also to inform and improve on future curriculum design.

By the end of ks4 we expect pupils will be at a level suitable for the future workplace and as active participants in a 21st century digital world.

We purposely offer courses in KS4 that cater for both Level 1 and 2 learners in **Cambridge National in Creative iMedia**, so that we can accommodate the needs and interests of all students.

Cambridge National in Creative iMedia equips students with the wide range of knowledge and skills needed to work in the **creative digital media** sector. They start at pre-production and develop their skills through practical assignments as they create final multimedia products.

The impact of our curriculum will be evidenced in our students' enthusiasm for the subject, our students' work and their progress as evidenced in their written and oral work; the progress and attainment of students in external exams.

Above all, as a result of our curriculum, our students will be digitally literate and able to join the rest of the world on a variety of digital platforms. They will be equipped, not only with the skills and knowledge to use technology effectively and for their own benefit, but more importantly - safely. Our biggest impact will be evidenced in the fact our learners understand the consequences of using the internet and that they are also aware of how to keep themselves safe online.

LONG TERM PLAN – Computing & iMedia						
	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 11 iMedia	R084 Storytelling with a comic strip	R087 Creating interactive multimedia products	R087 Creating interactive multimedia products	R087 Creating interactive multimedia products	R081 Pre-Production Skills Understand the purpose and content of pre-production	
Assessment	OCR Set Assignment - R084 L03 & 4	OCR Set Assignment R087 L01 & 2	OCR Set Assignment R087 L03 & 4	OCR Set Assignment R087 L01, 2, 3, &4	OCR Set Assignment R081 L01, 2, 3, &4	
Knowledge	L03 Be able to produce a multipage comic strip L04 Be able to review a multipage comic strip	L01 Understand the uses and properties of interactive multimedia L02 Be able to plan interactive multimedia products	L03 Be able to create interactive multimedia products L04 Be able to review interactive multimedia products	L01 Understand the uses and properties of interactive multimedia L02 Be able to plan interactive multimedia products L03 Be able to create interactive multimedia products L04 Be able to review interactive multimedia products	L01 Understand the purpose and content of pre - productions skills L02 Be able to plan pre-production L03 Be able to produce pre-production documents L04 Be able to review pre-production documents	
Skills	<ul style="list-style-type: none"> • Sourcing and storing • Producing • Creating • Reviewing • Identifying 	<ul style="list-style-type: none"> • Understanding • Producing • Identifying • Planning • Interpreting • Creating • Sourcing • Storing • Constructing 	<ul style="list-style-type: none"> • Understanding • Producing • Identifying • Planning • Interpreting • Creating • Sourcing • Storing • Constructing 	<ul style="list-style-type: none"> • Understanding • Producing • Identifying • Planning • Interpreting • Creating • Sourcing • Storing • Constructing 	<ul style="list-style-type: none"> • Creating • Planning • Categorising • Researching • Analysing • Reviewing • identifying 	

	AUTUMN 1/2	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 10 iMedia	R081 Pre-Production Skills Understand the purpose and content of pre-production	R081 Pre-Production Skills Understand the purpose and content of pre-production	R082 Creating Digital Graphics	R082 Creating Digital Graphics	R082 Creating Digital Graphics	R084 Storytelling with a comic strip
Assessment	OCR Exam papers, yacapaca revision and quizzes	OCR Exam papers, yacapaca revision and quizzes	OCR Set Assignment - R082 L01 & 2	OCR Set Assignment - R082 L03 & 4	OCR Set Assignment - R082 L01, 2, 3 & 4	OCR Set Assignment - R084 L01 & 2 yacapaca revision and quizzes
Knowledge	L01 Understand the purpose and content of pre-productions skills L02 Be able to plan pre-production	L03 Be able to produce pre- production documents L04 Be able to review pre-production documents	L01 Understand the purpose and properties of digital graphics L02 Be able to plan the creation of a digital graphic	L03 Be able to create a digital graphic Lo4 Be able to review a digital graphic	L01 Understand the purpose and properties of digital graphics L02 Be able to plan the creation of a digital graphic L03 Be able to create a digital graphic Lo4 Be able to review a digital graphic	L01 Understand comic strips and their creation L02 Be able to plan a multipage comic strip
Skills	<ul style="list-style-type: none"> • Creating • Planning • Categorising • Researching • Analysing • Reviewing • identifying 	<ul style="list-style-type: none"> • Creating • Planning • Categorising • Researching • Analysing • Reviewing • identifying 	<ul style="list-style-type: none"> • Researching • Interpreting • Identifying • Producing • Creating 	<ul style="list-style-type: none"> • Sourcing • Creating • Reviewing • Identifying 	<ul style="list-style-type: none"> • Researching • Interpreting • Identifying • Producing • Creating • Sourcing • Creating • Reviewing • Identifying 	<ul style="list-style-type: none"> • Investigating • Demonstrating • Describing • Planning • Creating • Identifying

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 9 Computing	Creating Computer Graphics	Creating Computer Graphics	Take a Break	Take a Break	Understanding Computers	Code Combat
Assessment	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision
Knowledge	Understand how to collect and describe a range of existing graphics/images for use in web pages. How to plan the production of a range of graphic images for a client, to be used on their website.	Understand Design criteria, purpose and message, house style, layout	Understand how to plan and develop a project Handling data sequencing instructions and modelling	Handling data sequencing instructions and modelling Finding using and communicating information	Understand basic computing theory and how computers work. Understand how reliable computers are and what are the consequences if computers fail. Understand the need for and purpose of secondary storage	Understand the basic concepts of python To Understand How to Use Real Lines of Syntax to Solve Puzzles
Skills	Research Existing website, web banners, adverts and navigation buttons. Create sketches, mind maps, storyboards and identify house style	Create a set of navigation buttons. Create an advertising banner. Present evidence	Use formulas and functions to work out costs	Use a search engine to find out the costs of each item by using some advanced searching techniques (for example keywords, "quotes" + and - signs)	Explain processors and how they work. Understand the two types of memory and why they are needed. Understand the difference between application software and utility.	Use functions, methods, modules

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 8 Computing	Enterprise Project Business and Enterprise, Advertising and Marketing, Planning, Communication and Evaluation Curriculum Links to Business and Enterprise	Enterprise Project Business and Enterprise, Advertising and Marketing, Planning, Communication and Evaluation Curriculum Links to Business and Enterprise	Understanding Computers PC Basics	Understanding Computers PC Basics	E Safety & Cyberbullying	Kodu Game Lab - fundamentals of games programming
Assessment	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision
Knowledge	Understand what is meant by business and enterprise	Understand what is meant by business and enterprise	Understand how computers work	Understand how computers work	Understand how to stay safe online, the dangers of the internet and how to deal with and report cyberbullying	Develop a range of key skills which include drawing and sculpting a world, adding character and objects. The use of When and Do instructions to control characters and objects including the use of paths and pages.
Skills	Demonstrate knowledge by creating index cards, tickets and using appropriate advertising methods	Identify the importance of tickets for events. Identify common features of a letter. Demonstrate knowledge by creating a good professional presentation based on the scenario	Identify input & output devices. Understand how different parts of the computer work. Understand how to stay safe when using a computer. Develop a basic understanding of how to decode binary numbers.	Develop a basic understanding of how to set up a wireless network at home. Develop a basic understanding of how computer networks work and understand the difference between LAN and WAN.	Demonstrate they know how to be safe, secure, smart and in control through a series of independent tasks	Once learners have built their skills they are required to design, create, test and evaluate their own game

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 7 Computing	E-safety Digital Literacy- Skill Building - Ms Word	Digital Literacy- Skill Building - Ms Word Ms PowerPoint	Digital Literacy- Skill Building - Ms PowerPoint	Digital Literacy - Skill Building - Ms Excel	Digital Literacy - Skill Building - Ms Publisher	Digital Literacy - Skill Building - Touch Typing
Assessment	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision	Success Criteria Yacapaca quizzing and revision
Knowledge	Understand the importance of e-safety Using basic skills in the four main office applications	Using basic skills in the four main office applications	Using basic skills in the four main office applications	Using basic skills in the four main office applications	Using basic skills in the four main office applications	Using the basics of touch typing
Skills	Understand the importance of e-safety Creating a timetable Formatting styles Word formatting	Creating a memo Writing a business letter Writing an evaluation Reordering slides Creating a presentation	Adding animation and transitions Animation frames in PowerPoint Creating an interactive Quiz	Multiplication table Calculating Data Survey Results Creating Graphs Creating a Quiz	Creating a poster Creating a brochure Creating a calendar	Typing Club online will guide students through individual keys, number and punctuation and all the way to goal of 75 wpm