Computer Science ■
Information Technology ■
Digital Literacy ■

Long Term Plan: ICT
"To create the next generation of 21st Century Digital Citizens"

	Carosel Stage One		**Carosel Stage Two**		**Carosel Stage Three**	
The Westleigh School	**Cultural Capital throughout all SOL** **Core Words** – Bias, File Management, Algorithin, Abstraction,Decomposition,Mail Server, Documents		**Cultural Capital throughout all SOL** **Core Words** – Selection, Iteration, Loops, Createables, Navigation, Landscape, Cloning		**Cultural Capital throughout all SOL** **Core Words** – Vector, Bitmap, Tags, Layout, Template, Resolution, Pixel, Bits, Vector Tools	
YEAR 7	**Topic** – Using ICT safely and effectively **Key Knowledge** • Understand the benefits of good file & folder management • Identify possible dangers of Social Networking and threats online • Understand how to keep data safe and secure • Understand not all information online is accurate / bias **Assessment** – Google Forms **Literacy focus** – Short and longer answer questions **Enrichment** – Introduce Code.org (Sequencing) **Careers** – Outline difference between CS and IT careers	**Topic** – Computational Thinking **Key Knowledge** • Know the different Boolean operators AND / OR / NOT • Understand how different logic gates are used in different situations • Understand what an algorithm is & how loops can reduce amount of code • Understand abstraction and decomposition **Assessment** – End of unit test **Literacy Focus** – Writing algorithms, short and long answer questions **Enrichment** – Code.org (Sprites and Events) **Careers** – Computer Programmer, Systems Analyst, Project Manger	**Topic** – Introduction to coding through KODU **Key Knowledge** • Understand that a computer program requires a precise series of instructions to operate correctly • Know how to use a range of different game techniques • Understand the difference between clones and creatables • Understand the term 'selection' **Assessment** – Portfolio of evidence **Literacy Focus** – Reading and interpreting complex instructions **Enrichment** – Code.org (Sprites & events) **Careers** – Computer Programmer, Games Engineers, Game Designer	**Topic** – Scratch Introduction **Key Knowledge** • Know the difference between forever and repeat loops • Understand nested loops • Explain what a variable is • Know how to use IF, THEN & else to check an answer **Assessment** – Portfolio of evidence **Literacy focus**- Writing and explaining code **Enrichment** – Code.org (Loops) **Careers** – Computer Programmer, Games Engineers, Game Designer	**Topic** - Graphics **Key Knowledge** • Understand the characteristics of a vector graphic and how it is stored • Understand that the number of bits per pixel determines the number of colours • Understand the term "Print resolution" • Understand that bitmaps are made up of pixels **Assessment** - "Create graphical product" portfolio of evidence **Literacy focus**- Oracy group discussion "What makes a good logo?" **Enrichment** – Code.org (Conditionals) **Careers** – Graphic Designer, Marketing Manager	**Topic** – HTML (Intro to Web Design) **Key Knowledge** • Understand the term WWW • Be able to explain what makes a good page layout • Know which tags are needed to create a template **Assessment** – Portfolio of evidence. **Literacy Focus** – Writing at length. **Enrichment** – Code.org (IF, THEN ELSE) **Careers** – Web Designer, Web Analyst
YEAR 8	**Topic** – Understanding Computers **Key Knowledge** • Identify Input, Output and storage devices • Understand why all data is represented in binary in a Computer • Identify binary as an odd or even number **Assessment** – End of Unit Test (Google Forms) **Literacy focus** – Long and short answer questions **Enrichment** –Code.org (Functions in Minecraft) **Careers** – IT Systems Engineer, IT Technician, Helpdesk Support, 2nd and 3rd line engineers	**Topic** –Ai & Machine Learning **Key Knowledge** • Understand how rules are used in Ai decision making • Discuss strengths and Weaknesses of machine learning • Understand ethics & bias related to Ai **DC1 Assessment** – Assessment portfolio **Literacy focus** - Reading / Long and short answer questions **Enrichment** – Code.org (Functionals) **Careers** – Computer Programmer, Systems Analyst, Project Manger, Systems Architect, Business Analyst	**Topic** –Games Programming in Scratch **Key Knowledge** • Understand Algorithms related to scratch games • Understand the importance of meaningful variable names & the purpose of commenting • Understand the purpose of repeat loops and broadcasts • Understand the use of operators <>=NOT **Assessment** – Testing & assessment portfolio **Literacy Focus** – Reading and annotating code / pseudo code **Enrichment** – Code.org (For loops) **Careers** – Computer Programmer, Games Engineers, Game Designer	**Topic** – Intro to Python **Key Knowledge** • Know the rules for variable names and use variables in a program. (Strings and Variables) • Understand the importance of using correct data types: string, integer or float • Understand when to use selection statements if, else and elif in a program **DC2 Assessment** – Python Assessment portfolio **Literacy focus** - **Enrichment** – code.org (loops) **Careers** – Graphic Designer, Brand Development, Media Manager, Creative Art worker	**Topic** – Computer crime and cyber security **Key Knowledge** • Identify common types of computer crime • Understand what is meant by the terms Malware & Hacking • Know how to minimise the chance of identity theft • Understand the damage that illegal copying does to individuals, companies and society **Assessment** - End of Unit Test **Literacy focus** - Oracy class discussion explaining answers. **Enrichment** – Code.org (Project) **Careers** – Binary Code Analysis	**Topic** – Image Manipulation **Key Knowledge** • Be able to explain the term composite image • Know which file format is used for print vs the Web • Understand why Graphic Designer use high resolution images • How to choose specific image editing tools that are fit for purpose **DC3 Assessment** – Assessment portfolio **Literacy focus**- **Enrichment** – Code.org (project) **Careers** – Game Designer, Game Developer, Gameplay Programmer

YEAR 9	**Topic** – Database Development	**Topic** – Spreadsheet Modelling	**Topic** - Web Design Project	**Topic** – Photoshop Image Editing Project	**Topic** – Idea Award	
	Key Knowledge • To learn what is meant by a flat file database, record and field. • To understand when to use different operators such as >=, BETWEEN, AND, OR, NOT and the wildcard * in queries • Explain the term "Query" in relation to databases. **Assessment** – Assessment Portfolio **Literacy Focus** – Data Input into a large database. **Enrichment** – Idea award **Careers** – Database Developer / Manager, Data Analyst, Data Input	**Key Knowledge** • Understand what is meant by the term **computer model**, and compare different types of model • Understand that spreadsheets can be used to build **financial** models • Understand how to model real world scenarios **DC1 Assessment** – Assessment portfolio **Literacy Focus** – Oracy discussion on graphical file types **Enrichment** – Idea award **Careers** – Accountant, Finance, Data Input	**Key Knowledge** • Understand the purpose of production • Know what makes a good page template layout • Understand what make suitable content for a website • Understand why we export assets to make suitable for uploading to the Web **DC2 Assessment** – Portfolio of evidence **Literacy focus** - Oracy presentation of website and justify choices **Enrichment** – Idea award **Careers** – Web Designer, Web Analyst	**Key Knowledge** • Understand the development process of creating a composite image • Know how to select image editing tools for a specific purpose **Assessment** – Assessment Portfolio **Literacy Focus** **Enrichment** – iMedia taster sessions / Imedia Award **Careers** – Graphic Designer, Brand Development, Media Manager, Creative Artworker	**Key Knowledge** All the units will test knowledge for all of KS3 ICT modules **DC3 Assessment** – Use of portal to check on units completed **Literacy focus** - Reading and interpreting questions **Enrichment** – CS & iMedia taster sessions **Careers** – Business Development, Sales, Creative Projects	
YEAR 10 Computer Science	**Computer Science** Topic description - Programming 1. Variables, datatypes, iteration, selection, operators, functions **Assessment** - Programming written assessment **Literacy focus**- Question comprehension, subject-specific language **Careers** – Application analyst. Applications developer. Cyber security analyst. Data analyst.	**Computer Science** Topic description- Programming 2. Arrays, file handling, error handing, scope, 2d arrays **Assessment** - Coding Golf Task, Programming challenges tasks **Literacy focus**- Oracy **Careers** – Application analyst. Applications developer. Cyber security analyst. Data analyst.	**Computer Science** Topic description- Data representation + compression. RLE, Huffman, Text, Sound, Images **Assessment** - Data Representation Summary Task with pupil-created questions/answers. 'Binary game' with pass 5 and all topics enabled. **Literacy focus** - Oracy **Careers** - Data analyst Database administrator Forensic computer analyst	**Computer Science** Topic description- Boolean logic, logic circuits, logic gates, pseudocode, searching and sorting algorithms, trace tables **Assessment** - DC2/mock exam 1 Searching/sorting algorithms exam questions **Literacy focus** - Oracy **Careers** - Data analyst Database administrator Forensic computer analyst	**Computer Science** Topic description- Computer systems , Embedded Systems, Low Level vs High Level Languages, types of translator, software and operating systems, how a CPU works. Assessment- AQA computer systems exam questions Literacy focus- Oracy **Careers** – Application analyst. Applications developer. Cyber security analyst. Data analyst.	**Computer Science** Topic description- Relational databases and queries. How memory works, primary and secondary storage. **Assessment** – Database assessment. Mock exam 2. Literacy focus - Oracy **Literacy Focus** - E-safety Netiquette (PSHE) **Careers** – Computer programmer, Software support engineer
YEAR 10 iMedia	**iMedia** R094 – Visual Identity & Digital Graphics **Key Knowledge** • Understand the purpose of a visual identity • Know the key elements of a visual identity • Understand the different concepts of Graphic Design **Assessment** - Written Test **Literacy focus** - Writing at length / long answer questions.	**iMedia** R094 – Visual Identity & Digital Graphics **Key Knowledge** • Know the different types of pre production and their purpose • Know the different image editing tools available and their purpose • Know the different vector tools and their purpose (logo design) **Assessment** - Ongoing Coursework (PLC)	**iMedia** R094 – Visual Identity & Digital Graphics **Controlled Assessent** **Visual Identity & Graphics** **Assessment** - Ongoing NEA Coursework (PLC) **Literacy focus** – Reading and interpreting coursework design brief	**iMedia** R094 – Visual Identity & Digital Graphics **Controlled Assessent** **Visual Identity & Graphics** **Assessment** - Ongoing NEA Coursework (PLC) **Literacy focus** – Report **Esafety Week – Activities school**	**iMedia** R097 – Interactive Multimedia Product **Key Knowledge** • Understand the purpose of a Masterpage / template. • Understand what defines an interactive multimedia products • Be ablke to edit assets for a Multimedia product **Assessment** – (PLC) **Literacy focus** – Adding written content to Multimedia product	**iMedia** R097 – Interactive Multimedia Product **Controlled Assessent** **Visual Identity & Graphics** **Assessment** – (PLC) **Literacy focus** – Reading analysing NEA coursework brief

	Careers – Graphic Designer, Brand Development, Media Manager, Creative Artworker, Producer, Risk Assessment Analyst	**Literacy focus** – Key words included in report. **Careers** –Film Editor, Technical Writer for Film, Multimedia Programmer	**Careers** – Graphic Designer, Brand Development, Media Manager, Creative Artworker, Producer, Risk Assessment Analyst	**Careers** –Film Editor, Technical Writer for Film, Multimedia Programmer	**Careers** –Film Editor, Technical Writer for Film, Multimedia Programmer	**Careers** – Web Content Manager, Web Designer, UX Designer
YEAR 11	**iMedia** R097 – Interactive Multimedia Product **Controlled Assessent** **Visual Identity & Graphics** **Assessment** – (PLC) **Literacy focus** – Adding written content to Multimedia product **Careers** – Web Design, Application Development, Creative Director	**iMedia** R097 – Interactive Multimedia Product **Controlled Assessent** **Visual Identity & Graphics** **Assessment** – (PLC) **Literacy focus** – Adding written content to Multimedia product **Careers** – App Developer, Multimedia Specialist, Game Developer, Media Manager	**iMedia** R093 – Creative media in media industry **Key Knowledge** • Understand the different sectors and products in the media industry • Know and explain the different job roles in the media industry • Understand purpose of different content, style and layout • Understand client requirements for specific audiences. • Know the different research methods **Assessment** – Exam questions, PLC **Literacy focus** - Report writing **Careers** – Media manager, PR Consultant, Work in media, sports journalist	**iMedia** R093 – Creative media in media industry **Key Knowledge** • Know the different media codes • Understand the reason for dsifferent camera lighting • Understand the prupose all of the different types of pre production planning. • Know the difference and be able to identify different types of hardware and software **Assessment** - Exam questions, PLC **Literacy Focus** - Writing at length ==Esafety Week – Activities whole school== **Careers** –Film Editor, Technical Writer for Film, Multimedia Programmer	**iMedia** R093 – Creative media in media industry **Exam preparation** **Assessment** – Exam questions, Mock Exams PLC **Literacy Focus** - Evaluation Writing at length **Careers** – Project Manager, Project planning.	
YEAR 11 Computer Science	**Computer Science** Topic description- Relational databases and using SQL. Design and testing of programs. **Assessment** – SQL assessment **Literacy focus** - Oracy **Careers** – Computer programmer, Software support engineer, IT Architect, Project Manager	**Computer Science** **Topic description** - Cyber security, cloud storage **Assessment** - DC1, Mock exam 3 **Careers** – Application analyst. Applications developer. Cyber security analyst. Data analyst.	**Computer Science** **Topic description** - Networking **Assessment** – Individual **Careers** – CCIE Network Engineer, IT manager, Network Manager, IT Technician, 1,2,3rd line support	**Computer Science** **Topic description** – Networking continued. Ethical/legal/environmental impacts of technology **Assessment** – Long answer questions **Careers** – CCIE Network Engineer, IT manager, Network Manager, IT Technician, 1,2,3rd line support	**Computer Science** Revision and recap.	

		Reading	Writing	Oracy
Opportunities		Newspaper article Blog Academic text Research	Method Evaluation Newspaper article Letter Blog	Class debate Presentation Group discussion
Purpose		**Access to text**	**Writing at length**	**Academic register**

Sequencing / Rationale

Split into

Computer Science ■

Digital Literacy ■

ICT ■

Key Stage 4
Creative iMedia

These qualifications will assess the application of creative media skills through their practical use. They will provide learners with essential knowledge, transferable skills and tools to improve their learning in other subjects with the aims of enhancing their employability when they leave education, contributing to their personal development and future economic well-being. The qualifications will encourage independence, creativity and awareness of the digital media sector. The Cambridge Nationals in Creative iMedia will equip learners with a range of creative media skills and provide opportunities to develop, in context, desirable, transferable skills such as research, planning, and review, working with others and communicating creative concepts effectively. Through the use of these skills, learners will ultimately be creating fit-for-purpose creative media products. The Cambridge Nationals in Creative iMedia will also challenge all learners, including high attaining learners, by introducing them to demanding material and techniques; encouraging independence and creativity and providing tasks that engage with the most taxing aspects of the National Curriculum. The 'hands on' approach that will be required for both teaching and learning has strong relevance to the way young people use the technology required in creative media. It will underpin a highly valid approach to the assessment of their skills as is borne out by what the industry requires. The qualification design, including the range of units available, will allow learners the freedom to explore the areas of creative media that interest them as well as providing good opportunities to enhance their learning in a range of curriculum areas.

Key Stage 4
Computer Science

This qualification has been selected to get students working with real-world programming and provides a good understanding of the fundamental principles of computing. It's a challenging course with a lot of content that challenges all learners. The students begin by learning about programming techniques, these underpin the rest of the course and are embedded in lessons throughout the 2 years. They then move onto data representation, this covers low level fundamentals such as binary and hexadecimal and is a prerequisite for later topics such as the Von Neumann Architecture. Flowcharts and pseudocode follow on from the programming techniques in term 1 and are a prerequisite for understanding algorithms and trace tables. Boolean logic and logic gates follow next as students need to have covered Boolean operators and have experience of algorithms before they tackle this. By this point they will have enough practice and skills to tackle the NEA. The Von Neumann architecture and computer systems begins year 11, it follows on from previous learning about logic gates and gives students a strong knowledge of how a computer operates at a low level. Cyber security gives students a good knowledge of how individuals and businesses can stay safe from cyber threats. Networking is a big topic and is given a full half term as it includes a lot of content, it gives students an understanding of the benefits, risks and types of networks as well as a low level understanding of how protocols operate. The course ends with some discrete topics that could be taught elsewhere in the course if necessary. Students learn about the ethical/legal and environmental impacts of technology in various aspects giving them a good high level overview of the issues technology faces in the real world. Programming tasks are interleaved throughout the course to support the theory.