Key Stage 4: Information Technology Curriculum Plan 2021/22

		Autumn	Spring	Summer
Information Technology	Year 10	R082 – Graphic Design **Knowledge:** • Purpose & properties of digital graphics • design and layout of digital graphics • Client requirements and target audience • Work plan & Producing ideas • Legal restrictions • Obtain and edit assets • Create graphics & Review and evaluate graphics **Skills: Research, planning, creation and reviewing digital graphics using different software**	R081 - Pre-production Skills **Knowledge:** • Purpose and content of pre-production • Plan pre-production • Produce pre-production documents • Review pre-production documents **Skills:** **Research, planning, creation and reviewing pre-production documents using different software**	R091 – Designing a Games Concept **Knowledge:** • Understand digital game types and platforms • Plan a digital games concept • Design a digital games proposal • Review a digital game proposal **Skills: Research game types and platforms, use planning tools to plan the concept, design and review the game proposal**
	Year 11	R082 – Graphics Design **Knowledge:** • Purpose of digital graphics • properties of digital graphics • design and layout of digital graphics • Client requirements and target audience • Work plan • Producing ideas • Legal restrictions • Obtain and edit assets • Create graphics • Review and evaluate graphics **Skills: Research, planning, creation and reviewing using different software**	Topic 3 – R081 Revision if resitting **Knowledge:** • Purpose and content of pre-production • Plan pre-production • Produce pre-production documents • Review pre-production documents **Skills: Research, planning, creation and reviewing pre-production documents using different software**	

Key Stage 4: Computer Science Curriculum Plan 2021/22

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computer Science	**Year 10**	**TOPIC 1: Data Representation Knowledge:** • Conversions from binary to denary to Hex • Binary additions and shifts • ASCII and Unicode • Check digits • Characters • Images • Sound • Compression	**TOPIC 2: System Architecture Knowledge:** • The central processing unit • Components of the CPU • Fetch-Decode-Execute Cycle 1 and 2 • Performance of the CPU • Embedded systems	**TOPIC 3: Secondary Storage Knowledge:** • Optical and magnetic devices • Solid-state memory • Capacity, speed and cost • Portability, durability and reliability • TOPIC 4: Memory • **Knowledge:** • RAM and ROM • Virtual memory	**TOPIC 5: Programming Techniques Knowledge:** • Variable and constants • Arithmetic operators • Comparison operators • Boolean operators • Selection • Iteration • Data Types • String manipulation • Arrays • File handling operations • Records • SQL • Sub-programs 1 & 2	**TOPIC 6: Wired and Wireless Networks Knowledge:** • LANs and WANs • Client-Server & Peer-to-Peer • Transmission media • Connecting computers to a LAN • The Internet **TOPIC 7: Producing robust Programs Knowledge:** • Defensive design • Testing and maintenance **TOPIC 8: Computational Logic Knowledge:** • Computational logic 1 • Computational logic 2	**TOPIC 9: Network Topologies, Protocols and Layers Knowledge:** • Network topologies • Protocols 1- browsers and email clients • Protocols 2 – Network layers • Protocols 3 – Benefits of layers • Packets and packet switching **TOPIC 10: Translators and facilities of languages Knowledge:** • Programming languages • Translators • Integrated development environment

STANGROUND ACADEMY

Computer Science	Year 11	TOPIC 1: Data representation Knowledge:	TOPIC 2: Ethical, legal, cultural and environmental concerns Knowledge:	TOPIC 3: Programming Techniques Knowledge:	TOPIC 5: Algorithms Knowledge:	TOPIC 7: Translators and facilities of languages Knowledge:	REVISION
		• ASCII and Unicode • Check digits • Characters • Images • Sound • Compression	• Environmental and legal issues • Cultural issues 1 & 2 • Environmental issues • Privacy issues • Legislation 1 & 2 • Proprietary and open-source software	• Variable and constants • Arithmetic operators • Comparison operators • Boolean operators • Selection • Iteration • Data Types • String manipulation • Arrays • File handling operations • Records • SQL • Sub-programs 1 & 2 **TOPIC 4: Producing robust Programs** **Knowledge:** • Defensive design • Testing and maintenance	• Computational thinking • Algorithms • Pseudocode • Flow diagrams • Search algorithm - linear • Search algorithm - binary • Comparing linear and binary • Sort algorithm – bubble • Sort algorithm – insertion • Sort algorithm – merge • Interpreting, correcting and completing algorithms • Using trace tables TOPIC 6: Computational Logic **Knowledge:** • Computational logic 1 • Computational logic 2	• Programming languages • Translators • Integrated development environment **REVISION**	

Key Stage 4: IT NCFE Curriculum Plan 2021/22

NCFE IT	**Year 11**	**UNIT 2:** **Knowledge:** • discuss the content and how the designer/developer uses the proposals to create a product. **Skills:** Group task: learners to discuss the points below in groups and make notes: • product • content requirements • target audience • technical requirements • house style • client needs • limitations/constraints • resources • time frame	**UNIT 3:** **Knowledge:** • The importance of testing products and recording the process • the learner must consider: • the effectiveness of the samples/ prototypes • feedback from the target audience/end-user • strengths and weaknesses • ways to improve their working processes and their interactive media samples /prototypes. **Skills:** Screen capture and prototypes, exporting options to different formats appropriate named file directory and file names.	**UNIT 4 :** **Knowledge:** • Learners will identify methods of self-promotion (eg exhibitions, gallery, web presence and social media). They will identify the most effective method for their own way of working. • Learners will work in groups to plan a presentation based on a Teacher provided scenario, or choice of scenarios. **Skills:** Learners will research at least three examples of how to present a product in the interactive media industry	**UNIT 4, UNIT 2, UNIT 3:** **Knowledge:** • Learners work on internal assessment 4 via facilitated sessions (no feedback from the Assessor should be given within the summative assessment period). • Learners work on internal assessment 4 via facilitated sessions (no feedback from the Assessor should be given within the summative assessment period). **Skills:** Learners will peer review the presentation plans in small groups. They will record the feedback and individually review the following: • selection of format and medium • use of hardware/software • strengths and weaknesses • areas for improvement	**TOPIC 5: External Exam** **Knowledge:** • Revision/preparation for external assessment. **Skills:** Learners will peer review the presentation plans in small groups. They will record the feedback and individually review the following: • selection of format and medium • use of hardware/software • strengths and weaknesses • areas for improvement.	**TOPIC 6: External Exam** **Knowledge:** • Learners work on internal assessment 4 via facilitated sessions • Revision/preparation for external assessment. **Skills:** Learners will peer review the presentation plans in small groups. They will record the feedback and individually review the following: • selection of format and medium • use of hardware/software • strengths and weaknesses • areas for improvement.

12 IT	• **Unit 1 – Fundamentals of IT (examination)** • **Knowledge:** • Understand computer hardware • Understand computer software • Understand business IT systems • Understand employability and communication skills used in an IT environment • Understand ethical and o operational issues and threats to computer systems	• **Unit 1 – Fundamentals of IT (examination)** • **Knowledge:** • Understand computer hardware • Understand computer software • Understand business IT systems • Understand employability and communication skills used in an IT environment • Understand ethical and o operational issues and threats to computer systems	• **Unit 2 – Global Information (examination)** • **Knowledge:** • Understand where information is held globally and how it is transmitted • Understand the styles, classification and the management of global information • Understand the use of global information and the benefits to individuals and organisations • Understand the legal and regulatory framework governing the storage and use of global information • Understand the process flow of information • Understand the principles of	• **Unit 2 – Global Information (examination)** • **Knowledge:** • Understand where information is held globally and how it is transmitted • Understand the styles, classification and the management of global information • Understand the use of global information and the benefits to individuals and organisations • Understand the legal and regulatory framework governing the storage and use of global information • Understand the process flow of information • Understand the principles of information security	**Unit 2 – Global Information (examination)** **REVISION** **Unit 17 – Internet of Everything (coursework)** **Knowledge:** • Understand what is mean by the Internet of Everything (IoE) • Repurpose technologies to extend the scope of the IoE • Present concept ideas for repurposed developments	**Unit 17 – Internet of Everything (coursework)** **Knowledge:** • Understand what is mean by the Internet of Everything (IoE) • Repurpose technologies to extend the scope of the IoE • Present concept ideas for repurposed developments

				information security	Unit 17 – Internet of Everything (coursework)		
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