Transferable Skills International GCSE Subject Mapping: Information and Communication Technology (ICT)

Transferable skills will help students cope with the different demands of degree study and provide a solid skills base that enables them to adapt and thrive in different environments across educational stages; and ultimately into employment. A good international education should enable students to start developing transferable skills as early as possible. Developing these transferable skills where they naturally occur as part of the International GCSE curriculum can help build learner confidence and embed the importance of this well-rounded development.

Our approach to enhancing transferable skills in our International GCSEs ensures that it is not only the academic and cognitive skills that are developed, but those broader elements that universities highlight as being essential for success. Skills such as self-directed study, independent research, self-awareness of own strengths and weaknesses and time-management are skills that students cannot learn from a textbook but have to be developed through the teaching and learning experience that can be provided through an international curriculum.

In the tables below, we have taken a framework of skills and provided mapping to suggest where each skill can be assessed, and where each skill could be developed for this subject. This will enable teachers and learners to understand where they are developing each skill, and examples of how they can develop each skill through this International GCSE.

NRC framework skill	Skill interpretation in this subject	Examples of where the skill is covered in content	Examples of where the skill is explicitly assessed in examination	Opportunity for the skill to be developed through teaching and learning approach
Cognitive skills				
Cognitive Processes and Strategies				
Critical thinking	Using many different pieces of information from ICT and synthesise this information to make judgements.	Examples in many parts of the specification including: 2.1.1 Know the range of ways that digital devices communicate: satellite, broadcast, wired, wireless 2.2.1 Understand the factors influencing the speed and volume of data transfer 2.3.2 Understand the function of components of wired and wireless systems 2.5.1 Know about and understand the use of log-ins and passwords, firewalls, WEP,WPA, encryption, VPN, file access rights, transaction logs, backups 2.5.2 Be able to select suitable methods of securing data for a particular context 5.2.2 Be able to use text, numbers, images, animation 5.2.3 Enter, organise, develop, refine and format information, applying editing techniques to meet needs 5.2.4 Bring together and organise different types of information to achieve a purpose	e.g. SAM Paper 1: Questions: 1c, 1fiii, 1g, 1h, 2a SAM Paper 2: Tasks: A4, A5, A6, B5, B6	e.g. Students could be asked to review and analyse data rom different sources and produce a presentation or report of their analysis
Problem solving	Apply the principles and concepts of ICT in different contexts.	Examples in many parts of the specification including: 1.4.1 Know about types of output peripheral such as monitor (screen size, resolution), printer (laser, inkjet, 3D), plotter, data projector, speaker, control device and when they would be used	e.g. SAM Paper 1: Questions: 1a, 1b, 1h, 2b, 2d, 3b, 3c, 3e SAM Paper 2:	e.g. Students could be asked to identify the key features of an ICT system appropriate for different users

		1.4.2 Know about types of input peripheral such as keyboard, mouse, tracker ball, joystick, graphics tablet, scanner, digital camera, webcam, microphone, touch screen, OMR reader, OCR reader, bar code scanner, biometric scanner, magnetic stripe reader, chip and pin, sensor and when they would be used 1.8.1 Be able to identify digital devices and associated peripheral devices that meets particular needs, including accessibility 1.8.2 Be able to identify appropriate software that meets specified needs 1.8.3 Understand that settings of ICT systems can be configured to meet the accessibility needs of individuals 1.8.4 Be able to justify choices made in identifying and configuring hardware and software 2.1.4 Know the differences between Wi-Fi and Bluetooth and when each is best used 5.1.2 Be able to select appropriate software to meet needs 5.2.4 Bring together and organise different types of information to achieve a purpose 5.3.1 Produce information that is fit for purpose and audience using accepted layouts and house styles	Tasks: A2, A3, B2, B4	
Analysis	Analyse and interpret data and draw conclusions.	Examples in many parts of the specification including: 3.2.2 Understand the impact on working practices including collaborative working and flexible or mobile working 3.4.1 Understand positive impacts of the internet on organisations 3.4.2 Understand the negative impacts of the internet on organisations 3.5.2 Know about the gap between information rich and information poor 3.5.3 Understand the causes and implications of unequal access to ICT 5.4.1 Be able to review the outcomes of the use of software applications by comparing the digital product with the original requirements 5.4.2 Be able to identify strengths and weaknesses in a digital product and suggest possible improvements	e.g. SAM Paper 1: Questions: 4b, 4c, 4d, 5b, 5d SAM Paper 2: Tasks: A4b, A5b, A6b, B6aii, B7a	e.g. Students could be asked to produce charts to analyse data provided in a spreadsheet and discuss what the chart shows

Reasoning/argumentation	Evaluate information related to ICT making judgements on the basis of information given.	Examples in many parts of the specification including: 5.4.1 Be able to review the outcomes of the use of software applications by comparing the digital product with the original requirements 5.4.2 Be able to identify strengths and weakness in a digital product and suggest possible improvements 5.4.3 Be able to make modifications to improve the outcomes 5.4.4 Be able to evaluate the selection, use and effectiveness of ICT tools and facilities used	On Paper 1, this would mostly be assessed in longer answer questions e.g. SAM Paper 1, questions 4e and 5f On Paper 2, this would be assessed as parts of tasks where candidates are asked to reflect on the outcomes of the tasks and suggest reasons for choice of tools and/or make reasoned suggestions for improvements eg SAM paper 2 Tasks A6b, B6aii and B7a	e.g. Students could be asked to evaluate the impact of ICT on education and learning and present to a group
Interpretation	Select, organise and present relevant information clearly and logically using appropriate tools and language	Examples in many parts of the specification including: 3.9.1 Understand that information can be gathered from a range of sources 3.9.2 Be able to select and use appropriate sources of information 3.9.3 Know how to use search engines effectively 5.1.2 Be able to select appropriate software applications to meet needs 5.2.4 Bring together and organise different types of information to achieve a purpose	This might be assessed in questions in paper 1 where the command words used are 'describe', 'explain', 'discuss', 'justify'. Eg SAM Paper 1: 5e, 5f SAM paper 2: Task A6b, B6aii	e.g. students could be asked to produce a newsletter from a set of data files (images, text and other assets) and from text etc that they have produced independently
Decision making	Evaluate data, drawing conclusions, with evidence from secondary sources. Suggest possible improvements and further work.	Examples in many parts of the specification including: 5.1.2 Be able to select appropriate software applications to meet needs 5.2.4 Bring together and organise different types of information to achieve a purpose	Decision making could feature in Paper 1 in questions where command words used would include 'recommend' or 'justify' In Paper 2, students might be asked questions to explain their choice of tools and/or suggest improvements to digital products	e.g. students could be asked to explain decisions made about the choice of digital tools. They might also be asked to evaluate the effectiveness of solutions to ICT issues
Adaptive learning	By its very nature, ICT is a vehicle for adaptive learning. Using skills, knowledge and understanding acquired to respond to new and innovative technologies and methods of communication.	Examples in many parts of the specification including: Most of Topic 6 of the specification which details the software application skills to be develop during the course.	e.g. SAM Paper 2	e.g. Students could be assessed in how they approach using new software tools and implement new techniques into their understanding of ICT
Executive function	Using skills practised in using ICT tools, students will develop effectiveness in applying those skills both within the confines of the subject specification and within the wider curriculum.	Much of Topics 5 and 6 are areas where these skills are developed and assessed	e.g. SAM Paper 2	e.g. any task within the curriculum would enable students to demonstrate the use of skills developed in ICT
Creativity				

Creativity	Apply existing knowledge of ICT to situations set in an unfamiliar context.	Command words such as 'recommend', 'evaluate' and 'analyse' require candidates to use ideas developed within the specification to answer questions set in an unusual context. Tasks set reflecting content of specification topics 5 and 6	e.g. SAM Paper 1 4(e) & 5(f) SAM Paper 2 A2b, A6a, A6b, A7, B6	Yes May be evidenced in homework tasks
Innovation	Using a novel strategy to apply existing knowledge of ICT concepts in unaccustomed situations.	Questions involving a critical analysis of unfamiliar data in tabular or graphical form.	e.g. SAM Paper 2 A6, B6aii	e.g. students could be assessed in how they approach the analysis of new data presentations

NRC framework skill	**Skill interpretation in this subject**	**Examples of where the skill is covered in content**	**Examples of where the skill is explicitly assessed in examination**	**Opportunity for the skill to be developed through teaching and learning approach**
Intrapersonal skills				
Intellectual openness				
Adaptability	Ability to select and apply knowledge and understanding of ICT processes, which is not prompted or provided to ICT problems.	Much of the specification content would be covering this		e.g. any task where new contexts are provided would enable this to be assessed during the course of classwork or homework
Personal and social responsibility	Appreciate ethical issues in ICT.	3.2.1 Know about the impact on employment such as new job opportunities as the nature of a job changes, new skills requirements and potential job loss 3.2.4 Know about social impacts such as • Reduced social interaction • Increases in cyber bullying • Reduced physical sctivity 3.2.5 Understand how to stay safe online 3.7.3 Be aware of the purpose of responsible use and acceptable behaviour policies 3.7.4 Understand how to stay safe online: cyber bullying, anonymity of others (misrepresentation), disclosure of personal information/location 3.8.1 Know about data protection, the legal requirements of those storing data about individuals and an individual's legal rights 3.9.5 Understand issues relating to copyright	e.g. SAM Paper 1 2c, 2e, 3d, 4c, 4di, 4e, 5f	e.g. students could be asked to present/participate in discussions about ethical issues in ICT such as cyber-bullying, social media etiquette
Continuous learning	Planning and reflecting on own learning- setting goals and meeting them regularly			Yes Students identify areas where they need extra help or practice.
Intellectual interest and curiosity	Identifying a problem under own initiative, planning a solution and carrying this out			e.g. students could be assessed for their interests in ICT outside the confines of the curriculum content

Work ethic/ conscientiousness				
Initiative	Using ICT knowledge and skills, without guided learning, to further own understanding.			Yes – developing skills beyond the specification
Self-direction	Planning and carrying out ICT based problem solving under own direction.			e.g. students could be given a brief outline of a task and be assessed on how they respond
Responsibility	Taking responsibility for any errors or omissions in own work and creating a plan to improve.			e.g. students could be assessed on their skill in producing a test plan for checking an ICT solution to a problem
Perseverance	Actively seeking new ways to continue and improve own learning despite setbacks.			e.g. students could be asked to reflect on their work to identify learning targets
Productivity	Develop a fluency in technical language so sophisticated answers of depth are produced in extended answers to ICT issues.	Some of the longer questions that require several steps would assess this.	e.g. SAM Paper 1: Q4e, Q5f	e.g. students could be assessed on homework tasks/projects which require extended writing
Self-regulation (metacognition, forethought, reflection)	Developing and refining a strategy over time for applications of ICT, to different contexts reflecting on the success or otherwise of the strategy			e.g. students could be assessed on their ability to analyse their own approaches to their development of ICT skills and understanding
Ethics	Producing output with an ICT moral purpose for which one is accountable.			e.g. students could be asked to demonstrate their understanding of ethics when using social media or in regard to copyright/plagiarism issues
Integrity	Taking ownership for own work and willingly responds to questions and challenges.			e.g. students could be assessed on their understanding of copyright and other ethical issues
Positive Core Self Evaluation				
Self-monitoring/self-evaluation/self-reinforcement	Planning and reviewing own work as a matter of habit.			e.g. students could be asked to keep a journal during an extended piece of work

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Interpersonal skills				
Teamwork and collaboration				
Communication	Communicating ideas and techniques using ICT tools, verbally or in documents, to peers and teachers and answer questions from others.			e.g. students could be asked to present discussion topics on a wide range of issues making use of ICT tools to assist the presentation

Collaboration	Carrying out a peer review to provide supportive feedback to another.			e.g. students could be asked to review each other's work and make constructive comments about the work and their own performance as reviewers
Teamwork	Working with other students in an ICT based problem-solving exercise.			e.g groups of students could be asked to work together to present (using ICT tools) on a range of topics – not confined necessarily to ICT specifications
Co-operation	Sharing own resources and own learning techniques with other students.			e.g. students could be asked to demonstrate skills/tools to other students
Interpersonal skills	Using verbal and non-verbal communication skills in discussions about ICT issues			e.g. assessed during group discussions about ICT issues
Leadership				
Leadership	Leading others in a group activity to effectively solve an problem based on Information and Communication Technologies			e.g. could be assessed during group discussions about ICT issues
Responsibility	Taking responsibility for the outcomes of a team exercise even if one is not solely responsible for the output.			e.g. assessed during group discussions about ICT issues
Assertive communication	Chairing a debate, allowing representations and directing the conversation to a conclusion.			e.g. assessed during group discussions about ICT issues
Self-presentation	Presenting a problem or idea to an audience to seek solutions using Information and Communication Technologies			e.g. could be assessed during group discussions about ICT issues