



GCE Examiners' Report

Digital Technology
AS/A Level
Summer 2024

Introduction

Our Principal Examiners' report provides valuable feedback on the recent assessment series. It has been written by our Principal Examiners and Principal Moderators after the completion of marking and moderation, and details how candidates have performed in each unit.

This report opens with a summary of candidates' performance, including the assessment objectives/skills/topics/themes being tested, and highlights the characteristics of successful performance and where performance could be improved. It then looks in detail at each unit, pinpointing aspects that proved challenging to some candidates and suggesting some reasons as to why that might be.¹

The information found in this report provides valuable insight for practitioners to support their teaching and learning activity. We would also encourage practitioners to share this document – in its entirety or in part – with their learners to help with exam preparation, to understand how to avoid pitfalls and to add to their revision toolbox.

Further support

Document	Description	Link
Professional Learning / CPD	WJEC offers an extensive programme of online and face-to-face Professional Learning events. Access interactive feedback, review example candidate responses, gain practical ideas for the classroom and put questions to our dedicated team by registering for one of our events here.	https://www.wjec.co.uk/home/professional-learning/
Past papers	Access the bank of past papers for this qualification, including the most recent assessments. Please note that we do not make past papers available on the public website until 12 months after the examination.	Portal by WJEC or on the WJEC subject page
Grade boundary information	Grade boundaries are the minimum number of marks needed to achieve each grade. For unitised specifications grade boundaries are expressed on a Uniform Mark Scale (UMS). UMS grade boundaries remain the same every year as the range of UMS mark percentages allocated to a particular grade does not change. UMS grade boundaries are published at overall subject and unit level. For linear specifications, a single grade is awarded for the subject, rather than for each unit that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results, Grade Boundaries and PRS (wjec.co.uk)

¹ Please note that where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

Exam Results Analysis	WJEC provides information to examination centres via the WJEC Portal. This is restricted to centre staff only. Access is granted to centre staff by the Examinations Officer at the centre.	Portal by WJEC
Classroom Resources	Access our extensive range of FREE classroom resources, including blended learning materials, exam walk-throughs and knowledge organisers to support teaching and learning.	https://resources.wjec.co.uk/
Bank of Professional Learning materials	Access our bank of Professional Learning materials from previous events from our secure website and additional pre-recorded materials available in the public domain.	Portal by WJEC or on the WJEC subject page.
Become an examiner with WJEC.	We are always looking to recruit new examiners or moderators. These opportunities can provide you with valuable insight into the assessment process, enhance your skill set, increase your understanding of your subject and inform your teaching.	Become an Examiner WJEC

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Executive Summary

The Digital Technology GCE examination series for summer 2024 saw an overall positive performance from candidates across the different units.

Unit 1 - Innovation in Digital Technology: candidates demonstrated a sound understanding of key concepts, with particularly strong performances in questions related to data storage, digital communications, and the impact of digital technology. However, some areas proved more challenging, such as explaining the digital divide and legislation around data protection and investigatory powers. Candidates scored well on questions requiring practical application of knowledge, such as identifying social media platforms and their features, and explaining the advantages and disadvantages of using social media for business promotion. The extended writing question on the systems development life cycle was less well answered, indicating a need for further development in this area.

Unit 2 - Creative Digital Practices: saw some examples of excellent work from candidates, and many centres followed the guidelines and submitted work in the correct format. The planning and development of digital products was generally well executed. However, some areas for improvement were noted, such as the documentation of asset gathering and copyright considerations, which was often lacking. Additionally, the critical evaluation of final products was an area where candidates struggled to demonstrate their skills effectively.

Unit 3 - Connected Systems: this examination saw a mixed performance from candidates. The strongest answers were for questions related to passive and active data collection, as well as calculating the storage size of compressed video files. However, candidates struggled with more technical topics, such as describing compression methods for video files, the importance of monitoring data usage on Content Delivery Networks, and the role of network resource and applications management. Candidates also lacked understanding of blockchain storage and the cyber security risks associated with cryptocurrencies.

Unit 4 - Digital Solutions generally saw good work from candidates, with many centres assessing the work accurately. Candidates performed well in the investigation of transactional websites and the design of the website. However, some areas for improvement were noted, such as the design of algorithms for server-side scripting language routines and the consideration of feedback when refining the prototype. The development and testing of the transactional website was also an area where some candidates struggled to demonstrate their skills.

Areas for improvement	Classroom resources	Brief description of resource
General	Portal (WJEC)	Past papers, marking schemes and Exemplar materials
General – administration	WJEC website	Specification
General – administration	Delivery Guide Assessment Guide Guidance for Teaching Unit 1 Guidance for Teaching Unit 3	Teacher Guidance
Units 1 & 3	WJEC Resources Website	Blended Learning Materials

DIGITAL TECHNOLOGY

GCE

Summer 2024

UNIT 1: INNOVATION IN DIGITAL TECHNOLOGY

Overview of the Unit

Candidates often struggled to include technical information in their answers. For example, in Q1(a), candidates would mention a “comfy chair” when suggesting how to mitigate the risk of sitting in front of a computer for long periods. At this level, answers are expected to be more detailed, discussing adjustable or ergonomic chairs with suitable back support.

Another question where candidates had difficulty was Q6, where they were asked to explain the Waterfall and Big Bang methodologies in terms of development methodologies. Many candidates confused these with changeover methods.

However, the last question was generally answered well. Candidates were typically able to explain the four stages of the S-curve model of the digital development life cycle.

Comments on individual questions/sections

- Q.1 (a) Candidates often struggled to incorporate technical terminology in their answers. For instance, instead of suggesting adjustable or ergonomic chairs with proper back support, candidates would simply mention a “comfy chair” when addressing how to mitigate the risks of sitting in front of a computer for extended periods.
- (b) Most candidates were able to achieve around half marks. They typically discussed the ease of use as a positive aspect and noted that no keyboard or mouse is needed. They also mentioned the negative aspect of germs being transferred. The candidates who performed the best went further and discussed accessibility features and customisation options.
- Q.2 Most candidates did attain around half marks. This could be improved in future by ensuring candidates are more specific in their answers and clearly explain how it involves the IoT, rather than providing generalised and vague responses.
- Q.3 (a) Generally, well answered.
- (b) The question was generally well answered, with most candidates providing the example given in the Guidance for Teaching. However, further improvement could be achieved if candidates ensure they include the feedback element in semi-supervised learning.
- Q.4 (a) Most candidates were able to attain 1-2 marks. Only a minority of candidates provided a full answer that was awarded 3 marks.
- (b) Most candidates found this question difficult. They were unable to name the different types of software maintenance and provided only basic explanations, indicating a limited understanding.
- Q.5 This was generally well answered where most candidates were able to provide a good description of the possible concerns of the growth of AI. The most popular answers were the displacement of jobs and accountability.
- Q.6 (a) Many candidates confused development methods with deployment methods. However, some candidates provided excellent, well-structured answers. Very similar to the information provided in the Guidance for Teaching.
- (b) This was generally answered well, with candidates demonstrating an understanding of when each test happens and by whom.

- Q.7 This question was generally well answered; however, some candidates did not use the four terms provided in the question. Additionally, some candidates misunderstood the language element, suggesting that there should be an option to translate the language.
- Q.8 Candidates generally provided a good description. Those who attained the highest marks typically structured their answers around the main points of the question—legal, ethical, and professional implications. They offered comprehensive descriptions that demonstrated thorough knowledge from the perspectives of both individuals and organisations.
- Q.9 This question was generally answered well. Candidates were typically able to explain the four stages of the S-curve model of the digital development life cycle. However, some candidates struggled to describe the economic benefits, indicating a lack of full understanding.

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UNIT 2: CREATIVE DIGITAL PRACTICES

Overview of the Unit

This unit requires learners to focus on the end-to-end creation of a game. Candidates will investigate, plan, design, create, test and review a game of their choice. Throughout the production of the solution learners are required to produce a log that evidences the development of the solution.

This unit represents 20% of the qualification and comprises of the below AOs:

- AO2 - 2%
Apply knowledge and understanding to investigate, analyse and evaluate digital technology products and systems, approaches to their development, and their impact on individuals, organisations and society.
- AO3 - 18%
Plan, design, create and develop digital products.

Many centres had assessed the work accurately and had clearly explained their assessment decisions which aided the moderation process.

It would aid the moderation process if centres would ensure that candidates' work and documentation are saved with filenames that clearly identify the centre number, candidate number and candidate name. As detailed in the specification for this qualification, "For example Diane Smith (centre number 68999, candidate number 12345) would store their work in a folder named 68999_12345_SM_D. A folder structure as with the exemplar material would also aid in the moderation process. It is an essential requirement that all candidate work is authenticated, and the authentication sheets are uploaded with the candidates' work. There were some instances where this was not the case, which then required moderators to and WJEC officers to contact centres to request missing paperwork.

The Joint Council for Qualifications (JCQ) document "Instructions for conducting non examination assessments" states that: "All candidates must sign a declaration to confirm that the work they submit for final assessment is their own unaided work. Teachers must sign a declaration of authentication after the work has been completed confirming that:

- the work is solely that of the candidate concerned.
- the work was completed under the required conditions.
- signed candidate declarations are kept on file."

It should also be noted that any additional candidates' work and/or paperwork requested by moderators should be provided in a timely manner.

Tasks

Comments on tasks/questions relating to candidate performance/meeting assessment criteria

Candidates are permitted to come up with the genre of game that they wish to create and set about researching and creating assets for their game. Some candidates made use of freely available graphics and audio assets and utilised these within their games, this is permitted and a welcome advancement over last years' submissions.

During design work candidates should identify the objectives for their game solutions. These objectives should inform all sections of the candidates' work from this point onwards. For each objective, candidates should:

- Create / **source** in-game audio
- Create / **source** characters graphics
- Create / **source** background graphics
- Identify the core components of their game
- Identify the gameplay, interactivity, narrative, objectives, structure, target audience and visual style of their game.

Many candidates are still producing games that are of a slight improvement to the maze games that were created at GCSE level, candidates are encouraged to try other genres in future. Some game types that stood out this year were bullet death, tower defence and platformers.

Task marking

Comments on approaches to internal marking

Investigating Games:

Assess the depth of understanding of game genres, aspects, technical platforms, and their impact on individuals. Look for clear definitions, relevant examples, and critical analysis of how game elements affect players. Many candidates attempted to write about three different games to achieve a higher mark on the bands, but they often wrote too little and were superficial with the analyses. Structuring their essays with clear points to answer per game would enable them to gain more marks.

Planning Games:

Evaluate the quality of project management procedures, understanding of the game development cycle, and the creation of a detailed action plan. Assess the documentation of asset logs, development logs, and backup/version control procedures. Some candidates appear to have created the asset and development logs after having carried out the work, it is essential that these documents be created prior to the task commencement and then filled in as they work through the NEA.

Making Informed Design Decisions:

Assess the candidate's ability to consider the target audience, justify design choices, and effectively utilise design tools. Look for well-structured reports or presentations, insightful game visualizations, and a clear understanding of key game features. Many candidates appear to lack the knowledge at this point to successfully give examples of code that they would make use of in the game, candidates should make use of prior learning from the GCSE or have experience of basic movement, scoring, audio playing etc before attempting this section.

Creating Games:

Evaluate the implementation of game designs using GML, the incorporation of stakeholder feedback, the use of Game Maker platform tools, good coding practices, and the ability to review and document changes.

Testing and Developing Games:

Assess the quality of test plans, test data creation, the implementation and recording of test results, and the ability to adapt and iteratively test games. Many candidates have now adopted the screen recording method of conducting testing, however, if a test proves negative, they should address the error and demonstrate how they solved it with a further test.

Refining and Reviewing Games:

Evaluate the candidate's ability to incorporate stakeholder feedback, understand the game development life cycle, and effectively review and refine games against the original concept. Candidates should make use of their design documents and measure the game against the success criteria.

Presenting Outcomes:

Assess the quality of the game presentation, showcasing the appearance and functionality effectively. Evaluate the clarity of explanations for both coded and non-coded elements. Many centres have adopted the approach of submitting two videos, one for the game play and one for the code descriptions. Candidates who submitted over the shoulder videos tended to score lower, it is advised that candidates make use of screen recording software to record and narrate their game play and explanations of game mechanics and coding.

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UNIT 3: CONNECTED SYSTEMS

Overview of the Unit

Unit 3 contributes 30% of the A Level qualification and assesses the following assessment objectives:

- AO1 – 50 marks
Demonstrate knowledge and understanding of digital technology systems, including how they are used by, and impact on, individuals, organisations and society.
- AO2 – 50 marks
Apply knowledge and understanding to investigate, analyse and evaluate digital technology products and systems, approaches to their development, and their impact on individuals, organisations and society.

During this series, a wide range of content was assessed, including:

- Passive and active data collection
- Compressed video
- Content Delivery Networks (CDNs)
- Cloud storage
- Blockchain storage
- Data analytics and data visualisation
- Resilience controls
- Lowest cost
- Network resource and applications management
- Network activity management
- Internet Service Provider (ISP)
- Symmetric and asymmetric encryption
- Cryptocurrencies
- The history and contemporary developments in transmitting data over mobile technologies.

The mean total for Unit 3 this series was approximately 35 out of 100 marks. This was the first time for the unit to be awarded since first teaching of the specification in September 2022.

Comments on individual questions/sections

Q1 Most candidates were able to describe passive and active data collection and their advantages and disadvantages. This was the third best answered question of the assessment. Popular examples of passive data collection included cookies and trackers. Popular examples of active data collection included surveys and questionnaires.

Q2 A minority of candidates were able to describe two compression methods used to store video files. Popular answers included lossy and lossless data compression, but generally lacked technical understanding of these in the context of compressing a video.

Most candidates were able to calculate the total storage size of the video file in gigabytes. This was the second best answered question of the assessment. Some candidates forgot to include the 20 MB uncompressed sound and meta data before converting the total file size into gigabytes.

Only a few candidates were able to describe the importance of monitoring data usage and size on Content Delivery Networks (CDNs). This was the third worst answered question of the assessment. A significant number of candidates seemed unfamiliar with the topic.

Q3 A minority of candidates were able to describe the uses of cloud storage technology. Popular answers were focused on scalability and accessibility. Less than a quarter of candidates were able to evaluate the benefits of blockchain storage over centralised systems. Generally, candidates lacked the technical understanding of blockchain technology.

Q4 A minority of candidates were able to consider how descriptive data analytics can provide useful information for the supermarket's management team. These candidates were able to explain how the supermarket's management team can use data visualisation.

A minority of candidates were able to describe the four resilience controls that may be used to prevent a cyber-attack. Candidates were able to describe firewalls and malware protection better than internet gateway and access controls.

Q5 Many candidates were able to calculate the costs for each of the remaining 5 links in the network. This was the best answered question of the assessment. Around half of candidates were able to complete the table to show the lowest cost routes that would be taken by packets from node A to each of the other nodes B to E.

A few candidates were able to describe the role and facilities provided by the network resource and applications management. This was the worst answered question of the assessment. A few more candidates were able to for network activity management, but this was still the second worst answered question of the assessment.

Q6 Around half of candidates were able to advise on the factors a friend should consider when selecting an ISP. Speed and bandwidth were popular answers along with cost. Answers with more depth beyond these factors were limited.

- Q7** A minority of candidates were able to compare the suitability of symmetric and asymmetric encryption when sending confidential files over the internet. Candidates seemed more confident discussing symmetric encryption than they did asymmetric. Because of this, comparisons tended to be weak.
- Q8** Less than a quarter of candidates were able to consider the cyber security risks associated with cryptocurrencies. Generally, candidates lacked the technical understanding of cryptocurrency.
- Q9** A minority of candidates were able to outline the developments in transmitting data over mobile technologies since 2G. A lot of candidates were able to list the name of technologies at a very superficial level, e.g. 2G, GPRS, 3G, 4G. They were able to outline the fact that data transmission speeds had increased over time. A few candidates were able to outline the effect of this on the types of media being transmitted, such as video, photos, gaming etc.

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UNIT 4: DIGITAL SOLUTIONS

Overview of the Unit

This was the first year of awarding this unit. Many projects of a good standard were submitted for moderation this summer. Moderators saw some work of an excellent standard. Many centres had assessed the work accurately and had clearly explained their assessment decisions which aided the moderation process. Most candidate work was uploaded correctly as per the specification.

It would aid the moderation process if centres would ensure that candidates' work and documentation are saved with filenames that clearly identify the centre number, candidate number and candidate name. As detailed in the specification for this qualification. The centre should make note on the Centre Mark Sheet the nature of any assistance given and the extent to which the solution actually works as stated in the report there should also be specific reference to the assessment objectives in the comments written on the work and coversheets.

It is an essential requirement that all candidate work is authenticated, and the authentication sheets are uploaded with the candidates' work. There were some instances where this was not the case, which then required WJEC officers to contact centres to request missing paperwork. The Joint Council for Qualifications (JCQ) document "Instructions for conducting nonexamination assessments" states that: "All candidates must sign a declaration to confirm that the work they submit for final assessment is their own unaided work.

Teachers must sign a declaration of authentication after the work has been completed confirming that:

- the work is solely that of the candidate concerned.
- the work was completed under the required conditions.
- signed candidate declarations are kept on file."

It should also be noted that any additional candidates' work and/or paperwork requested by moderators should be provided in a timely manner. This can be done by requesting keycodes from the WJEC if further samples are requested by moderators.

Comments on individual questions/sections

The unit broadly dealt with the following sections for which we offer the following comments:

- Investigating transactional websites:
This section was largely well attempted with candidates often providing good research and other supporting evidence.
- The design of a transactional website:
As is common with other technical specifications the design section was sometimes less well completed by candidates. Formal documentation is required here including: designing clear and detailed wireframes, preparing high quality and appropriate assets, designing CSS to fully structure HTML web pages, writing efficient and effective algorithms. As with many areas of technical qualifications there were fewer good examples of algorithm design.
- The capture, storage and processing of data:
This technical section also had some good attempts however producing an ERD that clearly sets out the relationships between tables that will allow multiple products or services to be processed in a single transaction was sometimes not present.
- The use of RDBMS database systems, scripting languages and SQL:
This was a well attempted section however it had weaknesses evident where candidates were attempting to design effective algorithms for server-side scripting language routines to respond to a wide range of client requests.
- Developing and reviewing a transactional website:
This section was well attempted however an area of weakness noted was candidates did not always fully consider the feedback received when refining the prototype.
- Testing and refining a transactional website Evaluating a transactional website:
A detailed informed commentary would aid candidates with this section.
- Presenting outcomes:
Sometimes the demonstrated evidence was not produced to A2 standard using screen recording software and was filmed “manually” this is to be avoided.

Supporting you

Useful contacts and links

Our friendly subject team is on hand to support you between 8.30am and 5.00pm, Monday to Friday.

Tel: 02920 265 355

Email: DigiTech@wjec.co.uk

Qualification webpage: [AS/A Level Digital Technology \(wjec.co.uk\)](https://www.wjec.co.uk/AS/A-Level-Digital-Technology)

See other useful contacts here: [Useful Contacts | WJEC](#)

CPD Training / Professional Learning

Access our popular, free online CPD/PL courses to receive exam feedback and put questions to our subject team, and attend one of our face-to-face events, focused on enhancing teaching and learning, providing practical classroom ideas and developing understanding of marking and assessment.

Please find details for all our courses here: <https://www.wjec.co.uk/home/professional-learning/>

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