**WJEC GCSE Digital Technology**

**Unit 1: The digital world (Block 5: Securing data and systems)**

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| This bundle may contain most if not, all of the following resources:   * Each lesson provided is for first-time teaching and they include the following components:   + Starter activity – The starter is designed for knowledge retrieval, many people believe (including myself) that revision should start from the very first lesson. So, each lesson the starter activity will include questions from previous topics to improve memory recall.   + Exam practise – As much as we would like students to be great at exams, they need considerable practise and guidance to master the art. Each lesson includes a ‘walk and talk’ style exam question that students can work through and self-assess using the mark scheme provided.   + Concept map – A concept map provides students with an overview of the topic and establishing the relationship it has with other concepts taught throughout the course.   + Keywords – Each lesson will include a set of key words students will come across throughout the lesson. The really important key terms will include a definition and meaning which they can refer back to throughout the lesson.   + New information – New concept is introduced and, in most cases, a video is provided which students watch and then answer a set of questions based around it. This is designed to provide some in-class discussion before moving onto the main activity.   + Activity – Each lesson will include at least one activity that allows students to be more independent and dig a little deeper into the new concept. All activity sheets include answers.   + Self-checker tool – This is a useful AFL tool in which students can check their understanding. The lesson could include a multiple-choice quiz which was built in Microsoft Forms. * AFL (Knowledge capture):   + This document is very versatile. It can be used as a plenary at the end to check understanding, could be used as a homework to consolidate learning, a starter for retrieval practice or saved for some revision.   + It includes a RAG rating for students to complete with some exam-style questions. The answers/mark scheme to these exam-style questions also been included. * Review:   + An accelerated writing activity to encourage students to go into more detail and demonstrate a deeper understanding of certain concepts. This could be converted into a bingo card and each box they complete they get a reward, works well with low ability students who need some extra motivation. * Knowledge organisers   + There are some question marks as to whether these really have an impact but I know a decent proportion of students find them useful so for me that’s a win. Most lessons will include a knowledge organiser that can be used as future revision. Completed copy and a blank version will be provided in case you wanted students to complete them. * Workbooks   + These are condensed versions of topics taught and act as a useful revision guide for students to complete in preparation for an exam.   + It’s quite flexible and could easily be used for anyone who prefers to go down the ‘flipped learning’ approach.   + It’s also good to set students who may be absent from lesson. * End of block assessment   + This is a short exam-style paper on the first block. It’s out of 40 marks and a mark scheme has been included. |

Lesson breakdown

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| Lesson | Topic | Structure |
| 1 | Social engineering | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding the command words used. * In-class activities on slides 8-9 with supporting videos. * The lesson consists of one activity:   + Activity 1 is about students understanding that the human it’s often seen as the ‘weak point’ with regards to system security. But it will help them to differentiate between accidental damage and deliberate/malicious damage.   + Activity 2 looks more into a common fraudulent technique known as phishing and it’s important for students to understand what it is, how to identify a phishing email and the strategies that can be put in place to avoid becoming a victim for this sort of attack. The final part can be used as an extension if you wish, it get students to look at different types of phishing which is beyond the specification.   + The remainder of this worksheet follows the same pattern, describing different social engineering techniques, how to identify and prevent them. * Self-checker tool   + A quiz in Microsoft Forms have been provided. Teachers can create a duplicate copy so they can pass it on to students. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organisers   + One organiser that covers social engineering techniques as part of the specification. * Revision workbook   + Teacher copy with answers and blank student version provided. |
| 2 | Malware | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding of the command words used. * In-class activities on Slide 8 with supporting video contributing to the in-class discussions. It is good for an introduction to malware but the prevention strategies can become a little repetitive. * The lesson consists of three tasks.   + Activity 1 focuses on understanding the difference between trojans, worms and viruses. Students will better understand how they work, how to spot a computer system that is infected by one and how to prevent them.   + Activity 2 focuses on understanding the difference between adware, spyware and ransomware. Students will better understand how they work, how to spot a computer system that is infected by one and how to prevent them.   + Activity 3 focuses on understanding the difference between bot and a rootkit. Students will better understand how they work, how to spot a computer system that is infected by one and how to prevent them. In addition to this, students will understand how bots can be used in a positive or negative way. * Self-checker tool   + A quiz in Microsoft Forms have been provided. Teachers can create a duplicate copy so they can pass it on to students. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organisers   + One organiser that covers different types of malware. * Knowledge capture   + Three questions based on today’s learning (answers provided). |
| 3 | Network threats | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding of the command words used. * In-class activities on Slides 8-11 and a video that will contribute to the discussion. * The lesson consists of four tasks:   + Each activity will focus on a particular threat, how it works and how to prevent them. In most cases, a case study is attached for the students to read and answer some questions around it. It gives them some context to how these threats can have an impact on the real world. It’s up to you if you want to use the last worksheet, it’s on SQL injection and that is not been made explicit on the specification. * Self-checker tool   + A quiz in Microsoft Forms have been provided. Teachers can create a duplicate copy so they can pass it on to students. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organisers   + One organiser that covers different types of network threats. * Knowledge capture   + Three questions based on today’s learning (answers provided). |
| 4 | Cyber resilience | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding the command words used. * In-class activities on Slides 9 to 13 with supporting videos. * This lesson consists of one task: * Activity 1:   + Task 1: This is a good task because it allows students to draw on their prior knowledge from previous topics such as: anti-malware software and encryption as well other prevention strategies that have been discussed in DT21, DT22 and DT23.   + Task 2: Another opportunity for students to draw on previous knowledge. They need to have a good understanding as to why backing up data is a good strategy. So, it requires them to have a good understanding of a disaster recovery plan and why organisations put these in place aswell as different backup strategies – would any be suitable to use in case of a cyber-attack?   + Task 3: This focuses on the physical security aspect and looking at how organisations can keep their data secure from physical threats rather than digital. * Self-checker tool   + A quiz in Microsoft Forms have been provided. Teachers can create a duplicate copy so they can pass it on to students.   + This same quiz has been repeated for the next two lessons which is good for repetition. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organisers   + One organiser provided. * Revision workbook   + Teacher copy with answers and blank student version provided. |
| 5 | Digital footprint | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding of the command words used. * In-class activity on slide 8. * The lesson consists of one task.   + Activity 1 – Identify what is meant by digital footprint, how it’s created and how it can be reduced. The final task, students are presented with an opportunity to differentiate between a passive and active footprint.   + Activity 2- This is all about understanding how our digital footprint can impact us on a much wider scale. A case study has been provided to make students aware of the impact a negative digital footprint can have on their future. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organiser   + Small topic so it’s been added to a future knowledge organiser. (In DT28 folder) * Knowledge capture   + Three questions based on today’s learning (answers provided). |
| 6 | GDPR | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding of the command words used. * In-class activities on Slide 8. * The lesson consists of one task   + Activity 1: For each piece of legislation students should understand what I call the 3 P’s: Purpose, Principles and Punishment.   + Activity 2: Focuses on a particular case study where there was a data breach. Students read the case study, answer questions on it and provide advice on how to follow GDPR guidelines. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge capture   + Three questions based on today’s learning (answers provided). |
| 7 | Computer Misuse Act | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding the command words used. * In-class activities on Slide 8 * The lesson consists of one task   + Activity 1: For each piece of legislation students should understand what I call the 3 P’s: Purpose, Principles and Punishment. The final part provides students with scenarios in which they need to identify which section of the Computer Misuse Act is being breached. There is no requirement for this, but it gives them some context and the ability to refer back to previous topics on social engineering, malware and network threats.   + Activity 2: Focuses on a particular case study where there was a data breach. Students read the case study, answer questions on it. * Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organisers   + One organiser provided and this could be expanded as cloud services are discussed further down the specification. For example, it could lead to the addition of scalability. (e.g. vertical and horizontal scaling) * Revision workbook   + This will be added to a future workbook when more content on cloud computing has been covered. |
| 8 | Investigatory Powers Act | * Starter activity on retrieval practice. * Students practise an exam-style question based on last week’s learning. The mark scheme has been provided with some guidance on better understanding the command words used. * In-class activities on Slide 8 * The lesson consists of one task   + Activity 1: Students will understand how the data we divulge is transmitted, tracked and stored. It will get them to think about how difficult it is to keep our data private.   + Activity 2: Students will look at the impact technology has on individual privacy and wider society with particular focus on facial recognition technology where students look at the positives and negatives of utilising (e.g. use of facial recognition in public places)   + Activity 3: Focuses on a particular case study where there was a data breach. Students read the case study, answer questions on it. * Self-checker tool   + Knowledge capture acts as a skills audit in which students can check their level of understanding and test it against exam-style questions. * Knowledge organisers   + One organiser that covers all pieces of legislation in the specification. * Revision workbook   This will be added to a future workbook when more content on cloud computing has been covered. |

Resources

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| Exam starter | Knowledge retrieval starter |
| Concept map | Keywords |
| New information | Activity |
| Self-checker tool | End of block assessment |
| Knowledge organiser | Revision workbook |
| Knowledge capture | Knowledge capture |