Supporting Technical Education Teaching:

**Curriculum Resources**

Teaching Guide

Topic: Culture and the   
impact of technology

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| --- | --- |
| Route | Digital |
| Qualification | T Level Technical Qualification in Digital Business Services <https://www.qualhub.co.uk/qualification-search/qualification-detail/t-level-technical-qualification-in-digital-business-services-level-3-delivered-b-5033#SupportMaterials> |
| Topic | Culture and the impact of technology |
| Specification coverage | Route Core Element 2 – Culture |

This resource is part of a series of materials to support technical education teaching. The approach to developing the materials draws from research led by Professor Kevin Orr that sets out a model for understanding of technical education pedagogy.

The curriculum development begins with the knowledge that students are working to learn and apply. Teachers draw from their subject and industry expertise, and their knowledge of their students, to make decisions about the core concepts the curriculum will focus on, how they will sequence these concepts, and the activities that are selected to support students’ learning. The decisions behind the resources suggested in this topic are the result of choices made by the curriculum development team, which will be reviewed and improved by teachers’ decision-making and ongoing reflection in their own circumstances.

The materials also seek to support teachers in bringing classroom and industry closer together, by providing assets that draw from authentic industry materials, and using opportunities to capture workplace practice that can be shared with students.

Health and safety

It is assumed that activities outlined in this Teaching Guide will be undertaken in suitable facilities or work areas and that good practices, appropriate use policies and procedures will be observed. Teachers should consult their employers’ risk assessments before use and consider whether any modification is necessary for the particular circumstances of their own class/institution.

Acknowledgements

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Introduction

This document for teachers outlines the topic area covered, and approach to using the suite of resources and assets for each lesson.

# Topic purpose

This topic is an introduction to working in the digital industry and covers how technology has impacted our social and employment lives. The concept of ethical and moral choices in the workplace is not a new one but the advance of digital industries and the increased understanding of mental health issues has raised its importance.

Digital technology is at the core of personal and employment-related privacy, and as a society we are still trying to agree on what is and is not acceptable to be shared.

The exciting world of autonomous operation is moving so fast that the world is struggling to keep up. Many organisations are looking for ways to embed and take advantage of such technologies, but there is a need to consider the potential negative impacts.

There are four lessons and each lesson is assumed to be 1.5 hours. You may want to adapt the suggested sequencing of concepts and activities as appropriate for your students and circumstances. The lessons are broken down to provide teacher flexibility on the depth covered in the activities; lessons can also be split over multiple shorter lessons if required.

There are also opportunities to build several essential skills that are developed during the course and general competencies for maths, English and digital.

The content in the lessons can be reinforced throughout the course to support students’ learning. For example, when discussing a forthcoming industry placement, one objective could be for students to look for these polices in the workplace, discuss the importance with their supervisor, and note this learning in their logbook. For example: <https://support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students>

# Industry importance

The significance of digital technology extends far beyond its technical capabilities; it is embedded into the fabric of individuals' lives, public services, industries and our broader societal framework.

The sweeping influence of digitalisation has revolutionised the way we interact with information. It has redefined how education can prepare us for our career destinations, how we interact with public services and how industries can operate, communicate, and innovate.

Amidst this digital revolution, the importance of fostering a positive workplace culture gains even greater prominence. Increased digital access raises moral and ethical questions about the way we work, the information we have access to and the information we share with others. As technology intertwines our daily lives and reshapes industries, nurturing a supportive and adaptable work environment has become paramount. We have had to extend our perception of what it means to be a moral and ethical member of society to the online world, setting rules about how we communicate using social networks, and making the right choices when the internet presents opportunities for inappropriate use.

A progressive workplace culture accommodates the evolving demands of digitalisation but also encourages collaboration, continuous learning, and open communication. These values and actions can propel both personal growth and collective advancement. All organisations, including digital industries, public services and educational establishments, are developing ethical guidelines for staff members to follow. These ensure that standards are met and prevent issues that appear commonly online from transferring to organisations.

“Eradicating the digital divide is not just a goal but a moral imperative. In our interconnected world, access to digital resources and technology is no longer a luxury but a fundamental necessity for educational equality. Closing this divide ensures that every learner, regardless of their background, has the same opportunities to thrive, learn, and prepare for their future in an increasingly digital society.”

**James Culley, Chief Technology Officer, London Design & Engineering UTC**

## Industry links

* Computer weekly website, with articles on many of the topics discussed:  
  <https://www.computerweekly.com>
* Guardian Technology News Page, with articles on many of the topics discussed:  
  <https://www.theguardian.com/uk/technology> (other news sites also have technology-based articles)
* BBC News Technology Page, with articles on many of the topics discussed:  
  <https://www.bbc.co.uk/news/technology>
* Reimagining ethical digital technology – an article by Simon Rogerson:  
  <https://www.computerweekly.com/opinion/Reimagining-Ethical-Digital-Technology>
* An example code of ethics:  
  <https://www.acm.org/code-of-ethics>
* Health and Safety Executive – workplace guidance:  
  <https://www.hse.gov.uk/guidance/index.htm>
* An example of a commercial interpretation of GDPR:  
  <https://www.youtube.com/watch?v=Y7k04399RJ4&feature=youtu.be>
* UK Government artificial intelligence guidance:  
  <https://www.gov.uk/business-and-industry/artificial-intelligence>
* The potential of AR and VR (Business news article) <https://www.business.com/articles/virtual-reality-changing-manufacturing/>
* Pew Research Center – Internet and technology:  
  <https://www.pewresearch.org/topic/internet-technology/>
* Financial Times – Digital footprint job loss article:  
  <https://www.ft.com/content/87cfe2ee-bfeb-11e8-84cd-9e601db069b8>
* Free social media analytics tools:  
  <https://www.practicalecommerce.com/18-Free-Tools-for-Social-Media-Analytics>

## Prior learning

Students do not require any specific prior knowledge before studying the topic. Whilst the content of this series of lessons is unlikely to have been met by students at GCSE, those who have studied technical programmes prior to beginning their course may have been introduced to some policies and procedures in workplace settings.

## Accessibility

The teaching materials have been designed to provide teachers with a flexible framework, including different approaches to activities, suggested consolidation activities to further embed knowledge, and adaptable study questions to assess learning. As with all resources, teachers will wish to consider the specific needs of their students when using the materials, including Special Educational Needs and Disabilities (SEND).

Learning outcomes and specification coverage

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| --- | --- | --- | --- | --- |
| Lesson | Learning outcomes | Specification coverage | Skills and General competencies | Links to other specification content |
| 1 | Students will be able to:  explain the evolving nature of technology and the impacts of this on businesses and employees  discuss how methods of communication are changing in organisations  define autonomous operation and provide examples of its use  consider the positive and negative impacts of autonomous operation. | **R2.1 How the increasing reliance on digital technology can cause ethical and moral impacts on business and society** Impacts on business:   * impact on company culture:   + changes to face-to-face communication   + increase in expected productivity and outputs   + increase in reach and scale   + increase of staff monitoring   + adaptive working practices * autonomous operation:   + dehumanisation of service:     - loss of jobs     - loss of human empathy in decision making   + shift in skill requirements and skills redeployment | Core skills:  **CE2** Research and investigate relevant sources and data to meet requirements:   * identify and gather relevant sources * develop search criteria to synthesise queries to support research and investigation   General competencies:  English: **GEC1** Convey technical information to different audiences  **GEC2** Present information and ideas  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  **GEC6** Take part in/lead discussions  Digital:  **GDC1** Use digital technology and media effectively  **GDC2** Design, create and edit documents and digital media  **GDC3** Communicate and collaborate | **R1.3** The measurable value of digitisation to a business (operations) |
| 2 | Students will be able to:  consider what makes up our digital footprint.  explain how digital surveillance can take place  compare different digital identities and how we use them  describe what is meant by the digital divide. | **R2.1 How the increasing reliance on digital technology can cause ethical and moral impacts on business and society** Impacts on society:   * loss of privacy:   + digital footprint   + surveillance * changing behaviours:   + social skills   + scalable remote engagement, wider peer and professional networks   + creation and curation of a digital identity * communication access:   + resistance to technological change   + potential isolation:     - transition to remote communication and services     - due to lack of digital skills or technology     - locations (for example limited mobile data coverage) * improved access to information | Core skills  **CE2** Research and investigate relevant sources and data to meet requirements:  identify and gather relevant sources  develop search criteria to synthesise queries to support research and investigation.  Students knowing their own digital footprint  General competencies:  English: **GEC1** Convey technical information to different audiences  **GEC2** Present information and ideas  **GEC3** Create texts for different purposes and audiences  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  **GEC6** Take part in/lead discussions  Digital:  **GDC1** Use digital technology and media effectively  **GDC2** Design, create and edit documents and digital media  **GDC3** Communicate and collaborate | **R1.2** Key factors that can influence the business environment  **R1.6** The components of technical change management |
| 3 | Students will be able to:  discuss the possible psychological impacts that spending time online can have  consider the physical impacts that working with digital technology can have  compare prevention strategies to mitigate the effects of the negative health impacts digital technology can cause  explain how to and carry out a workstation assessment. | **R2.2 The impact of unsafe or inappropriate use of digital technology and mitigation techniques to reduce impact.** Impacts:  psychological:   * + cyberbullying   + mental heath   + addiction (for example gambling, gaming, social media)   + stress   physical:   * posture * eye strain * repetitive strain injury (RSI) * reduction of physical activity * disturbed sleep patterns.   Mitigation techniques   * regulate use of digital technology (for example effects on sleep patterns, effects on mental health, screen breaks) * report misuse to relevant authority (for example platform owners, police) * display screen equipment (DSE) and workstation assessment:   + equipment (for example footrest, back support, screen filters) * self-exclusion (for example gambling website/app) | Core skills  **CE2** Research and investigate relevant sources and data to meet requirements:  identify and gather relevant sources  develop search criteria to synthesise queries to support research and investigation.  **CE4** Ensure that actions identify and mitigate risk to security  identify and record potential risks  assess probability and impact of risk  comply with relevant legislation and guidelines  General competencies:  English: **GEC1** Convey technical information to different audiences  **GEC2** Present information and ideas  **GEC3** Create texts for different purposes and audiences  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  **GEC6** Take part in/lead discussions  Digital:  **GDC1** Use digital technology and media effectively  **GDC2** Design, create and edit documents and digital media  **GDC3** Communicate and collaborate | **R1.2** Key factors that can influence the business environment  **R1.5** The role of technical change management in digital operational integrity  **R1.7** Factors that drive change and a range of methods organisations can apply in response to change.  **R1.11** Risks and implications within a business environment.  **R1.12** The purpose and applications of codes of conduct within a business. |
| 4 | Students will be able to:   * determine the key characteristics of an extended response question (ERQ) * analyse extended response questions * practise answering extended response questions * learn how to achieve the highest marks in an extended response question. | **R2.1** How the increasing reliance on digital technology can cause ethical and moral impacts on business and society.  **R2.2** The impact of unsafe or inappropriate use of technology and mitigation techniques to reduce impact. | General competencies:  English:  **GEC2** Present information and ideas  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  Digital:  **GDC3** Communicate and collaborate | **R1.3** The measurable value of digitisation to a business (operations)  **R1.2** Key factors that can influence the business environment  **R1.6** The components of technical change management: resistance to change from staff/teams  **R1.2** Key factors that can influence the business environment  **R1.5** The role of technical change management in digital operational integrity  **R1.7** Factors that drive change and a range of methods organisations can apply in response to change.  **R1.11** Risks and implications within a business environment.  **R1.12** The purpose and applications of codes of conduct within a business. |

Lesson guidance

# Lesson 1: The costs and benefits of digital expansion (R2.1)

This lesson starts by discussing the changes we have seen due to the rise of digital technology and the effects this has had on both individuals and businesses. The lesson then progresses onto autonomous technology and discusses the impacts this has had on modern ways of working. Students could link this learning to their industry placements by investigating the ways autonomous operation has been implemented in different organisations.

This lesson could also be split into two smaller sessions, the first part covering the workplace of today, and the second covering autonomous operation.

## Preparation

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| Resources provided | L1 Teacher slide deck  L1 Activity 2: Research and present  L1 Activity 3: Research and present |
| Equipment needed | None, other than internet access for classroom activities |
| Safety factors | Teachers and students are required to carry out their own risk assessments for the activities in each lesson.  You may consider internet access for students in line with appropriate use policies and procedures of the organisation. |
| Prior learning | To complete the activities within one lesson, teachers may wish to set the research part of Activity 1 as an independent or group task prior to the lesson.  Students should have appropriate researching skills and be able to source credible information from the internet. |
| Common misconceptions | Morals and ethics are the same thing.  All workplaces have the same culture.  Workplace culture isn’t that important to the daily lives of employees.  Employment rules are perceived as just guidance rather than real rules not to be broken. |
| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.  Be aware of students’ potential lack of confidence in presenting at this early stage of their learning. It may be worth establishing the core principles of working in a collaborative manner initially, at this point in the course.  For very large groups, the class could be split into smaller groups for feedback presentations; alternatively, students could present their findings in a different format, such as through online videos or blogs, for other students to watch or read. |

## Activity guide

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| Introduction  SUGGESTED TIME:  5 minutes  RESOURCES:  L1 slide deck  1–2 | Before the lesson, study the slide deck as a guide to summarise what will be covered in the lesson to introduce the topic.  Begin the lesson by discussing morals and ethics.  If students have already started their placement, ask if any of them have been told about any of the following at their organisation:   * + - Moral and ethical guidelines     - The culture of the workplace   Also ask students if they have been asked to read and agree to a ‘code of conduct’ that outlines the rules and regulations in respect to their access to and sharing of digital content.  Explain to students that many of the topics in this lesson are evolving and are linked directly to changes in society associated with the new technologies we have seen in the last few decades. |
| Activity 1: Class discussion  Suggested time:  5 minutes  Resources:  L1 slide deck  3–4  L1 Interview video, slide 4 | Class discussion: What do we mean by morals and ethics?  Prompt a discussion and swap definitions. Ensure that all students agree on, and are confident of, the definitions:   * + - Morals: What we believe as a society to be right and wrong.     - Ethics: The standards, principles or rules that govern our behaviour.   Show film 1 on slide 4. The film shows responses from Sam Moylan-Heydt (Corporate Social Responsibility (CSR) Programme Manager at Cisco) and Lou Doyle (Chief Executive Officer (CEO) at Mesma) who discuss the culture at their businesses, as well as morals and ethics.  Highlight to students that the impact on users or customers is central to the decisions being made in all organisations.  Students can make comparisons between the responses from a large corporation (Cisco) and a small business (Mesma). Include in the discussion a comparison of the considerations that Cisco and Mesma need to make regarding ethics and morals. For example,   * + the size of the organisation;   + how they communicate with their employees;   + how this will be similar or different;   + the numbers of partners they will have, etc. |
| Activity 2: Research and discuss: Case studies  Suggested time:  30 minutes  Resources:  L1 Teacher slide deck 5–18  L1 Activity 2: Research and present | Class discussion: When describing a workplace culture, what do students think should be included? Create a list students could refer to later.  Use the slide deck to introduce the changing workplace of today, covering:   * + - Individuals and society     - Communication changes     - Business and employee expectations     - How is digital improving the reach and scale of the business?     - Modern working practices     - The monitoring of employees   Highlight that regulations that govern digital activities are constantly evolving. All organisations must stay informed about changes and updates in areas such as digital marketing, data protection, online accessibility, and industry-specific compliance requirements.  Give students a copy of the Activity 2 worksheet. They will consider three large organisations, how they are seen and how they treat employees. This is to allow them to apply their new learning to real-life businesses:   * + - Organisation 1: Microsoft     - Organisation 2: X (Twitter)     - Organisation 3: Mesma   Allow students to work in pairs, a third of the class on each organisation. Using the questions in the task, students can make notes from their own knowledge and internet research.  As noted in the activity, this could be done using LLM (Large Language Model) AI platforms, such as ChatGPT, Google Bard or Microsoft Bing, to generate content from online sources. This would need to be carefully monitored, and students may need to log in to systems to be able to use them.  Start a discussion on the three organisations, their perceived workplace culture, and the experience of employees.  Ask students:   * + - How does the organisation support its employees?     - What is the workplace culture like there? Has it recently changed?     - Can you give any examples of employer expectations?     - What are the key values of the organisation and do you share these? If so, how? |
| Activity 3: Research and present: Workplace examples of autonomous operation  Suggested time:  40 minutes  Resources:  L1 Teacher slide deck 19–28  L1 Activity 3: Research and present | Use the slide deck to introduce the concept of autonomous operation.  Show the videos on slide 27. After watching the videos, ask students to analyse and evaluate their own thoughts about the positive and negative impacts of AI.  Give students a copy of the Activity 3 worksheet. They will consider three examples of autonomous operation in the workplace:   * + - NHS Wales Chatbot     - BMW/Mini UK vehicle manufacturing     - ALSTOM – Autonomous train developer   Allow students to work in groups, with a third of the class assigned to each topic. They should be prepared to discuss and respond to these questions:   * + - Why have autonomous operations been introduced?     - What are the benefits of the technology used?     - Are there any negative aspects of this use of technology?   With AI innovation in the digital workplace moving exponentially, it is important to research and present recent examples and, where appropriate, a local context that students can relate to. |
| Plenary  Suggested time:  10 minutes  Resources:  L1 Teacher slide deck 29–30 | Demonstrate to the class an example of a live chatbot, based on a website they know.  You may choose to demonstrate a chatbot created on your own school or college website. Please make sure that the appropriate checks have been made before use, this may include an IT specialist.   * + - Examples could include: <https://web.powerva.microsoft.com/tryit> (it would be useful to look at the platform before use. It will study the content and save any website used to create a chatbot so ensure appropriate authorisation has been gained before proceeding).     - More information can be found at: <https://learn.microsoft.com/en-us/power-virtual-agents/fundamentals-what-is-power-virtual-agents>     - Enter the name of your school or college website or alternatively choose any popular website. It must not already contain a chatbot.     - A chatbot is instantly created that can answer questions about the website. It uses AI to quickly scan the website and build responses.   Once the chosen chatbot has been displayed you could ask students what the benefits are of using the chatbot for the organisation, with students making appropriate notes from this discussion.  Close the lesson by bringing the focus back to digital technology, asking the following questions:   * + - Why is it important for every organisation to ensure that its employees are familiar with their workplace culture and expectations?     - Are the benefits of autonomous working the same for everyone?   Remind students what has been covered in the lesson using slide 29 and introduce the next lesson with slide 30. |
| Follow-up / consolidation  Suggested time:  45 minutes  Resources:  None | As a follow-up piece of work to reinforce some of the ideas from this lesson, ask students to read the following three examples.   * + - The stress of electronic monitoring on employees: <https://www.bbc.com/worklife/article/20230127-how-worker-surveillance-is-backfiring-on-employers>     - The ethics of testing autonomous cars on our roads: <https://www.makeuseof.com/tesla-full-self-driving-beta-tested-public-roads/>     - Employees in fear of losing their jobs to artificial intelligence: <https://www.bbc.com/worklife/article/20230418-ai-anxiety-artificial-intelligence-replace-jobs>   Ask students to analyse the impact that AI has on these three case studies and use them as part of the revision notes for this topic. |

# Lesson 2: Digital technology has changed our world (R2.1)

This lesson moves the focus onto how our world has changed due to digital technology. We are constantly adding to a vast digital data store about our social lives, habits, and employment history.   
  
The lesson starts by introducing the digital footprint and the many ways we are digitally tracked, before moving onto how our behaviour has changed as we adapt to digital social experiences. Finally, we cover how access to digital services is not equal around the world and this is having an impact on the access to knowledge and opportunities.

## Preparation

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| Resources provided | L2 Teacher slide deck  L2 Activity 1: Research and discuss  L2 Activity 3: Research and discuss |
| Equipment needed | None, other than internet access for classroom activities |
| Safety factors | Teachers and students are required to carry out their own risk assessments for the activities in each lesson.  You may consider internet access for students in line with appropriate use policies and procedures of the organisation. |
| Prior learning | Students should be aware of current locations in relation to  digital privacy.  Students should have appropriate researching skills and be able to source credible information from the internet. |
| Common misconceptions | Their own internet use is fairly private  Others don’t access or use their data  Consent is needed to take photos of people in public spaces |
| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.  Be aware of students’ potential lack of confidence in presenting at this early stage of their learning. It is worth establishing the core principles of working in a collaborative manner, in a ‘safe space’, at this point in the course.  For very large groups, the class could be split into smaller groups for feedback presentations; alternatively, students could present their findings in a different format, such as through online videos or blogs, for other students to watch or read. |

## Activity guide

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| Introduction  SUGGESTED TIME:  5 minutes  RESOURCES:  L2 Slide deck  1–2 | Some students may have started their industry placement, and if so, they could be asked if their organisation has talked to them about privacy. For those who haven’t started their placement, they could be asked what sort of information they might be expected to keep private, both in their work and home life.  Explain to students that many of the topics in this lesson are currently evolving, as organisations are always trying to be aware of the latest advances.  Class discussion: ‘How has digital privacy changed since the invention of the internet?’   * + - Ask students to consider this question both for an organisation and for an individual.     - Prompt, discuss and ask students to provide examples such as: People share personal data online using social networks, shopping sites, and whilst looking for work.     - Explain that there has been an overall loss in privacy and we are now looking for ways to regain and protect it. |
| Activity 1: Research and discuss key terms  Suggested time:  25 minutes  Resources:  L2 Slide deck  3–8  L2 Activity 1: Research and discuss | Use the slide deck to introduce the idea of a digital footprint and digital surveillance.  Give students a copy of the Activity 1 worksheet. They will research three different digital concepts and find a real example of each one to share with the class.  Allow students to work in pairs or small groups.  After students have had time to discuss in their groups, ask for descriptions of each term and begin a class discussion about the examples that they have. Ask students:   * + - What might a digital footprint include? Answers might include: browsing history, cookies, posts on social media, shopping history. There may be the opportunity here to introduce the importance of keeping yourself safe online and the implications for not doing do. This is discussed more in Activity 2.     - Why is this information valuable to others? Answers might include: it can be sold to criminal organisations, it can be used to create false identities, it can be used to hack accounts and guess passwords.     - Describe examples of surveillance other than CCTV cameras on our streets. Answers might include: use of credit/debit cards and customer loyalty cards, access to Wi-Fi networks and mobile networks, passports.   Once students have completed the activity, direct them to this article with tips on managing their own digital footprint <https://research.com/education/how-to-manage-digital-footprint> |
| Activity 2: Class survey and discuss  Suggested time:  15 minutes  Resources:  L1 Teacher slide deck 9–14 | Use the slide deck to introduce how digital technology has changed our behaviour in the following ways:   * + - social skills     - increased use of remote engagement with others     - the creation and maintenance of a digital identity and brand. You may wish to show the following web page: <https://resources.owllabs.com/blog/video-conferencing-etiquette>   Using the question on slide 14, carry out a class survey on the most popular social, gaming and professional networks. Tally the responses and discuss the results.  Ask students how they think they would be seen if an employer searches for them online today. Ask them to consider how this may change their behaviour going forward, and what the implications could be if they do not. For example, it could impact their future employment opportunities. |
| Activity 3: Research and discuss  Suggested time:  35 minutes  Resources:  L2 Slide deck 15–22  L2 Activity 3: Research and discuss | The content in this section and activity also provides an opportunity  to invite external speakers from different organisations who have been through digital transformation to share the challenges they have faced.  Use the slide deck to give a theoretical introduction to the question: ‘Is digital communication a level playing field?’  An NHS case study has been provided on slide 17 to give examples of digital services that have been introduced to improve access. Along with this, you may wish to explore these articles:   * + - <https://digital.nhs.uk/news/2023/health-staff-switching-to-improved-nhs-patient-record-service>     - <https://digital.nhs.uk/blog/transformation-blog/2022/expanding-online-consultations-in-the-nhs-app>   Give students a copy of the Activity 3 worksheet. Divide the class into six groups and assign them to one of the following society groups that fall into the digital divide:   * + - Those that resist     - Those now working from home     - Those with low levels of digital skills     - Those in a remote location     - Those that cannot afford access (digital poverty)     - Those with a disability   Students should discuss and research the issues surrounding their assigned group’s lack of digital access. If students complete information for their group before others have finished, ask them to think of another group they could discuss that is not in the examples.  After students have had time to discuss and determine suggestions, ask each student group to present their findings  Follow this activity with a question to the class: ‘What impact do these issues have on those people that design and deliver online products and services and how can they consider the ability of all users? Responses might include:   * + - User friendly interfaces, including those with limited internet skills.     - Can a telephone version also be run for those without access?     - Can a paper-based version be created? |
| Plenary  Suggested time:  10 minutes  Resources:  L2 Slide deck 23–30 | Complete the short retrieval quiz at the end of the slide deck. The answers are also within the deck.  Summarise the objectives covered in the lesson using slide 29, recalling some key terminology and ideas:   * + - digital footprint     - digital surveillance     - digital divide     - digital social skills     - professional peer networks   + Introduce the next lesson using slide 30. |
| Follow-up / consolidation  Suggested time:  30 minutes  Resources:  None | As a follow-up piece of work to reinforce some of the ideas from this lesson, ask students to come up with practical ways to reduce the digital divide in society and add these to their revision notes or discuss thoughts with their peers. |

# Lesson 3: The impact of digital technology on our health (R2.2)

This lesson covers the impact of technology on our health and wellbeing. This can relate to our physical health when using devices and our mental health as we deal with negative online content. All these impacts can be reduced using knowledge and preparation.

## Preparation

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| Resources provided | L3 Teacher slide deck  L3 Activity 1: Research and present  L3 Activity 2 alternative: Workstation assessments |
| Equipment needed | Internet access for classroom activities  Activity 2 will require at least two example workstations, including one set up appropriately and one set up inappropriately with a desktop, and/or laptop computer. |
| Safety factors | Teachers and students are required to carry out their own risk assessments for the activities in each lesson.  You may consider internet access for students in line with appropriate use policies and procedures of the organisation. |
| Prior learning | To complete the activities within one lesson, teachers may wish to set the research part of Activity 2 as an independent or group task prior to the lesson.  Students should have appropriate researching skills and be able to source credible information from the internet.  Students should be confident at identifying incorrect information. |
| Common misconceptions | We cannot come to any harm from using computers.  We must just accept that people can post inappropriate comments/images online.  It is easy working from home. |
| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.  Be aware of students’ potential lack of confidence in presenting at this early stage of their learning. It is worth establishing the core principles of working in a collaborative manner, in a ‘safe space’, at this point in the course.  For very large groups, the class could be split into smaller groups for feedback presentations; alternatively, students could present their findings in a different format, such as through online videos or blogs, for other students to watch or read. |

## Activity guide

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| Introduction  SUGGESTED TIME:  10 minutes  RESOURCES:  L3 Slide deck  1–3 | Before the lesson, study the slide deck as a guide to summarise what will be covered in the lesson to introduce it.  Class discussion: What are some of the negative effects that digital technology can have on our lives? Create a list on the board of student examples to refer to. This could be written by the teacher or ask students to add their examples. Ensure that the final list is summarised and clear to refer to in students’ notes. |
| Activity 1: Research and present  Suggested time:  40 minutes  Resources:  L3 Slide deck  4–13  L3 Interview video, slide 8  L3 Activity 1: Research and present | Use slides 4–7 to introduce some of the negative psychological and physical impacts of digital technology. Ask students for examples for each and then extend to ask them what they would do if they saw cyberbullying. You may choose to reference your provider’s policies and procedures for safe use of digital technologies and appropriate reporting procedures where appropriate.  Explain to students that employers will have an acceptable use policy that all employees agree to. Being familiar with the rules it includes will help correctly identify examples.  Two support websites are provided in the slide deck. If necessary, update these and add any new support portals that may be relevant for your students.  Show the film on slide 8. This shows responses from Sam Moylan-Heydt (CSR Programme Manager at Cisco) and Lou Doyle (CEO at Mesma) who discuss what their organisations do to support the mental and physical wellbeing of their employees.  You could ask students to research and discuss what resources and support are available to them within their placement organisations.  Give students a copy of the Activity 1 worksheet. They will now consider ways that these negative effects can be prevented or mitigated against.  Allow students to work in pairs or small groups and think about the five categories below and assign a different one to each pair/group:   * + - Self-regulation     - Self-exclusion     - External regulation     - Reporting misuse     - Workstation assessments   After students have had time to discuss in their groups, ask them to present their thoughts to the class. Once students have presented to the class, move on to show slides 9–13 to see some suggestions for how each category can be implemented.  Follow the activity with a short discussion on the following questions:   * + What responsibilities should any organisation have in supporting staff in these areas:     - * Mental health awareness and support;       * Digital addiction, gambling, gaming, social media?   + Will staff be using systems at work that they have problems with outside of the workplace? |
| Activity 2: Practical example  Suggested time:  25 minutes  Resources:  L3 Slide deck 14–15  L3 Activity 2 alternative: Workstation assessments | This activity will require some planning prior to the lesson. You will need to set up at least two example workstations, and more if possible. One should be set up appropriately and another poorly set up with a desktop, and/or laptop computer.  The well set up workstation could have:   * + a wrist support;   + comfortable mouse position;   + clear screen;   + lack of glare from windows;   + adjustable screen position to meet eyeline;   + uncluttered desk with room to work;   + comfortable chair with back, height and tilt support;   + room to move around, no tripping wires or exposed plugs.   The poorly set up workstation can be one that includes one or multiple opposites of the examples above.  In groups, students should use the official HSE Display screen equipment (DSE) workstation checklist: <https://www.hse.gov.uk/pubns/ck1.pdf> and feedback thoughts through a class discussion.  Explain that these assessments must be done to support safe and appropriate working.  Show the HSE advice video “Workstation set up at home and in the office – good posture” as required: <https://youtu.be/liaBs1-Zz3I>  As an alternative to this practical activity, give students a copy of the L3 Activity 2 worksheet and ask them to explore the interactive 3D models of workstations using the suggested software on <https://sketchfab.com> If using this software for the first time, this will require setting up a free account including a username, password and supplying an email address. Note, the "Examples of 3D workstations” hyperlink on slide 14 allows the models to be viewed freely when clicked on. |
| Plenary  Suggested time:  15 minutes  Resources:  L3 Slide deck 16 | Close the lesson by returning the focus to the prevention of the negative psychological and physical impacts on our health. Ask the class these questions:   * + - As technology develops, what new negative impacts could there be?     - What advice would you give to someone starting a new job that is remote/home-based?   Summarise the lesson objectives using slide 16. |
| Follow-up / consolidation  Suggested time:  45 minutes  Resources:  None | As a follow-up piece of work to reinforce some ideas from this lesson, ask students to study their own working habits and workspace (at home or at their industry placement). Ask if there is anything they should change.  If students identify any issues with their workstation, they should discuss with their industry placement and follow the appropriate guidance/take appropriate steps to correct while working at their industry placement/home.  Students should prepare notes to feedback in the following lesson. |

# Lesson 4: Preparing for summative assessment of Culture and the impact of technology (R2.1, R2.2)

This lesson supports students to answer exam-style extended response study questions. The questions in this lesson cover the learning objectives from lessons 1–3. Students are shown how to analyse and break down each question and how to present their answer comprehensively.   
  
Prior learning of the topics covered for the whole topic area is very important so students have a strong grasp of key concepts. This lesson may be best interleaved in curriculum sequencing and used as part of the revision process, rather than directly after lessons 1–3 in this sequence.

## Preparation

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| Resources provided | L4 Teacher slide deck  L4 Activity 2: Company culture study question  L4 Activity 2: Answer notes and model answer  L4 Activity 3: Access to services study question  L4 Activity 3: Answer notes  L4 Study question 1 (consolidation)  L4 Study question 1 (consolidation): Answer notes  L4 Study question 2 (consolidation)  L4 Study question 2 (consolidation): Answer notes |
| Safety factors | Teachers and students are required to carry out their own risk assessments.  In group and presentation work, students will be moving around  the room. |
| Prior learning | To complete the activities within this lesson, teachers may wish to set revision of Lessons 1–3 before the lesson.  Students should have at least some knowledge of workplace culture, digital working and automated operation prior to completing the study questions. These topics have been delivered in Lessons 1–3 of this teaching sequence on Route Core Element 2 – Culture: Culture and the impact of technology.  Students should be confident in recalling or referring to prior learning covered in Lessons 1–3.  Students should be confident in identifying incorrect information relating to this topic area. |
| Common misconceptions | Exam questions are written to try and catch you out.  You can be asked things you haven’t been taught.  From Lesson 1:  Morals and ethics are the same thing.  All workplaces have the same culture.  Workplace culture isn’t that important to the daily lives of employees.  Employment rules are perceived as just guidance rather than real rules not to be broken.  From Lesson 2:  Their own internet use is fairly private.  Others don’t access or use their data.  Consent is needed to take photos of people in public spaces.  From Lesson 3:  We cannot come to any harm from using computers.  We just must accept that people can be mean online.  It is easy working from home. |

## Activity guide

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| **Introduction**  SUGGESTED TIME:  5 minutes  RESOURCES:  L4 slide deck 1–2 | Outline the key themes of the slide deck as learning objectives for  the lesson.  Introduce a headline overview of the types of questions and related marks that could appear on Paper A, which include 12-mark questions. You can refer students to the Specimen Assessment Materials (SAMs) on the NCFE website:   * + <https://www.ncfe.org.uk/qualification-search/qualification-detail/t-level-technical-qualification-in-digital-business-services-level-3-delivered-b-1270>   + Click on Assessment Materials tab   Students will look at the structure of a 12-mark question in the format of Paper A and apply this to answering questions based on Lessons 1–3 in this teaching sequence on the technological impact on culture (individuals, organisations and society).   * + The costs and benefits of digital expansion   + Digital technology has changed our world   + The impact of digital technology on our health   Remind students that many of the topics in this lesson are evolving, and employers, education providers and governments are constantly reviewing updates and their practices. |
| **Activity 1: Class discussion about summative assessment**  Suggested time:  10 minutes  Resources:  L4 slide deck 3 | Class discussion: Ask students the question displayed on slide 3: “How can we prepare for summative assessments?”  Start the discussion with student suggestions first on how to approach a longer exam question before moving on to the next slides which show a study question.  Some potential responses from students may include revision, topic tests and exam preparation. Consolidate any gaps in knowledge. |
| **Activity 2: Annotate and discuss a question**  Suggested time:  30 minutes  Resources:  L4 slide deck  4–11  Activity 2: Company culture study question  Activity 2: Answer notes and model answer | Hand out Activity 2: Company culture study question and show the question on slide 4.  Group students into pairs. Ask them to annotate the study question. They should identify the command verb and explain its meaning; and find any keywords that would help them write their response.  After students have had time to annotate the question, discuss as a class. Ask each pair to give an example of what they highlighted and why. These could be annotated on an interactive whiteboard (if available). Fill in any gaps in knowledge, or additional points not discussed, using slide 5 for guidance. Slide 6 summarises the main areas of the question to focus on in the answer.  At this point you may choose to ask students to write a response to this question or move straight to the next step, depending on the scaffolding needed for your group.  Handout Activity 2: Answer notes and model answer.  Note that with each theme picked out in the question, there are both positive and negative impacts. Students should always consider both in their answers when asked to ‘Evaluate’.  A general mark scheme explaining the different levels of answer is shown on slides 7–8 and the criteria for QWC (quality of written communication) marks is given on slide 9.  Discuss the differences between answer bands 1–4, referring to the model answer in the handout. Explain how the Band 4 model answer meets the criteria for 12 marks, and how important the clarity and accuracy of the writing is for the 3 QWC marks. Slide 10 summarises the band and QWC mark criteria.  Remind students that this is not a real exam question, but one in the right style, and the same skills and technique could be applied to any 12-mark question on any topic.  Show slide 11, which highlights some key points when answering any exam question. |
| **Activity 3: Study question peer marking**  Suggested time:  30 minutes  Resources:  L4 slide deck 12  L4 Activity 3: Access to services study question  L4 Activity 3: Answer notes | Students will now apply their learning to another question under exam conditions and undertake peer marking.  Hand out a copy of the Activity 3: Access to services study question worksheet to each student. The question is also presented on slide 12.  Allow students 15 minutes under exam-style conditions to answer the question, asking students to write their responses on the Activity 3 worksheet. Adapt the timing as required for your class, including if students have specific exam arrangements. Remind students about the key points on slide 11 and the Band expectations on slides 7–10, and their learning from the last activity. Reiterate the importance of annotating the question initially to ensure their responses suitably answer the question(s) being asked.  Once all students have written their answers, hand out Activity 3: Answer notes. Talk through the breakdown of the key elements that could form part of a Band 4 answer. Explain that the wording in the answer notes is suggested: wording in answers will vary, but the key points need to be covered to achieve the marks.  Ask students to swap answers and peer assess using the Activity 3:  Answer notes.  Suggest students do not just read out answers and ask, *“How many marks is this worth?”* Encourage students to pick out the key points needed in the model answer and identify whether these are covered in the answers they are marking. Teachers may choose to check the peer assessments of students to ensure the correct marks have been allocated.  Students may ask how their exams are marked by the awarding body. Explain about examiner mark schemes and moderation, and you can also signpost students to the awarding body website for further details.  Clarify any further questions from students on the question/topic area. Finally, students should identify any gaps in knowledge, or where they have not acquired Band 4 marks for this question and add this to their revision plans. |
| **Activity 4: Key principles checklist**  Suggested time:  10 minutes  Resources:  L4 slide deck 13 | As a class, develop a checklist of the key principles to follow when answering extended response questions. Teachers may allocate one student to collate the responses and they could type up during this discussion, sharing with peers on completion of the task, or sending to the teacher to quality assure before disseminating to the group.  Ask students to self-evaluate their confidence levels for each point on the checklist. This will give them a record of where they need to improve and seek support. They should revisit this checklist throughout the course and during their revision.  Any gaps in learning should be noted on an individual basis and revisited appropriately, either individually, through class revision,  or both. |
| **Plenary**  Suggested time:  5 minutes  Resources:  L4 slide deck 14 | Summarise what was covered in this lesson by revisiting the learning objectives on slide 14.  Close the topic with a quick summary of the content covered, what students enjoyed, and what elements they need to follow-up in their learning and whilst in their industry placements. |
| **Follow-up/ consolidation**  Suggested time:  30 minutes  Resources:  L4 slide deck 15  L4 Additional study question 1 (consolidation)  L4 Additional study question 1 (consolidation) answer notes  L4 Additional study question 2 (consolidation)  L4 Additional study question 2 (consolidation) answer notes | Additional study questions 1 and 2 (consolidation) are provided as extra questions for completion in students’ own time.  For each question, students should set aside 15 minutes, and peer- or self-assess based on the answer notes provided.  Students can also look at the Specimen Assessment Materials (SAMs) available on the NCFE website for revision and practice.  Ask students to feedback how they did in a subsequent lesson and support them in revisiting any areas of this topic not yet fully understood.  Teachers may choose to use these study questions in subsequent lessons instead if this is useful. |

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| Teacher Guide page 2 | <https://www.qualhub.co.uk/qualification-search/qualification-detail/t-level-technical-qualification-in-digital-business-services-level-3-delivered-b-5033#SupportMaterials> | NCFE | May 2024 |
| Teacher Guide page 2 | [www.technicaleducationnetworks.org.uk](http://www.technicaleducationnetworks.org.uk) | Technical Education Networks | May 2024 |
| Teacher Guide page 4 | <https://support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students> | GOV UK | May 2024 |
| Teacher Guide page 5 | [https://www.computerweekly.com](https://www.computerweekly.com/) | Computer Weekly | May 2024 |
| Teacher Guide page 5 | <https://www.theguardian.com/uk/technology> | Guardian News & Media Limited | May 2024 |
| Teacher Guide page 5 | <https://www.bbc.co.uk/news/technology> (with permission) | BBC | May 2024 |
| Teacher Guide page 5 | [https://www.computerweekly.com/opinion/Reimagining-Ethical-Digital-Technology](https://www.computerweekly.com/opinion/Reimagining-Ethical-Digital-Technology%20) | Computer Weekly | May 2024 |
| Teacher Guide page 5 | <https://www.acm.org/code-of-ethics> (with permission) | Association for Computer Machinery | May 2024 |
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| Teacher Guide page 18 | <https://digital.nhs.uk/blog/transformation-blog/2022/expanding-online-consultations-in-the-nhs-app> | NHS England | May 2024 |
| Teacher Guide page 18 | <https://digital.nhs.uk/news/2023/health-staff-switching-to-improved-nhs-patient-record-service> | NHS England | May 2024 |
| Teacher Guide page 22, Lesson 3 Slide 15 | <https://www.hse.gov.uk/pubns/ck1.pdf> | GOV UK | May 2024 |
| Teacher Guide page 22, Lesson 3 Slide 15 | <https://youtu.be/liaBs1-Zz3I> | HSE | May 2024 |
| Teacher Guide page 22 | [https://sketchfab.com](https://sketchfab.com/)  (with permission) | SketchFab. Inc | May 2024 |
| Teacher Guide page 25, Lesson 4 Slide 2 | <https://www.ncfe.org.uk/qualification-search/qualification-detail/t-level-technical-qualification-in-digital-business-services-level-3-delivered-b-1270> | NCFE | May 2024 |
| Lesson 1 Slide 27 | <https://www.youtube.com/watch?v=skG3okhx2TU> (with permission) | BBC | May 2024 |
| Lesson 1 Slide 28, Lesson 1 Activity 3 | <https://velindre.nhs.wales/news/latest-news/velindre-cancer-centre-launches-artificial-intelligence-chatbot-rita1/> | NHS Wales | May 2024 |
| Lesson 1 Slide 28, Lesson 1 Activity 3 | <https://www.mini.co.uk/en_GB/home/why-mini/mini-uk-production.html> | BMW/Mini | May 2024 |
| Lesson 1 Slide 28, Lesson 1 Activity 3 | <https://www.alstom.com/autonomous-mobility-future-rail-automated> | ALSTOM | May 2024 |
| Lesson 1 Activity 2 | [https://mesma.co.uk](https://mesma.co.uk/) | Mesma | May 2024 |
| Lesson 1 Slide 27 | <https://www.youtube.com/watch?v=gWmRkYsLzB4> | TED | May 2024 |
| Lesson 2 Activity 1 | [http://www.google.com/settings/ads/](https://www.google.com/url?q=http://www.google.com/settings/ads/&sa=D&source=docs&ust=1691924587340493&usg=AOvVaw0x6qQRip_-Cqcj5UNv0BD3) | Google | May 2024 |
| Lesson 3 Activity 2 alternative | <https://sketchfab.com/3d-models/litewall-evolve-6p-workstation-f40d2a1279de442992a2aaa537bedcee> (with permission) | SketchFab | May 2024 |
| Lesson 3 Activity 2 alternative | <https://sketchfab.com/3d-models/pc-workstation-057fbc5dbdc4475f888573ea606d389b> (with permission) | Sketch Fab | May 2024 |
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