Supporting Technical Education Teaching:

**Curriculum Resources**

Teaching Guide

Topic: Emerging issues and
impact of digital

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| Route | Digital |
| Qualification | T Level Technical Qualification in Digital Production, Design and Development (delivered by Pearson)<https://qualifications.pearson.com/en/qualifications/t-levels/digital-production-design-and-development.html> |
| Topic | Emerging issues and impact of digital |
| Specification coverage | Content area 3: Emerging issues and impact of digital |

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 the 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.

Acknowledgements

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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.

Materials for other topics are available at [www.technicaleducationnetworks.org.uk](http://www.technicaleducationnetworks.org.uk)

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Introduction

This document for teachers outlines both 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 any digital industry, how technology impacts our social and working lives, including how businesses interact with their users and customers. 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 increased its importance for employers and employees.

The exciting world of artificial and virtual reality, and artificial intelligence is moving fast. Organisations are looking for ways to take advantage of these technologies but also need to consider their 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. Lesson 4 is intended to be delivered at the end of the sequence: it provides guidance and practice of how to answer longer answer study questions relating to the broad topic content – the content of this lesson could be delivered in the sequence as a revision session or to support self-study.

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 can be for students to look for these policies 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

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 with our daily lives and reshapes industries, nurturing a supportive and adaptable work environment has become paramount.

Progressive workplace cultures accommodate the evolving demands of digitalisation but also encourage collaboration, continuous learning and open communication. These values and actions can propel both personal growth and collective advancement.

We have had to extend our definition of a moral and ethical member of society to fit the online world, setting rules about how we communicate using social networks and how we make the right choices when the Internet provides opportunities and moral challenges.

The impact of digital technology on the planet is a societal issue, not just the responsibility of organisations and their customers. Industries that have embraced digital technology, including health, banking, gaming, shopping and utility suppliers, must be aware of the moral and ethical issues linked to their industries and the potential risks of technology use.

Employers need to consider the policies they set and the support they offer to employees, including ways and locations of working. The management of technology, energy and digital resources needs to be considered by employers and employees, with the impact on users and customers being central to all decisions.

“Morals and ethics are important because of the nature of what we do. We often talk of ourselves as a people-focussed business that happens to deal in technology, so the integrity with which we go about our business is incredibly important.”

**Louise Doyle, CEO MESMA**

## Industry links

* Computer weekly website, articles on many of the topics discussed: [www.computerweekly.com](http://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, articles on many of the topics discussed:
[www.bbc.co.uk/news/technology](http://www.bbc.co.uk/news/technology)
* United Nations e-waste articles: [news.un.org/en/tags/e-waste](https://news.un.org/en/tags/e-waste)
* World Health Organisation e-waste report:
[www.who.int/publications/i/item/9789240023901](http://www.who.int/publications/i/item/9789240023901)
* Reimagining ethical digital technology – article by Simon Rogerson:
[www.computerweekly.com/opinion/Reimagining-Ethical-Digital-Technology](http://www.computerweekly.com/opinion/Reimagining-Ethical-Digital-Technology)
* An example of a professional code of ethics: [www.acm.org/code-of-ethics](http://www.acm.org/code-of-ethics)
* Health and Safety Executive – workplace guidance: [www.hse.gov.uk/guidance/index.htm](http://www.hse.gov.uk/guidance/index.htm)
* UK Government whistle blowing guidance: [www.gov.uk/whistleblowing](http://www.gov.uk/whistleblowing)
* BCS code of conduct: [www.bcs.org/membership-and-registrations/become-a-member/bcs-code-of-conduct/](http://www.bcs.org/membership-and-registrations/become-a-member/bcs-code-of-conduct/)
* BCS Computing in society articles: [www.bcs.org/articles-opinion-and-research/computing-in-society/](http://www.bcs.org/articles-opinion-and-research/computing-in-society/)
* Ethical issues in technology: [connect.comptia.org/blog/ethical-issues-in-technology](https://connect.comptia.org/blog/ethical-issues-in-technology)
* Ethical and moral principles for digital transformation: [www.consultancy.uk/news/16602/the-top-five-ethical-moral-principles-for-digital-transformation](http://www.consultancy.uk/news/16602/the-top-five-ethical-moral-principles-for-digital-transformation)
* UK Government artificial intelligence guidance:
[www.gov.uk/business-and-industry/artificial-intelligence](http://www.gov.uk/business-and-industry/artificial-intelligence)
* The potential of AR and VR (business news article): [www.business.com/articles/virtual-reality-changing-manufacturing/](https://www.business.com/articles/virtual-reality-changing-manufacturing/)
* DataReportal website – collates and analyses worldwide digital data on a range of sources: [datareportal.com/](https://datareportal.com/)

## Prior learning

Students do not require any specific prior knowledge before studying this topic, however, teachers will want to explore the depth of existing knowledge beforehand. Whilst the content of this series of lessons is unlikely to have been met by students at GCSE, students who have studied technical programmes previously 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 | General competencies | Links to other specification content |
| 1 | Students will be able to:* Learn about the evolving nature of technology and how this impacts on moral and ethical issues
* Understand the environmental impacts of technology
* Understand what is meant by globalisation and autonomous operation
* Learn about open-source software and Creative Commons licenses and how they are used
* Describe what is meant by the digital divide
 | **3.1 Moral and ethical issues****3.1.1** Understand the ethical and moral issues that an increasing reliance on technology raises, and how organisations and individuals can respond to these challenges:* acceptable use
* autonomous operation
* changes in societal norms and the behaviour of individuals
* changes in the culture within an organisation
* environmental issues
* globalisation
* inclusion and diversity
* monitoring of employees
* open source and Creative Commons
* the collection and use of data
* unequal access to technology and/or digital services.
 | English:**E2** Present information and ideas**E4** Summarise information/ideas**E5** Synthesise informationDigital:**D5** Be safe and responsible online | **3.1.2** Understand how organisations and individuals respond to ethical and moral issues when designing and developing digital systems.**3.2.1** Understand how developments in digital technologies impact on organisations, individuals and society. |

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| 2 | Students will be able to:* Understand how a workplace defines its culture
* Understand what is included in the code of conduct document
* Understand what is included in external professional guidelines and internal policy documents
* Understand what whistleblowing is and in what circumstances it can happen
* Understand what is meant by strategic planning
* Understand what is meant by situational awareness and how to respond to changes in behaviour
 | **3.1 Moral and ethical issues****3.1.2** Understand how organisations and individuals respond to ethical and moral issues when designing and developing digital systems, including: * use of guidelines from professional organisations
* strategic planning and decisions
* the content of internal policy documents
* company culture and how this is established, communicated and sustained
* whistleblowing.

**3.1.3** Understand how individuals use a range of observational techniques to inform situational awareness:* observing normal behaviour
* awareness of co-workers
* recognising changing or abnormal behaviour
 | English:**E2** Present information and ideas**E4** Summarise information/ideas**E5** Synthesise informationDigital:**D5** Be safe and responsible online | **3.1.1** Understand the ethical and moral issues that an increasing reliance on technology raises, and how organisations and individuals can respond to these challenges.**4.1** Understand the role of current legislation and its impact on the design, development and use of digital |

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| 3 | Students will be able to:* Understand what is meant by the ‘Internet of Things’
* Understand what AR and VR is, and be able to explain the differences between them
* Describe the impacts of AR and VR
* Understand what AI is
* Describe the impacts of AI
 | **3.2 Emerging trends and technologies****3.2.1** Understand how developments in digital technologies impact on organisations, individuals and society, including:* Internet of Things (IoT)
* Artificial intelligence (AI), machine learning and deep learning
* Augmented Reality (AR) and Virtual Reality (VR).
 | English:**E2** Present information and ideas**E4** Summarise information/ideas**E5** Synthesise informationDigital:**D1** Use digital technology and media effectively | **3.2.1** Understand how developments in digital technologies impact on organisations, individuals and society **6.1.3** Understand how data is generated |

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| 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.
 | **3.1 Moral and ethical issues****3.1.1** Understand the ethical and moral issues that an increasing reliance on technology raises, and how organisations and individuals can respond to these challenges**3.1.2** Understand how organisations and individuals respond to ethical and moral issues when designing and developing digital systems**3.1.3** Understand how individuals use a range of observational techniques to inform situational awareness**3.2 Emerging trends and technologies****3.2.1** Understand how developments in digital technologies impact on organisations, individuals and society | English:**E2** Present information and ideas**E4** Summarise information/ideas**E5** Synthesise informationDigital:**D3** Communicate and collaborate | **4.1** Understand the role of current legislation and its impact on the design, development and use of digital**6.1.3** Understand how data is generated |

Lesson guidance

# Lesson 1: The ethical and moral challenges of digital expansion (3.1.1)

This lesson introduces the ethical and moral issues relating to the increasing reliance on technology. Analysis of ethical and moral issues in the workplace will also be introduced for students as part of the preparation for their industry placement. The topics of autonomous and environmental working may also be linked to a student’s placement as their workplace experience grows.

If needed, this lesson could be split into two – the first part covering the workplace today and ethical access; the second covering worldwide issues.

## Preparation

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| --- | --- |
| Resources provided | L1 Slide deckActivity 2 – L1 Activity 2 Worksheet Activity 4 – L1 Activity 4 WorksheetL1 Plenary – Study questions L1 Plenary – Mark scheme |
| Equipment needed | 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 be confident researching reliable online information. |
| Common misconceptions | Personal internet use is always private and not shared without consent.Personal data is not used for development and marketing purposes. Internet content has no copyright.Morals and ethics are the same thing. |

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| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.Consider 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 large groups, the class could be split into smaller groups for feedback presentations. Alternatively, students could present findings in different formats, such as online videos or blogs, for other students to watch/read. |

## Activity guide

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| IntroductionSUGGESTED TIME: 5 minutesRESOURCES: * L1 slide 2
 | * Use the slide deck as a guide to summarise what will be covered in the lesson.

If students have already started their placement, ask if any of them have been told about any moral or ethical guidelines at their organisation.Explain that many of the concepts explored in this lesson are evolving and are linked to new technologies and their uses in society.  |
| Activity 1: Class discussionSuggested time: 10 minutesResources: L1 slide 3 | Class discussion: What do we mean by morals and ethics?Prompt, discuss and swap definitions. Ensure all students agree and are confident of the definitions:* 1. Morals: what we believe as a society to be right and wrong.
	2. Ethics: the standards, principles or rules that govern our behaviour.

Play the video on slide 3. It shows responses from Sam Moylan-Heydt (Corporate Social Responsibility (CSR) Programme Manager and 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). In the discussion, include a comparison of the considerations 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.
 |
| Activity 2: Research and present: Case studiesSuggested time: 15 minutes for slides15 minutes for activityResources: L1 slides 4–18L1 Activity 2 Worksheet | Use the slide deck to give an introduction to the workplace of today compared with 30 years ago, covering:* 1. changes in society and to individuals;
	2. inclusivity and diversity;
	3. changes in the culture of working;
	4. acceptable use;
	5. monitoring of employees;
	6. how users and customers are served or supplied.

Introduce Activity 2: Research and present task using the worksheet. Students will consider two popular organisations – Google and X (Twitter). This supports the application of learning to industry contexts.1. Allow students to work in pairs, with half the class on each organisation.
2. Using the five questions in the worksheet, students make notes using their own knowledge and internet research.
3. Pairs are asked to prepare a presentation (verbally or electronically) to deliver and discuss with the class. If there is not time for all groups to make their presentation, choose a selection and make sure to choose different presenters in other activities.
 |
| Activity 3: Class discussion: SustainabilitySuggested time: 15 minutesResources: L1 slides 19–25 | Use the slide deck to give a theory introduction to worldwide issues such as: * 1. environmental issues:
		+ energy use;
		+ switching to renewable energy;
		+ reducing e-waste;
	2. globalisation;
	3. autonomous operation.

Play the video on slide 25. This covers some examples of how digital organisations are considering sustainability in their working practices and changes to their culture they are making in the future relating to this. If the video on slide 3 (An introduction to organisational culture) has been played earlier in the lesson, you may want to begin this lesson at 0:17 after the introduction of the two organisations.As a class, discuss the themes in the video. Students can learn more about the Ellen MacArthur foundation and the circular economy here: [ellenmacarthurfoundation.org/](https://ellenmacarthurfoundation.org/), and they can read about scopes 1, 2, 3 here: [www.nationalgrid.com/stories/energy-explained/what-are-scope-1-2-3-carbon-emissions](http://www.nationalgrid.com/stories/energy-explained/what-are-scope-1-2-3-carbon-emissions) |
| Activity 4: Discuss and respond: Data access and privacySuggested time: 20 minutesResources: L1 slides 26–32L1 Activity 4 Worksheet | Use the slide deck to give a theory introduction to the following worldwide issues:* 1. open-source software and Creative Commons;
	2. collection and use of data;
	3. unequal access to technology and services (digital divide).

Students can read more about the issues around privacy and surveillance here:* 1. UN Article on Spyware and surveillance:[www.ohchr.org/en/press-releases/2022/09/spyware-and-surveillance-threats-privacy-and-human-rights-growing-un-report](http://www.ohchr.org/en/press-releases/2022/09/spyware-and-surveillance-threats-privacy-and-human-rights-growing-un-report)
	2. British Library Article – Privacy in the digital age:[www.bl.uk/my-digital-rights/articles/the-right-to-privacy-online](http://www.bl.uk/my-digital-rights/articles/the-right-to-privacy-online)

Introduce Activity 4: Discuss and respond task and sort students into groups. 1. Ask each group to develop an argument, either for or against, the statements provided.
2. There is no specific answer to the three questions: they are designed to provoke discussion and further thinking.
3. Prompt students to give explanations for their choices and look for common answers.
 |
| PlenarySuggested time: 10 minutesResources: L1 slides 33–44L1 Plenary: study questionsL1 Plenary questions mark scheme | The two sets of plenary questions test some key terms and themes discussed during the lesson.Retrieval questions are presented on slides 33–42 for use as a whole class. Challenge any misconceptions or misunderstandings when running through the questions.Study questions are for students to complete after the lesson or in a revision session. Answers are provided separately so students can mark their own answers individually or in groups, or as a whole-class activity.Use slides 43 and 44 to summarise what has been covered in the lesson and to introduce what students will learn in the next lesson. |
| Follow-up/ consolidationSuggested time: 30–45 minutesResources: None | As a follow-up, to reinforce learning in the lesson, ask students to read the following articles, and write five evaluative bullet points about each.1. State links to smartphone app data: [www.theguardian.com/technology/2022/nov/07/tiktoks-china-bytedance-data-concerns](http://www.theguardian.com/technology/2022/nov/07/tiktoks-china-bytedance-data-concerns)
2. The ethics of testing autonomous cars on our roads: [www.makeuseof.com/tesla-full-self-driving-beta-tested-public-roads/](http://www.makeuseof.com/tesla-full-self-driving-beta-tested-public-roads/)
3. Automated smartphone recycling (BBC News): [www.youtube.com/watch?v=mFc80PhnU7w](http://www.youtube.com/watch?v=mFc80PhnU7w)

Students should bring their notes to the start of the next lesson and be prepared to talk in a quick-fire question and answer about their evaluations. |

# Lesson 2: Designing systems that reflect society and situational awareness (3.1.2, 3.1.3)

This lesson continues the focus on ethical and moral issues in the workplace through the study of how organisations are establishing internal and external guidelines. Policies and guidelines around the working day, health and safety, and workplace behaviour will be experienced by students during their industry placement.

## Preparation

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| Resources provided | L2 Slide deckActivity 2 – L2 Activity 2 WorksheetActivity 3 – L2 Activity 3 Worksheet |
| Equipment needed | 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 2 as an independent or group task prior to the lesson.Students should be confident in researching for reliable online information. |
| Common misconceptions | All workplaces have the same culture and it is not important to the daily lives of employees.Whistleblowing is only for dangerous or illegal activities.Employment rules are perceived as just guidance to refer to, rather than real rules not to be broken.It is not the employee’s responsibility to observe others. |
| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.Consider 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.The class could be split into smaller groups for presentations. Alternatively, students could present findings in different formats, such as online videos or blogs, for other students to watch/read. |

## Activity guide

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| IntroductionSUGGESTED TIME: 5 minutesRESOURCES: L2 slide 2  | Use the slide deck to summarise what will be covered in the lesson.If students have already started their industry placement, ask if any of them have been told about the workplace culture.If students have not started their industry placement, encourage them to ask their employer about their culture that may include core values, beliefs and/ or expectations. This may include links to where this information is found on their website as an example.Explain that many of the concepts in this lesson are evolving, and organisations should seek to ensure they are properly supporting employees and have all important guidelines in place. |
| Activity 1: Class discussionSuggested time: 10 minutesResources: L2 slides 3–6 | Begin a class discussion to ascertain the starting point for students’ knowledge on workplace culture: What do we mean by workplace culture? Prompt, discuss and swap definitions and examples. Ensure all students agree and are confident with a definition, such as:* 1. Workplace culture: How an organisation shares its values, beliefs and expectations with all stakeholders.

Prompt students to think about how workplace culture affects the organisation’s users and customers. Use the AI tools suggested to see what responses they give for a definition of workplace culture and discuss how this compares with the ideas the class suggested. |
| Activity 2: Research and present: Case studiesSuggested time: 15 minutes for slides25 minutes for activityResources: L2 slides 7–15L2 Activity 2 Worksheet | Use the slide deck to give a theoretical introduction to how organisations implement: * 1. external professional guidelines;
	2. internal policy documents;
	3. whistleblowing;
	4. strategic planning decisions.

To understand code of conduct documents in a more tangible way, share and discuss some examples:* 1. BBC Code of conduct: [www.bbc.com/aboutthebbc/reports/policies/codeofconduct](http://www.bbc.com/aboutthebbc/reports/policies/codeofconduct)
	2. Fujitsu Code of conduct:[www.fujitsu.com/global/about/philosophy/codeofconduct/](https://www.fujitsu.com/global/about/philosophy/codeofconduct/)

Whistleblowing can have a positive impact when a company responds to the issue and carries out effective positive change. Students can review some additional articles on this either in the lesson or after:* 1. [www.nytimes.com/2016/12/16/business/whistle-blowers-corporate.html](http://www.nytimes.com/2016/12/16/business/whistle-blowers-corporate.html)
	2. [www.theguardian.com/world/2018/oct/09/i-had-a-moral-duty-whistleblowers-on-why-they-spoke-up](http://www.theguardian.com/world/2018/oct/09/i-had-a-moral-duty-whistleblowers-on-why-they-spoke-up)

Slide 11 presents two examples of whistleblowing from the last decade. You could ask students to research these examples and see if they can find other examples from other organisations.Students will now consider two organisations and how they have implemented procedures to meet workplace changes. This will enable them to apply their learning to real businesses:* 1. Organisation 1: Cisco (this organisation is represented in the interviews)
	2. Organisation 2: Microsoft

Sort students into small groups with half the class working on each organisation. They should use the questions and the links provided as a starting point for their research.Once students have had time to research their organisations, begin a class discussion. Ask students:* 1. Describe an example of how the organisation is responding to an external professional guideline.
	2. How does the organisation describe their response to:
		+ health and safety requirements;
		+ equality;
		+ whistleblowing?
	3. Are there examples of guidelines or policies covered in the lesson that you cannot easily find?
 |
| Activity 3: Review and discuss: Potential real-life scenariosSuggested time: 30 minutesResources: L2 slides 16–21L2 Activity 3 Worksheet: Review and discuss | Use the slide deck to introduce the idea of situational awareness and normal and abnormal behaviour.Play the interview video on slide 20. It shows responses from Sam Moylan Heydt (CSR Programme Manager at Cisco) and Lou Doyle (CEO at Mesma) who discuss how their organisations support employees in the workplace including with their physical and mental health.Students will consider two different workplace scenarios. They are designed to be starting points to prompt discussion. A naturally occurring link to safeguarding could be made here together with the process students should follow when identifying abnormal behaviour in college or their industry placement.Allow students to work in pairs with half the class on each scenario.Once students have had time to review and discuss the scenarios in their pairs, begin a class discussion. Ask students:* 1. What has the co-worker spotted?
	2. What might it be related to?
	3. What should be the next steps?
 |
| PlenarySuggested time: 5 minutesResources: L2 slides 22–23Refer to Activity 2 websites | Close the lesson by bringing the focus back to digital technology, ask the following questions:* 1. What are the benefits of digital technology when organisations need to ensure all required guidelines and policies are in place?
	2. What are the benefits and drawbacks of organisational/systems-wide digital technology when considering employee happiness and satisfaction?
	3. How does all of this impact on how the organisation treats its users and customers?

Use slides 22 and 23 to summarise what has been covered in the lesson and to introduce what students will learn in the next lesson. |
| Follow-up/ consolidationSuggested time: 30–45 minutesResources: None | As a follow-up piece of work, ask students to collect evidence on some of the policies discussed in the lesson from their industry placement. Students should prepare notes on the policies to feed back to the class. They should include: * 1. website links or copies of internal documents (where these are permitted to be shared);
	2. how the policies are shared in their workplace;
	3. how employees are made aware of them;
	4. their personal view on how effective the policies are in the workplace, based on their workplace experience.
 |

# Lesson 3: Moving through a digital age (3.2.1)

This lesson moves on to look at the latest technological innovations and the impacts they are already having on our world. Many of these technologies will already be a part of students’ life experiences and they will have first-hand knowledge of them. Society, individuals and organisations are trying to catch up with these developments and take full advantage of what they offer, whilst being aware of the potential dangers.

## Preparation

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| Resources provided | L3 Slide deckActivity 2 – L3 Activity 2 WorksheetActivity 3 – L3 Activity 3 WorksheetActivity 4 – L3 Activity 4 Worksheet |
| Equipment needed | Internet access for classroom activitiesAR and VR software and hardware, if available |
| 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 and a review of some of the suggested links as an independent or group task prior to or after the lesson.Students should be confident in researching for reliable online information.Students should also be confident in identifying incorrect information. |
| Common misconceptions | The ‘Internet of Things’ just means smart speakers in our homes.AR and VR are just used in gaming.There are rules governing artificial intelligence use around the world. (As of Summer 2023, regulations have been set in China and rules are still being confirmed in the EU.) |
| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.Consider 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 large groups, the class could be split into smaller groups for feedback presentations. Alternatively, students could present findings in different formats, such as online videos or blogs, for other students to watch/read. |

## Activity guide

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| IntroductionSUGGESTED TIME: 5 minutesRESOURCES: L3 slide 2  | Outline the key themes of the slide deck as learning objectives for the lesson. Students will learn about, discuss, research and present work covering:* 1. the Internet of Things (IoT);
	2. augmented reality (AR) and virtual reality (VR);
	3. artificial intelligence (AI).

Explain to students that many of the concepts explored in this lesson are evolving, and employers, schools and governments are working to catch up, particularly for AI  |
| Activity 1: Class discussionSuggested time: 5 minutesResources: L3 slides 3–4 | Class discussion: Show slide 3 and ask students the question on the slide: ‘Where can we find access to the internet in our homes?’.This discussion could be undertaken with each student providing an individual response. Ask the question to one student to start at first, and when they have responded, they pass a ball (or similar) to a peer to provide a different answer, and so on until the group cannot think of any more distinct suggestions.Give students a couple of minutes to discuss in pairs.Ask for suggestions and continue until the class has run out of examples (prompt as required), which might include smart devices (household and wearable), workplace equipment, security systems, energy displays. |
| Activity 2: Research and present: IoT examplesSuggested time: 25 minutesResources: L3 slides 5–7L3 Activity 2 Worksheet | Us the slide deck to give a theory introduction to the concept of the Internet of Things (IoT), including the video on slide 5.Students will now consider three examples of how internet connectivity is being embedded across different industries such as:* 1. manufacturing;
	2. the modern workplace;
	3. home security.

Split students into small groups to study one of the three industry areas and ask them to find answers to the questions in the worksheet.Use the questions in the worksheet as a starting point for discussions. The links can be used to provide additional discussion support. |
| Activity 3: Discussion: AR and VR statementsSuggested time: 25 minutesResources: L3 slides 8–17L3 Activity 3 Worksheet | As there is a lot of content in this section, you may wish to set some work prior to or after the lesson for group or independent study.Slides 8–17 suggest an approach to teaching the content of this section. There are a number of suggested external links so it is important that you review these and make decisions about how much of these and when to introduce them, based on your knowledge of your students. **Note:** the links and products shown in slides may need replacing in the near future with more recent versions.Use slide 9 from the slide deck to introduce AR and VR, and show the clips from the suggested videos covering:* 1. What is AR?
	2. What is VR?
	3. The impacts of them both on our lives.

If you have access to the equipment, this is an opportunity for students to use some VR/AR equipment and explore the differences in a practical way. Google Cardboard can be used for a free VR experience. SketchFab includes free AR models (requires a login). The Apple website has a dedicated AR page:* 1. <https://sketchfab.com>
	2. <https://www.apple.com/uk/augmented-reality>
	3. <https://arvr.google.com/cardboard/>

Some suggested links to support the AR learning on slide 11 are as follows but you could ask students to do their own research: * 1. Amazon virtual try-on product video can be viewed here: <https://www.youtube.com/watch?v=QA6MPibwImk>
	2. The GLA Building, City Hall, London is an example of a 3D model on Sketchfab.com

Some suggested links to research mixed reality on slide 14 are as follows but you could ask students to also do their own research: * 1. AppleVision Pro: <https://www.youtube.com/watch?v=IY4x85zqoJM>
	2. Google AR & VR: [arvr.google.com/](https://arvr.google.com/)
	3. Meta Quest: <https://youtu.be/5AKl_cEB26c>
	4. MetaVerse: <https://www.youtube.com/watch?v=L4pnQFLmHds>
	5. Microsoft Hololens: <https://www.youtube.com/watch?v=_xpI0JosYUk>

When discussing the threats of AR/VR on slide 16, students can review these articles covering these:* 1. [www.bbc.co.uk/news/uk-64734308](http://www.bbc.co.uk/news/uk-64734308)
	2. [usa.kaspersky.com/resource-center/threats/security-and-privacy-risks-of-ar-and-vr](https://usa.kaspersky.com/resource-center/threats/security-and-privacy-risks-of-ar-and-vr)

Print multiple copies of L3 Activity 3 Worksheet and cut out the cards.Ask students to work in pairs or small groups and provide each group with a set of cards. Ask students to read the statements on the cards and discuss them using these questions (which are also on the worksheet) as a starting point. They can carry out online research if time allows.* 1. Do you agree or disagree with the statement?
	2. Are there benefits to using the technology in this way?
	3. Are there benefits to using the technology in this way?

After students have had time to discuss in their groups, read each card aloud and discuss as a class. |
| Activity 4: Research and present: ChatGPTSuggested time: 25 minutesResources: L3 slides 18–24 L3 Activity 4 Worksheet | **Note**: the videos in this section may need replacing in the near future as the technology develops.Use the slide deck to introduce AI and LLMs (large language models), including the video clips covering:* 1. industry insight into the use of generative AI
	2. what is AI?;
	3. LLMs – the video suggested covers ChatGPT but you could also show videos about other products
	4. examples of how industries might potentially use generative AI;
	5. the impact of AI on our lives: opportunities and threats.

In the notes of slide 23, there is a video suggestion of Google CEO sharing his concerns about AI in a 60 Minutes video production: <https://youtu.be/MJs-1QxWCbI> - you may choose to show an alternative video or a more up-to-date article.Handout Activity 4 Worksheet. This includes the use of generative AI to create business content. 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 create login accounts to use these platforms.Allow students to work in small groups and either assign an industry similar to the ones discussed or one of the students’ own placement organisation.Students are tasked with creating a piece of content for this organisation using AI. Content examples are provided on the worksheet.After students have had time to research, invite each group to present their work to the class. |
| PlenarySuggested time: 5 minutesResources: L3 slides 25–29 | Retrieval questions are presented on slides 25–28 for use by the whole class. Challenge any misconceptions or misunderstandings when going through these two questions.Close the lesson by bringing the focus back to IoT, AR/VR, AI:* 1. Ask students where these three technologies are being used in the digital industries that they are completing their placements.
	2. To finish ask students “What are the benefits and drawbacks of using these systems?”

The final slide is a reminder of the objectives covered in the lesson. |
| Follow-up/ consolidationSuggested time: 30–45 minutesResources: None | As a follow up piece of work to reinforce some of the ideas, ask students to choose an industry they are interested in (this could be related to their placement) and describe a potential use for each of the following:* 1. IoT
	2. AR/VR
	3. AI

Students should prepare notes to feed back in the next lesson. |

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# Lesson 4: Preparing for summative assessment of ‘Emerging issues and impact of digital’ (3.1 and 3.2)

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.

Prior learning of the topics covered for the whole topic area is required to give students 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 deckL4 Activity 2: Company culture study questionL4 Activity 2: Answer notes and model answerL4 Activity 3: Access to services study questionL4 Activity 3: Answer notesL4 Additional study question 1 (consolidation)L4 Additional study question 1 (consolidation): Answer notesL4 Additional study question 2 (consolidation)L4 Additional study question 2 (consolidation): Answer notes |

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| Equipment needed | Internet access for classroom activities |

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| 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 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 Content Area 3: Emerging issues and impact of digital.Students should be confident in recalling or referring to prior learning covered in Lessons 1–3. Teachers may wish to set revision of Lessons 1–3 before the lesson.Students should be confident in identifying incorrect information. |
| Common misconceptions | Exam questions are written to try and catch you out.You can be asked things you have not been taught.From Lesson 1:Students’ own internet use is always private and not shared without their consent.Others do not use personal data for development and marketing.Internet content has no copyright.Morals and ethics are the same thing.From Lesson 2:All workplaces have the same culture and it is not that important to the daily lives of employees.Whistleblowing is only for dangerous or illegal activities.Employment rules are perceived as just guidance to refer to, rather than real rules not to be broken.It is not the employee’s responsibility to observe others.From Lesson 3: The ‘Internet of Things’ just means smart speakers in our homes.AR and VR are just used in gaming.There are rules governing artificial intelligence use around the world. (As of Summer 2023, regulations have been set in China and rules are still being confirmed in the EU.) |
| Accessibility | Seek to ensure wide representation for any visiting speakers and case studies used.Consider students’ potential lack of confidence in presenting. It is worth establishing the core principles of working in a collaborative manner, in a ‘safe space’, at this early stage of their learning.For large groups, the class could be split into smaller groups for feedback presentations. Alternatively, students could present findings in different formats, such as online videos or blogs, for other students to watch/read. |

## Activity guide

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| **Introduction**SUGGESTED TIME: 5 minutesRESOURCES: L4 slides 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 1, which include 12-mark questions. You can refer students to look at the Sample Assessment Materials (SAMs) on the Pearson website:<https://qualifications.pearson.com/en/qualifications/t-levels/digital-production-design-and-development.html>Students will look at the structure of a 12-mark question in the format of Paper 1 and apply this to answering study questions based on Lessons 1–3 in this teaching sequence on emerging issues and impact of digital:* 1. The ethical and moral challenges of digital expansion.
	2. Designing systems that reflect society and situational awareness.
	3. Moving through a digital age.

Remind students that many of the topics in this lesson are evolving, and employers, education providers and governments are constantly reviewing and updating their practice. |
| **Activity 1: Class discussion**SUGGESTED TIME: 10 minutesRESOURCES: L4 slide 3 | Ask students the question displayed on slide 3: “How can we prepare for summative assessments?”Start the discussion with student suggestions on how to approach a longer exam question, before moving on to the next slide which shows 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**SUGGESTED TIME: 30 minutesRESOURCES: L4 slides 4–9Activity 2: Company culture study questionActivity 2: Answer notes and model answer | Hand out Activity 2: Company culture study question and show the question on slide 4.To help with this activity, students could refer to the *Digital command taxonomy* that is available on Pearson’s specification webpage, in the ‘Teaching and learning materials’ section. 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.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 slide 7 with the key points on slide 8. Discuss the differences between answer levels 1–3, referring to the model answer in the handout. Explain how the Level 3 model answer meets the criteria for 12 marks, and how important the clarity and accuracy of the writing is for the highest marks.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 extended-response question on any topic. Show slide 9, which highlights some key points when answering any exam question. |
| **Activity 3: Access to services Study question**SUGGESTED TIME: 30 minutesRESOURCES: L4 slide 10L4 Activity 3: Access to services study questionL4 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 to each student. The question is also presented on slide 10.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. It may be useful for students with additional time to change the colour of their pen when the 15 minutes are up to determine how much extra they write in their allocated time. Other students should remain in exam conditions until all students have completed this task. Remind students about the key points on slide 9 and the Level expectations on slides 7–8, 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 Level 3 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. You 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 Level 3 marks for this question and add this to their revision plans. |
| **Activity 4: Key principles checklist**SUGGESTED TIME: 10 minutesRESOURCES: L4 slide 11 | 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 minutesRESOURCES: L4 slide 12 | Summarise what was covered in this lesson by revisiting the learning objectives on slide 12. Close the unit with a quick summary of the topics covered, what students enjoyed, and what elements they need to follow-up in their learning and whilst in their work placements. |
| **Follow-up/ consolidation**SUGGESTED TIME: 30 minutesRESOURCES: L4 slide 13L4 Additional study question 1 (consolidation)L4 Additional study question 1 (consolidation) answer notesL4 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. You may choose to use these study questions in subsequent lessons instead if this is useful.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 Sample Assessment Materials (SAMs) available on Pearson’s 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. |

Weblinks and resources

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| Location | Link (with permission if required) | Owner | Date last accessed |
| Teaching Guide page 2 and page 24 / Lesson 4 Slide 2, 6 | <https://qualifications.pearson.com/en/qualifications/t-levels/digital-production-design-and-development.html> | Pearson | January 2024 |
| Teaching Guide page 2  | [www.technicaleducationnetworks.org.uk](http://www.technicaleducationnetworks.org.uk/) | Gatsby Technical Education Projects | January 2024 |
| Teaching Guide page 4 | <https://support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students> | GOV UK | January 2024 |
| Teaching Guide page 5 | [https://www.computerweekly.com](https://www.computerweekly.com/)  | Computer Weekly | January 2024 |
| Teaching Guide page 5 | <https://www.theguardian.com/uk/technology> | The Guardian | January 2024 |
| Teaching Guide page 5 | <https://www.bbc.co.uk/news/technology> | BBC  | January 2024 |
| Teaching Guide page 5 | <https://news.un.org/en/tags/e-waste> | UN | January 2024 |
| Teaching Guide page 5 | <https://www.who.int/publications/i/item/9789240023901> | WHO | January 2024 |
| Teaching Guide page 5 | [www.acm.org/code-of-ethics](http://www.acm.org/code-of-ethics) | Association for Computer Machinery | January 2024 |
| Teaching Guide page 5 | [www.hse.gov.uk/guidance/index.htm](http://www.hse.gov.uk/guidance/index.htm) | HSE - GOV UK | January 2024 |
| Teaching Guide page 5 | <https://www.gov.uk/whistleblowing> | GOV UK | January 2024 |
| Teaching Guide page 6 | <https://www.bcs.org/membership-and-registrations/become-a-member/bcs-code-of-conduct/>[www.bcs.org/articles-opinion-and-research/computing-in-society/](http://www.bcs.org/articles-opinion-and-research/computing-in-society/) | BCS | January 2024 |
| Teaching Guide page 6 | <https://connect.comptia.org/blog/ethical-issues-in-technology> | Comptia | January 2024 |
| Teaching Guide page 6 | <https://www.consultancy.uk/news/16602/the-top-five-ethical-moral-principles-for-digital-transformation> | Consultancy UK | January 2024 |
| Teaching Guide page 6 | <https://www.gov.uk/business-and-industry/artificial-intelligence> | GOV UK | January 2024 |
| Teaching Guide page 6 | <https://www.business.com/articles/virtual-reality-changing-manufacturing/> | Business.com | January 2024 |
| Teaching Guide page 6 | [datareportal.com/](https://datareportal.com/) | DataReportal | January 2024 |
| Teaching Guide 12 | <https://ellenmacarthurfoundation.org/> | Ellen MacArthur Foundation | January 2024 |
| Teaching Guide page 12 | <https://www.nationalgrid.com/stories/energy-explained/what-are-scope-1-2-3-carbon-emissions> | National Grid | January 2024 |
| Teaching Guide page 12 | [www.ohchr.org/en/press-releases/2022/09/spyware-and-surveillance-threats-privacy-and-human-rights-growing-un-report](http://www.ohchr.org/en/press-releases/2022/09/spyware-and-surveillance-threats-privacy-and-human-rights-growing-un-report) | UN | January 2024 |
| Teaching Guide page 12 | [www.bl.uk/my-digital-rights/articles/the-right-to-privacy-online](http://www.bl.uk/my-digital-rights/articles/the-right-to-privacy-online) | British Library | January 2024 |
| Teaching Guide page 13 | <https://www.theguardian.com/technology/2022/nov/07/tiktoks-china-bytedance-data-concerns> | The Guardian | January 2024 |
| Teaching Guide page 13 | <https://www.makeuseof.com/tesla-full-self-driving-beta-tested-public-roads/> | MakeUseOf.com | January 2024 |
| Teaching Guide page 13 | <https://www.youtube.com/watch?v=mFc80PhnU7w> | YouTube / BBC | January 2024 |
| Teaching Guide page 15 / Lesson 2 Slide 8 | [www.bbc.com/aboutthebbc/reports/policies/codeofconduct](http://www.bbc.com/aboutthebbc/reports/policies/codeofconduct) | BBC | January 2024 |
| Teaching Guide page 15 / Lesson 2 Slide 8 | [www.fujitsu.com/global/about/philosophy/codeofconduct/](https://www.fujitsu.com/global/about/philosophy/codeofconduct/) | Fujitsu | January 2024 |
| Teaching Guide page 15 | [www.nytimes.com/2016/12/16/business/whistle-blowers-corporate.html](http://www.nytimes.com/2016/12/16/business/whistle-blowers-corporate.html) | NY Times | January 2024 |
| Teaching Guide page 15 / Lesson 2 Slide 11 | [www.theguardian.com/world/2018/oct/09/i-had-a-moral-duty-whistleblowers-on-why-they-spoke-up](http://www.theguardian.com/world/2018/oct/09/i-had-a-moral-duty-whistleblowers-on-why-they-spoke-up) | The Guardian | January 2024 |
| Teaching Guide page 20 | <https://sketchfab.com> | SketchFab | January 2024 |
| Teaching Guide page 20 | <https://www.apple.com/uk/augmented-reality> | Apple | January 2024 |
| Teaching Guide page 20 | <https://arvr.google.com/cardboard/> | Google | January 2024 |
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| Teaching Guide page 20 / Lesson 3 Slide 14 | <https://www.youtube.com/watch?v=IY4x85zqoJM> | YouTube / Apple | January 2024 |
| Teaching Guide page 20 / Lesson 3 Slide 14 | [arvr.google.com/](https://arvr.google.com/)  | Google | January 2024 |
| Teaching Guide page 20 / Lesson 3 Slide 14 | <https://youtu.be/5AKl_cEB26c> | YouTube / Meta Quest | January 2024 |
| Teaching Guide page 20 / Lesson 3 Slide 14 | <https://www.youtube.com/watch?v=L4pnQFLmHds> | YouTube / Meta | January 2024 |
| Teaching Guide page 20 / Lesson 3 Slide 14 | <https://www.youtube.com/watch?v=_xpI0JosYUk> (with permission) | YouTube / Microsoft HoloLens | January 2024 |
| Teaching Guide page 20 / Lesson 3 Slide 16 | <https://www.bbc.co.uk/news/uk-64734308> | BBC | January 2024 |
| Teaching Guide page 20 / Lesson 3 Slide 16 | <https://usa.kaspersky.com/resource-center/threats/security-and-privacy-risks-of-ar-and-vr> | Kaspersky | January 2024 |
| Teaching Guide page 21 | <https://youtu.be/MJs-1QxWCbI> | YouTube / CBS News - 60 Minutes | January 2024 |
| Teaching Guide page 23 | <https://qualifications.pearson.com/en/qualifications/t-levels/digital-production-design-and-development.html> | Pearson | January 2024 |
| Lesson 1 Slide 7 | <https://datareportal.com/reports/digital-2023-july-global-statshot>  | DataReportal | January 2024 |
| Lesson 1 Slide 11 | [www.gov.uk/guidance/equality-act-2010-guidance](http://www.gov.uk/guidance/equality-act-2010-guidance) | GOV UK | January 2024 |
| Lesson 1 Slide 14 | <https://uk.surveymonkey.com/mp/how-to-create-a-pulse-survey-for-any-audience/>  | Survey Monkey | January 2024 |
| Lesson 1 Slide 28 | <https://creativecommons.org/share-your-work/><https://creativecommons.org/about/cclicenses/><https://creativecommons.org/about/downloads/> | Creative commons | January 2024 |
| Lesson 1 Slide 30 | [www.gov.uk/data-protection](http://www.gov.uk/data-protection) | GOV UK | January 2024 |
| Lesson 1 Slide 30 | <https://gdpr.eu/>  | EU | January 2024 |
| Lesson 1 Slide 30 | <https://ico.org.uk/for-organisations/data-protection-and-the-eu/data-protection-and-the-eu-in-detail/the-uk-gdpr/> (under Open Government Licence) | ICO | January 2024 |
| Lesson 2 Slide 3 | [https://bard.google.com](https://bard.google.com/) | Google | January 2024 |
| Lesson 2 Slide 3 | <https://openai.com/blog/chatgpt> | Open AI | January 2024 |
| Lesson 2 Slide 3 | [https://www.bing.com/](https://www.google.com/url?q=https://www.bing.com/&sa=D&source=editors&ust=1691398797729023&usg=AOvVaw3cC5pGxHm7q4ZBYuFJwXLp) (with permission) | Microsoft | January 2024 |
| Lesson 2 Slide 5 | <https://www.apple.com/diversity/>  | Apple | January 2024 |
| Lesson 2 Slide 5 | <https://www.aboutamazon.com/about-us>  | Amazon | January 2024 |
| Lesson 2 Slide 5 | <http://www.microsoft.com/en-us/about/values>  | Microsoft | January 2024 |
| Lesson 2 Slide 5 | <https://about.meta.com/uk/company-info/>  | Meta | January 2024 |
| Lesson 2 Slide 11 | <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/415175/bis-15-200-whistleblowing-guidance-for-employers-and-code-of-practice.pdf> | GOV UK | January 2024 |
| Lesson 2 Slide 11 | <https://www.youtube.com/watch?v=_Lx5VmAdZSI>  | YouTube / CBS News - 60 Minutes | January 2024 |
| Lesson 2 Slide 11 | <https://www.youtube.com/watch?v=0hLjuVyIIrs>  | YouTube / The Guardian | January 2024 |
| Lesson 2 Slide 15 / Activity 2 Worksheet | [www.cisco.com/c/m/en\_us/about/csr/esg-hub.html](http://www.cisco.com/c/m/en_us/about/csr/esg-hub.html) | Cisco | January 2024 |
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| Lesson 3 Slide 5 | <https://youtu.be/6YaXKxXSli0>  | YouTube / Eye on Tech | January 2024 |
| Lesson 3 Slide 7 / Activity 2 Worksheet | [www.vodafone.com/business/news-and-insights/case-studies/5g-enabled-ev-manufacturing-ford-and-vodafone-create-the-car-factory-of-the-future](http://www.vodafone.com/business/news-and-insights/case-studies/5g-enabled-ev-manufacturing-ford-and-vodafone-create-the-car-factory-of-the-future) | Vodafone | January 2024 |
| Lesson 3 Slide 7 / Activity 2 Worksheet | <https://iotbusinessnews.com/2022/09/22/09847-how-to-create-a-healthy-workspace-using-iot/> | IOT Business news | January 2024 |
| Lesson 3 Slide 7 / Activity 2 Worksheet | [en-uk.ring.com/pages/security-cameras/](http://en-uk.ring.com/pages/security-cameras/) | [Ring.com](http://ring.com/) | January 2024 |
| Lesson 3 Slide 9 | <https://youtu.be/esUhTF9fk-w> | YouTube / Eye on Tech | January 2024 |
| Lesson 3 Slide 9 | <https://youtu.be/f9MwaH6oGEY> (with permission) | YouTube / ColdFusion | January 2024 |
| Lesson 3 Slide 10 | <https://sketchfab.com/3d-models/apple-vision-pro-3d-model-cf094c8c28c246d4844753b913f48fce> | Sketchfab | January 2024 |
| Lesson 3 Slide 11 | <https://www.youtube.com/watch?v=QA6MPibwImk>  | YouTube / Amazon | January 2024 |
| Lesson 3 Slide 12 | <https://sketchfab.com/3d-models/oculus-quest-2-c6a1c2623d224a1bbb81a38915f7e898> | Sketchfab | January 2024 |
| Lesson 3 Slide 14 | <https://www.youtube.com/watch?v=IY4x85zqoJM> | YouTube / Apple | January 2024 |
| Lesson 3 Slide 19 | <https://youtu.be/0oRVLf16CMU> | YouTube / Eye on Tech | January 2024 |
| Lesson 3 Slide 21 | <https://youtu.be/OGmDr8TLtTo> | YouTube / Eye on Tech | January 2024 |
| Lesson 3 Slide 23 | <https://youtu.be/MJs-1QxWCbI> | YouTube / CBS News - 60 Minutes | January 2024 |
| Lesson 3 Slide 24 / Activity 4 Worksheet | [www.entrepreneur.com/science-technology/how-can-companies-use-chatgpt-for-content-marketing/450831](http://www.entrepreneur.com/science-technology/how-can-companies-use-chatgpt-for-content-marketing/450831) | Entrepreneur.com | January 2024 |
| Lesson 3 Slide 24 / Activity 4 Worksheet | [www.makeuseof.com/chatgpt-programming-practical-uses/](http://www.makeuseof.com/chatgpt-programming-practical-uses/) | Make use of.com | January 2024 |
| Lesson 3 Slide 24 / Activity 4 Worksheet | [helpwise.io/blog/how-to-use-chatgpt-for-customer-service](https://helpwise.io/blog/how-to-use-chatgpt-for-customer-service) | Helpwise | January 2024 |
| Lesson 3 Activity 4 worksheet | [https://firefly.adobe.com](https://firefly.adobe.com/) | Adobe | January 2024 |
| Lesson 3 Activity 4 worksheet | <https://photoshop.adobe.com/discover> | Adobe | January 2024 |
| Lesson 3 Activity 4 worksheet | <https://www.shutterstock.com/ai-image-generator> | Shutterstock | January 2024 |
| Lesson 3 Activity 4 worksheet | <https://www.canva.com/magic-write/> | Canva | January 2024 |
| Lesson 3 Activity 4 worksheet | [https://bard.google.com](https://bard.google.com/) | Google | January 2024 |
| Lesson 3 Activity 4 worksheet | [https://www.bing.com](https://www.google.com/url?q=https://www.bing.com&sa=D&source=docs&ust=1691429529634293&usg=AOvVaw3Jx-tI7aCqXKMqqtVMjm3n) | Bing | January 2024 |

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