# **Key stage 4 – Impact of technology**

## Unit introduction

This unit has been designed to enable GCSE students to gain knowledge and understanding of the impact of technology on individuals, organisations, and the planet. Through a range of real-world examples, they will learn how to identify the specific type of impact, ie legal, cultural, privacy, environmental, and ethical. They will then progress to identifying stakeholders who are impacted by technology, and learn how these impacts are experienced, negated, or adapted to. Throughout the unit, learners will be encouraged to discuss their views and make use of sample long-form answers as either cloze or comprehension exercises, to further develop their rhetorical skills. Lastly, they will complete an assessment and identify which of the technologies that they have studied they believe to have had the most negative or positive effect on our society as a whole.

## Overview of lessons

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| **Lesson** | **Brief overview** | **Learning objectives** |
| 1 How does technology impact us? | This lesson gives you time to introduce the subject of the impact of technology to learners. They will learn the significance of the five broad areas of impact, ie law, environment, culture, ethics, and privacy. They will identify and discuss the impact areas through genuine examples. Finally, learners will begin to understand the legal impact of technology specifically, and work through an example relating to the Data Protection Act (2018). | * Apply the terms ‘privacy’, ‘legal’, ‘ethical’, ‘environmental’, and ‘cultural’ * Explain data legislation, including an organisation’s obligation to protect and supply data |
| 2 The law, data protection, and copyright | This lesson will further emphasise the different categories of impact. It will enable learners to further exercise their knowledge about data protection and clarify the definition of the word ‘stakeholder’. Learners will be encouraged to think about the stakeholders and examples of impact that a specific technology has had on them. They will learn about the relationship between data protection, the General Data Protection Regulation (GDPR), and the right to be forgotten. In addition, they will look in detail at copyright, learning about Creative Commons licensing and comparing open source and proprietary software. | * Explain the term ‘stakeholder’ * Explain the right to be forgotten * Distinguish the differences between legitimate creative uses and clear infringement of material subject to copyright |
| 3 The FIA and the CMA | In this lesson, learners will review the plenary mini quiz about the Data Protection Act and copyright from Lesson 2. In addition, they will be introduced to the Freedom of Information Act, and given the opportunity to experience genuine examples. Finally, they will learn about the Computer Misuse Act and categorise case studies by the different levels of offence. | * Explain the Freedom of Information Act * Define ‘computer misuse’ and the associated offences * Identify situations that would be classified as an offence under the Act |
| 4 Cultural impacts | In this lesson, learners will understand what the term ‘cultural impact’ means. They will learn about downtime and its effect on businesses and individuals. In addition, they will closely examine the concept of ‘digital divide’ and work through examples of its impact. They will analyse the cultural implications of the growing use of mobile technology and the responsibility of stakeholders in mitigating any risks. Finally, they will share the impact that technology has on their lives, and for homework, consider looking more globally for further impact. | * Define ‘downtime’ and explain the associated impact on an organisation * Explain what is meant by the ‘digital divide’ and measures to mitigate its effect * Identify positive and negative aspects of the use of mobile technology |
| 5 Privacy and surveillance | In this lesson, learners will discover the reality and limitations of privacy and surveillance. They will learn the laws that protect us directly, and others that enable the security services to protect us from harm. They will also learn about the tension between these requirements. In addition, they will consider the different technologies that we encounter in our daily lives and the privacy implications of these. They will also learn about how social media platforms collect data, and become more informed about the data that they are making available through their engagement with technology. They will also learn about the environmental impacts of social media, though you will discuss this in more detail in Lesson 6. Finally, they will make a commitment to stay aware, and at the very least, sort out their own privacy settings on their devices. | * Identify the implications of having personal data online * Explain the social and environmental impacts of social media * Explain the positive and negative effects of online content |
| 6 Environmental impact | In this lesson, learners will review the cultural impact of globalisation, which will build on concepts that they started to explore through the homework set in Lesson 4. In addition, they will discover the reality of technology’s impact on the environment. They will also learn about how technology, if utilised strategically, can be used to protect the environment and can be a preserver rather than a destroyer. | * Explain the environmental effects of the use of technology |
| 7 Ethical impact | In this lesson, learners will review what the word ‘ethical’ means generally. They will then be introduced to the main ethical impacts of technology, and engage in activities to help them become more aware of how important acting ethically is. | * Explain the ethical issues surrounding the use of AI in society * Explain the ethical impact of using algorithms to make decisions |
| 8 Putting it all together and end-of-unit test | In this lesson, learners will engage in a comprehensive end-of-unit assessment, covering aspects from each of the preceding seven lessons. The previous lessons covered the legal, cultural, environmental, and ethical aspects of the impact of technology. In addition, learners considered situations that impacted upon the privacy of individuals and that potentially had multiple impacts. They also considered the different potential stakeholders who either influenced or were influenced by the various impacts of technology.  The assessment is directly based on the lessons in the unit, and the questions are all in multiple-choice format. At the end of the lesson, learners will also be invited to answer a question giving their own opinion about which technology has had the most negative or positive impact on society and why. | * Demonstrate knowledge of the five impacts of technology |

## Progression

[Learning graph](https://docs.google.com/drawings/d/1QoaEqYCs89gcSf_KcDButTWTjoBDr_QOmiz9xX24fcY)

## Curriculum links

[**National curriculum links**](https://www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study/national-curriculum-in-england-computing-programmes-of-study)

* Develop their capability, creativity and knowledge in computer science, digital media and information technology

[**Education for a Connected World links**](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/683895/Education_for_a_connected_world_PDF.PDF)

**Privacy and security**

* I can describe key aspects of the law governing data use (e.g. DPA, GDPR) and can give examples of those laws and the impact they have on a person’s data rights (e.g. RTBF, data breaches).
* I can contribute to an informed debate concerning the balance between national security and safeguarding as against personal privacy.

**Copyright and ownership**

* I can explain key aspects of copyright law and illustrate where that law has been applied to online content.
* I can explain the wider implications of copyright theft on content production and the availability of content (e.g. loss of revenue, emerging artists, new content development).

## Assessment

### **Summative assessment**

* [Summative assessment questions](https://curriculum.teachcomputing.org/rails/active_storage/blobs/redirect/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaEpJaWszTVRsaE5qWmhNaTB4T0RjeUxUUmxZakV0WW1WaE5DMWlZakV6WW1ObU1qSXdabUlHT2daRlZBPT0iLCJleHAiOm51bGwsInB1ciI6ImJsb2JfaWQifX0=--6d51f1b2382b20e24b7a06269d6be761601cb00c/Summative%20assessment%20-%20Questions.docx?_ga=2.34209761.1371802682.1666780381-258113120.1650355411)
* [Summative assessment answers](https://curriculum.teachcomputing.org/rails/active_storage/blobs/redirect/eyJfcmFpbHMiOnsibWVzc2FnZSI6IkJBaEpJaWs1WkRObFpEaGtaaTA0T1dFMExUUTRPREF0WVRRek5pMWpOR1F6WW1JMk16RXhNMlFHT2daRlZBPT0iLCJleHAiOm51bGwsInB1ciI6ImJsb2JfaWQifX0=--97378e09c1e1b68f138d6eee9d11f819a7a930a2/Summative%20assessment%20answers%20%E2%80%93%20Impact%20of%20technology%20%E2%80%93%20KS4.docx?_ga=2.267596750.1371802682.1666780381-258113120.1650355411)

## Subject knowledge

Enhance your subject knowledge to teach this unit through the following training opportunities:

### **Online training courses**

* [*Impact of technology: How to lead classroom discussions*](https://www.futurelearn.com/courses/impact-of-technology)

### **Face-to-face courses**

* [National Centre for Computing Education face-to-face training courses](https://teachcomputing.org/courses)

Resources are updated regularly — the latest version is available at: [ncce.io/tcc](http://ncce.io/tcc).

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