

LESSON 15

Ethical and Social Issues in Computing

40 minutes

Foundations of Computer Science

Outcome 1.11

Outcome 1.12

Outcome 1.13

Outcome 1.14

Outcome 1.21

Outcome 1.23

WHAT THIS LESSON DOES

In this lesson, you'll explore the ethical and social challenges of computing technology. Learn to identify key issues like data privacy and digital divide, analyse real-world examples, and reflect through group discussions to understand technology's broader impact on society.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
1.11	discuss the complex relationship between computing technologies and society including issues of ethics
1.12	compare the positive and negative impacts of computing on culture and society
1.13	identify important computing developments that have taken place in the last 100 years and consider emerging trends that could shape future computing technologies
1.14	explain when and what machine learning and AI algorithms might be used in certain contexts
1.21	identify alternative perspectives, considering different disciplines, stakeholders and end users
1.23	reflect and communicate on the design and development process

WHAT STUDENTS SHOULD BE ABLE TO DO

- Recognise key ethical challenges in computing, such as data privacy and AI bias.
- Understand the social impacts of technology on communities and individuals.
- Analyse real-world examples of ethical and social issues in computing.
- Develop critical thinking through reflection and group discussions.
- Foster responsible attitudes towards technology use and its societal effects.

BEFORE THE LESSON

- This is a discussion and theory lesson with no code or tools to prepare. Decide in advance how you will group students, in threes or fours, and have a fallback for anyone working alone.
- Have one or two recent Irish or international examples ready to seed discussion if a group stalls, for example a data breach in the news or automation in a local workplace.

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HOW THE LESSON RUNS

Introduction

Key Ethical Issues

Group Discussions

Social Issues in Computing

Group Discussion

Environmental Impact

Wrap Up

TEACHING MOVES

- 2. Key Ethical Issues. Lean on the grey-area framing. Use the white-hat hacking example to show the same act can be ethical or not depending on consent and intent. Resist letting students settle on simple right or wrong verdicts.
- 3. Group Discussions. Give each group a fixed few minutes and insist they name one real example, not just abstract opinion. Circulate and push the 'how might it be addressed' question, which groups skip most often.
- 4. Social Issues in Computing. Draw the distinction from ethical issues: these are impacts on communities, not questions of one person's right conduct. Use social media as both connection and harm to keep it balanced.
- 5. Group Discussion. Steer at least one group toward the digital divide and connect it to their own context: rural broadband, device access, cost. Ask whether it is solvable and who is responsible.
- 6. Environmental Impact. Make energy use and e-waste concrete. Ask where a discarded phone actually goes and what a data centre draws. Frame it as balancing benefit against cost, not banning technology.
- 7. Wrap Up. Ask each group to state one issue and one way it could be addressed. Reinforce that judgement, not a fixed answer, is the skill being built here.

WHAT TO WATCH FOR

- Students treat ethical questions as having a single correct answer, so hacking is simply wrong or piracy is simply theft. Return to the grey-area examples in the lesson. Ask them to argue both sides of white-hat hacking so they see that context, consent and outcome change the verdict.
- Students conflate ethical, social and environmental issues as one vague category of 'bad things about technology'. Hold the three apart explicitly: ethics is about right conduct, social is impact on communities, environmental is physical cost. Ask which category a given example belongs to.

DIFFERENTIATION

- Emerging: Give a struggling group a single named issue and one concrete example to react to, rather than asking them to choose from the whole list.
- Developing: Prompt them past opinion by asking for evidence: who is affected, how do you know, what would fixing it require.
- Proficient: Ask them to argue a position they personally disagree with, or to identify a case where two of the issues conflict, for example privacy versus safety in surveillance.