LESSON 80

Emerging Trends in AI and Computing

40 minutes | Ethics, Society, and Emerging Technologies | Outcome 1.11 | Outcome 1.12 | Outcome 1.13 | Outcome 1.14 | Outcome 1.18 | Outcome 1.2 | Outcome 2.15

WHAT THIS LESSON DOES

Explore the fascinating world of AI and computing in this lesson. You'll trace their historical evolution, investigate cutting-edge trends like quantum computing and generative AI, and reflect on their societal impacts and future influence on your life.

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
1.18	recognise the diverse roles and careers that use computing technologies
1.2	explain how the power of computing enables different solutions to difficult problems
2.15	explain what is meant by the World Wide Web (WWW) and the Internet, including the client server model, hardware components and communication protocols

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the historical evolution of computing and AI over the past century.
- Identify key emerging trends in computing, such as quantum and edge computing.
- Explore advancements in AI, including generative and ethical AI applications.
- Analyse the societal impacts of AI and computing, balancing benefits and challenges.
- Reflect on how these trends could shape future careers and everyday life.

BEFORE THE LESSON

- This is a theory and discussion lesson, so no environment or accounts need setting up. Skim the timeline and trend lists yourself so you can add one or two current Irish examples of your own.
- Decide in advance whether you will project the generative AI examples live. If your school filter blocks tools like ChatGPT, prepare a screenshot instead rather than being caught out mid-class.

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HOW THE LESSON RUNS

- Introduction
- Key Developments in the Last 100 Years
- Emerging Trends in Computing
- Emerging Trends in AI
- Societal Impacts and Considerations
- Wrap Up

TEACHING MOVES

- 2. Key Developments in the Last 100 Years. Anchor the timeline on a few names students will remember: Turing, ENIAC, the personal computer, the internet. Ask which single development they think changed daily life most, and why, before moving on.
- 3. Emerging Trends in Computing. Keep quantum computing honest: qubits allow parallel processing but do not make ordinary tasks faster. Contrast edge and cloud with a phone example. Do not let quantum become magic.
- 4. Emerging Trends in AI. Separate generative AI from AI generally. Ask what a tool like ChatGPT actually does: predicts likely text, it does not understand or verify. Link to why its output must be checked.
- 5. Societal Impacts and Considerations. Force balance. For each positive students name, ask for a matching cost: automation and jobs, diagnostics and data privacy, convenience and surveillance. Aim for the complexity, not a verdict.

WHAT TO WATCH FOR

- Students treat quantum computers as simply faster versions of ordinary computers. Clarify that qubits give an advantage only for specific parallel problems. Your laptop would not run games faster on a quantum chip. It is a different tool, not a better one.
- Students assume generative AI output is factual because it reads confidently. Show that these tools predict plausible text, not verified truth. Ask for an example where the output sounds right but could be wrong, and stress the need to check sources.

DIFFERENTIATION

- Emerging: Give the student one milestone from the timeline to explain in a single sentence to a partner before the wider discussion, so they contribute from solid ground.
- Developing: Ask them to pick one emerging trend and state one benefit and one risk in their own words, moving them from recall toward analysis.