

The True Cost of AI

What happens when you type a question into an AI chatbot?

What do you already know?

Before we start, think about this: when you use an AI chatbot, what do you think happens? Where does your answer come from?

I think...

The numbers

A United Nations report published in June 2026 revealed some surprising facts about AI. Read each fact and circle anything that surprises you.

Training GPT-4 used... 600 million litres of water Enough to fill 237 Olympic swimming pools.	By 2030, AI could use... 3% of all the world's electricity Double what it uses today.
AI's carbon emissions could equal... The entire carbon footprint of the UK By 2030.	AI could use more water than... The annual drinking water of the whole world For cooling data centres.

Think about it

Answer these questions on your own first, then discuss with a partner.

- Where do you think all this water and electricity goes? Why does AI need so much of it?
- The AI chat window looks clean and instant. The data centre using the water and electricity is somewhere else. Why does that invisibility matter?
- The UN report says the benefits of AI go mostly to wealthy countries, but the environmental costs often fall on communities elsewhere. Does that seem fair? Why or why not?

Big question for discussion

Making AI more efficient does not necessarily mean AI uses less energy overall. When something becomes cheaper and easier to use, people tend to use more of it, so the total impact grows. This is called the Jevons paradox. Does knowing this change how you think about AI? What would need to change to reduce its environmental impact? Individual choices, or something bigger?

The True Cost of AI -- Facilitator Notes

PSHE / Citizenship | Upper Primary / Lower Secondary | 45 to 60 minutes

Overview

This activity asks pupils to examine the hidden environmental cost of AI tools they use every day. It draws on a UN report published in June 2026 and connects to PSHE themes of digital citizenship, ethical consumption, and systems thinking. It works well as a standalone lesson or as part of a wider unit on climate justice or the digital world.

Learning objectives

- Pupils understand that AI tools have a significant and largely invisible environmental footprint.
 - Pupils can explain why making AI more efficient does not automatically reduce its total impact.
 - Pupils can discuss the justice dimension of AI's environmental costs: who benefits and who bears the cost.
 - Pupils can distinguish between individual, corporate, and policy-level responses to systemic environmental challenges.
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What you need to know

You do not need to be a technology expert to run this activity. The key facts are on the pupil sheet. A few things worth knowing:

- AI chatbots run on servers in large data centres. Those servers generate enormous heat and require constant cooling, mostly using water. The electricity they use also carries its own water footprint at the power station.
 - Most of AI's energy use now comes from inference: everyday use by millions of people asking questions, not from the original training of the model. So the more people use AI, the bigger the footprint.
 - The Jevons paradox on the pupil sheet is a real economic principle. Historically, when technology becomes more efficient, total consumption of that resource rises rather than falls. AI becoming more efficient is likely to follow the same pattern.
 - The UN report is clear that evaluating AI's impact only through carbon emissions misses a large part of the picture. Water stress and land use are equally significant, and often fall on communities in the Global South.
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How to run it

Opening (5 minutes)

Ask the class: who has used an AI chatbot this week? What did they use it for? Take a few responses, then ask: where do you think your answer comes from? Do not correct or confirm. Let them sit with uncertainty for a moment. This opens the enquiry.

The numbers (10 minutes)

Give out the pupil sheet. Read through the fact cards together or ask pupils to read independently. Ask them to circle anything that surprises them, then take a quick show of hands. Which fact surprised the most people? Use this to anchor discussion: why does this feel surprising? What did we expect AI to cost?

Think about it (15 to 20 minutes)

Pupils answer the three questions independently first (5 minutes), then discuss with a partner (5 to 10 minutes), then share back to the class. The three questions move in sequence: from the physical (where does the energy go?) to the invisible (why does it matter that we cannot see it?) to the justice dimension (who benefits and who bears the cost?). Do not rush question 3. It is the richest discussion.

Big question (15 minutes)

Read the Jevons paradox box together. Explain simply: when things get cheaper and easier, we use more of them, so total impact grows even if each use becomes more efficient. Then open the discussion. Useful prompts if it stalls:

- If AI uses the same energy as the whole UK by 2030, what would responsible AI use even look like?
- What is the difference between what an individual can do and what a company or government would need to do?
- Is it fair to ask individuals to use AI less when it is built into tools they have no choice about?

- Who should decide how AI infrastructure is built and where it goes?

Closing (5 minutes)

Exit ticket: ask each pupil to write one sentence, either something they learned, something they are still uncertain about, or a question they want to keep thinking about. Collect or share verbally. These often surface the most interesting threads for follow-up.

Differentiation

- Lower prior attainment: Focus on questions 1 and 2. The fact cards can be read aloud. Pair pupils for written questions so discussion supports understanding before writing.
 - Higher prior attainment: Ask pupils to research one specific data centre: where it is, what energy source it uses, what communities live nearby. Or ask them to write a response to an AI company defending its environmental record.
 - EAL pupils: The fact cards use simple language and the numbers are visual. Paired discussion before writing supports participation.
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Curriculum links

- PSHE: Economic wellbeing, living in the wider world, environmental responsibility and global citizenship.
 - Computing / Digital Literacy: Understanding how digital technology works and its real-world impacts.
 - Geography: Climate change, energy, and global justice.
 - English: Media literacy and critical reading of information sources.
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Background reading

The blog post 'The True Cost of AI: What Every Teacher Should Know' on notyetzero.com covers all the key facts with fuller context and references. The UN report itself is free to access at unu.edu/inweh.