EdSutra

Teaching guide

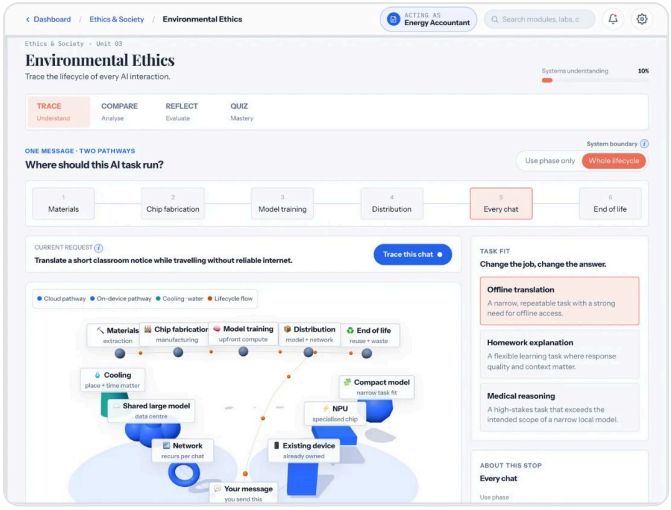
Module 05 · Ethics & Society · Unit 03 · Stage 3, Responsibility

Environmental Ethics

One Message · Two Pathways

Grades 7–12 | **40 minutes** | Role: **Energy Accountant**

Grade 7: About age 12–13 · Year 8 in the UK · Class 7 in India



The big idea

One AI message depends on a whole system: materials, chips, training, networks, data centers, cooling, devices and their disposal. There is no single cost per chat; the answer changes with the task and with what you count. The responsible choice is the least resource-heavy method that can do the task responsibly, with the whole lifecycle in view.

The learner's job

Learners are the **Energy Accountant** at Northvale Public Works · Energy Desk. Everyone asks what one message costs. The honest answer is: it depends on the road it takes. Their task: trace where one message's costs fall. Then say which road fits the job.

By the end, learners can say

- I can explain why an AI chat belongs to a material and technical lifecycle, not only a screen
- I can distinguish recurring use-phase demand from embodied hardware and upstream impacts
- I can compare cloud and on-device pathways across energy, network, cooling, hardware, and task capability
- I can apply proportionality by choosing a responsible pathway without hiding lifecycle trade-offs

Before class

- One computer or tablet for each learner or pair, with EdSutra open (this Module is part of the full EdSutra studio).
- Open the studio once on each device before class, so the Unit still runs if the internet drops.
- Play the intro and press Trace this chat once yourself, so you know where learners will click.
- Write three headings on the board: Before use, During use, After use. Learners sort the lifecycle stops into them in Understand.
- Best after What is AI? and AI Ethics & Bias.
- Units open in order, and Module 1 comes first. To start a class here, switch on Open every Unit in Settings → Teachers & parents.

Words to introduce

Environmental ethics: Judging an AI choice by its effect on materials, energy, nature and communities.

Lifecycle: Every stage of a system, from mined materials to disposal or recycling.

System boundary: What you choose to count: only the use phase, or the whole lifecycle.

Inference: The model working out an answer to one request.

On-device AI: A compact model that runs on your own phone or laptop.

Embodied hardware: The impact already built into hardware by mining and manufacturing it.

Proportionality: Using no more than the task really needs.

Running the lesson 40 minutes

Open 4 min

"Everyone asks what one AI message costs the planet. Why might the honest answer be "it depends on the road it takes"?"

Before anyone clicks, ask: for a quick translation and for advice about worrying symptoms, should the AI run on your phone or in the cloud? Note the votes and come back to them in Analyze.

Step	What learners do	Ask the class	Listen for
1. Remember 5 min	Read what environmental ethics means, then answer two predictions: where does the work of one AI message happen, and does running AI on your device make its impact disappear?	• Where does the work of one AI message really happen? • What is left when AI runs on your own device?	Across a whole connected system. On-device AI cuts some network and cloud work, but the device's own impacts remain.
2. Understand 11 min	On the systems map, press Trace this chat and follow the dots along the cloud and on-device paths. Open at least six stops, such as Materials, Cooling and End of life.	• Which stops happen before anyone sends a message? • Which path repeats a network trip for every request?	Materials, chips and training come before use. The cloud path makes a network trip every time; a local model does not.
3. Analyze 12 min	In Compare, switch between the three tasks and between Use phase only and Whole lifecycle. Learners compare the five separate bars for cloud and on-device each time.	• What appears when you widen the boundary to the whole lifecycle? • For medical reasoning, why does task fit matter more than the energy bar? • Look back at our votes. Did the task change your answer?	Hardware impacts appear. The phone suits translation, but a high-stakes task needs capability, and AI never replaces a doctor.
4. Evaluate 8 min	In Reflect, pick which of four rules best applies environmental ethics. Then take the five-question quiz; four right is a pass.	• Why is "always choose on-device" not good enough? • Why not just compare one carbon-per-chat number?	Use the least resource-heavy method that can do the task responsibly, and keep the whole lifecycle in view.

Steps follow Bloom's revised taxonomy, in the order the Unit presents them.

Deepen the thinking

Critical thinking	The Unit's bars are relative teaching estimates, not measured numbers. What would you need to know before trusting an exact claim about AI's cost?
AI thinking	A compact model fits on a phone but handles fewer kinds of task. Which of your own AI uses could it handle?
Ethics and fairness	Mining for AI hardware has local effects on the people who live nearby. Whose job is it to count those costs?
Connect to life	Think of a device at home that still works. What would help it stay useful for longer?

Misconceptions to listen for

"A chat happens only inside the app."
The map traces the network, data center, electricity, cooling and hardware behind every reply, and the stages before and after use.

"On-device AI is free for the planet."
It can skip the network trip for narrow tasks, but charging, manufacturing, updates and disposal remain. Widen the boundary to see them.

"There is one true cost for every chat."
The cost changes with the model, hardware, place, time, task and boundary. That is why the Unit shows separate bars, not one score.

In real life the card learners see at the end of the Unit

- A chatbot question can travel through networks to data centers that use electricity, cooling and hardware.
- Some phones run AI on the device itself, skipping the network trip but still using battery and hardware.
- Old phones and laptops in an e-waste bin are part of the story too: materials, manufacturing and end of life.

Try it this week. Before using AI for a small task, ask: could a simpler tool do it, like a dictionary, a calculator or a friend?

Watch out for. There's no single "cost of a chat". It depends on the model, hardware, electricity and what you count, and on-device AI isn't free either.

Talk about it. Should apps show the energy cost of using AI? What would you want to know?

Exit ticket

1. Name two lifecycle stages that happen before anyone sends a message.

2. What changes when you switch from use phase to whole lifecycle?

3. For offline translation, which path would you choose, and why?

Going further

For homework, learners list three AI tasks from their week and decide for each: cloud, on-device or no AI at all. In class, compare choices and the reasons behind them.