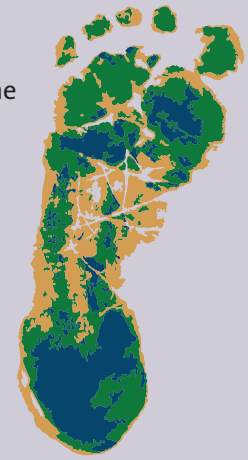
4 How many Earths do you wear today?

An AI thinking task about the ecological footprint



Source: Adobe Stock/pavlechko

What this task is about: The ecological footprint estimates how much biologically productive land and water is needed to provide the biological resources people consume and absorb the carbon dioxide produced by their activities. Global Footprint Network's Country Overshoot Days 2026 gives an estimate of about four Earths if everyone lived like an average Austrian.

Economic choices matter. Cleaner technology, public investment and changes in consumption may reduce environmental pressures. There is debate about whether these reductions can be achieved fast enough while economies continue to grow.

Your guiding question: Should wealthy countries such as Austria actively shrink their economies to reduce the ecological footprint, or can growth and sustainability go hand in hand?

Important: In phases 1, 3, 4 and 5 you work without AI; only phase 2 is AI-supported.

1 Phase 1: approach the topic (before using AI)

This phase has three parts. Work through them in writing below, before you open any AI tool. Plan about 35–40 minutes for **phase 1** in total.

1.1 Interpret the picture

≈ 10 min

Look at the image below carefully. Then answer the four questions in full English sentences.



AI-generated image

A seedling in cracked earth before a mountain of discarded waste

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Snap Shot

1. Describe what you see in the image – the foreground, the background and the light. One or two sentences, no interpretation yet.

Description:

2. The image deliberately sets two very different things against each other. What contrast do you notice, and what could it symbolise about the way we live and consume?

Metaphor / contrast:

3. Pick the detail in the picture that you find most telling. Why might it have been included, and how does it shape the message?

Your chosen detail:

4. In one sentence: what message does this image send about our ecological footprint and the way we consume? Do you agree with that message? Why or why not?

Message + your reaction:

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1.2 Reading comprehension

Read the following text carefully. Then answer the questions below.

≈ 20 min

How much Earth do we actually use?

The ecological footprint is a tool developed in the 1990s by Mathis Wackernagel and William Rees to measure how much **biologically productive land** and sea area a population needs in order to produce everything it consumes and to absorb the waste it creates. It is expressed in "global hectares" (gha) per person.

According to the Global Footprint Network's most recent Country Trends data, the average Austrian uses around 6.0 global hectares per year, while the planet can only regenerate about 1.6 gha per person sustainably. In other words, if everyone on Earth lived like an average Austrian, humanity would need almost four planets (6.0 ÷ 1.6 ≈ 3.7). The world average is roughly 2.6 gha; a person living in Bangladesh or Ethiopia uses less than 1 gha.

The Living Planet Report 2024, published by the WWF, points out that wealthy European countries import a large share of their footprint from abroad. Roughly half of Austria's CO_2 footprint, for example, is caused by goods produced in other countries – clothes from Bangladesh, electronics from China, beef feed from Brazil. This is often called the "**outsourced**" or "**embedded**" footprint, and it makes national environmental statistics look better than they really are.

Why hasn't the footprint of countries like Austria fallen, despite decades of green policies? Statistik Austria's data on material consumption suggests one reason: although energy efficiency has improved, consumption has grown faster than the **efficiency gains**. Each Austrian household owns more electronic devices, takes more flights, and eats more processed food than thirty years ago. The footprint per euro of GDP has indeed decreased – but the GDP itself has roughly doubled since 1990.

Economists are deeply divided about what this means. Followers of the Environmental Kuznets Curve hypothesis (the idea that environmental damage first rises and then falls again as a country gets richer) argue that as countries become richer, they eventually invest in cleaner technology and shrink their footprint. Critics – including authors of the IPCC's Sixth Assessment Report (2023) – counter that there is no **convincing evidence** of this happening at the global level: footprints fall in one country only because they rise in another.

GDP (Gross Domestic Product): the total value of goods and services produced in an economy; in German: BIP

IPCC: the UN's Intergovernmental Panel on Climate Change, the leading international body of climate scientists (in German: "Weltklimarat")

Sources: Global Footprint Network, Country Trends Explorer (2024); WWF Living Planet Report 2024; Statistik Austria, Umweltgesamtrechnung 2023; IPCC Sixth Assessment Report, Working Group III (2022)

1.2 a Vocabulary in context

Explain what each **underlined** word or phrase means as it is used in the text.

5. "biologically productive land" (paragraph 1) – What kind of land is meant?

Answer:

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6. "outsourced footprint" (paragraph 3) – What does this mean in your own words?

Answer:

7. "efficiency gains" (paragraph 4) – Give one specific example of an efficiency gain.

Answer:

8. "convincing evidence" (paragraph 5) – What would count as convincing evidence here?

Answer:

1.2 b **Comprehension**

Answer in 2–3 sentences each, in your own words.

9. Roughly how many planets would humanity need if everyone lived like an average Austrian? How does this compare to the world average?

Answer:

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Snap Shot

10. Why is Austria's CO_2 footprint partly "hidden" abroad? Give one specific example from the text.

Answer:

11. Why has the ecological footprint of Austria not fallen, even though policies and technology have improved?

Answer:

12. Summarise the disagreement between supporters and critics of the Environmental Kuznets Curve in one sentence.

Answer:

1.3 Your own hypotheses & guiding question

≈ 10 min

Now you have a factual basis. Before you let AI shape your thinking, form your own position. You do not need to know the answer. Make a reasoned guess and explain it.

Make three reasoned guesses, then come up with one guiding question of your own.

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Snap Shot

13. Which sector contributes most to the average Austrian's footprint: food, housing, mobility, or consumer goods? Why do you think so?

Your hypothesis (with reasoning):

14. Does a richer country always have a larger ecological footprint per person? Or is there a point at which more wealth lowers the footprint?

Your hypothesis (with reasoning):

15. If Austria's GDP shrank by 10%, would the ecological footprint shrink by roughly 10% as well – more, less, or not at all? Why?

Your hypothesis (with reasoning):

16. Formulate one guiding question about the ecological footprint that interests you – you will bring it into the AI dialogue in **phase 2**. For example, can a country be both wealthy and ecologically sustainable? What would make a reduction in consumption fair?

Your guiding question:

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2 Phase 2: structured AI dialogue

45 min

You will now run a dialogue with the AI in five rounds (A to E). First copy the role-setting prompt into your AI tool. After every round, write the key findings as bullet points below — in your own words, not copied AI text.

Step 2.0: activate the AI's role (copy into the chat first)

17. Before you start, your teacher will tell you which AI platform to use. Use only the school-approved tool. Never enter personal data. Rephrase, summarise and question AI answers. Copy the prompt below into the chat first and press Enter, before you ask anything.

Prompt 0 – role setting **send first!**

You are my sparring partner for a school task on the ecological footprint, combining geography and economics. I am a secondary-school student. We work in English.

Strict rules for your behaviour:

- Do not give me answers directly. Ask me questions first.
- When I state an opinion, ask me to justify it before you evaluate it.
- When I ask for facts, give them with a verifiable source (Global Footprint Network, World Bank, OECD, Eurostat, Statistik Austria, IPCC) and year.
- Confront me with counter-arguments I may have overlooked.
- Do not confirm my final position until I have formulated it myself.
- Push back if my reasoning is weak. Be respectful but demanding.
- Stay in English throughout. No empty praise, no filler phrases.

Confirm these rules in one sentence, then wait for my first question.

Hint: If the AI moves away from the agreed role, ask it to return to your questions and reasoning. Check whether its next answer follows the rules.

The five rounds (A to E)

18.–22. Each round has a prompt to copy and a note for you. After every round, write the key findings in your own words – do not paste raw AI text.

Round A Build a fact base

10 min

18. Copy the prompt and write the key findings in your own words.

Prompt A

I am working on the ecological footprint, combining geography and economics.

Before we discuss: give me three specific data points (with verifiable source and year) comparing the ecological footprint per capita of a) Austria, b) the world average, and c) one low-income country of your choice. Then ask me one question: which of these numbers surprises me most, and why.

Round A – Which three data points (with sources)? What surprises you, and why?

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Round B

8 min

Let your hypothesis be challenged

19. Copy the prompt and write the key findings in your own words.

Prompt B

One of my hypotheses is: "_____ [insert your hypothesis from 1.3]".

Do not evaluate it directly. Ask me 2–3 questions that help me test it myself. Only after my answers: give one argument that supports my hypothesis and one that contradicts it – each with a source.

Round B – What did the AI ask? What did you answer? Did your hypothesis change?

Round C

8 min

Take the counter-position seriously

20. Copy the prompt and write the key findings in your own words.

Prompt C

My current view on the question "Should wealthy countries shrink their economies to reduce the ecological footprint?" is: "_____ [insert your current view]".

Now play the counter-position: act as an economist who argues that economic growth is necessary for environmental protection (Environmental Kuznets Curve). Give me the strongest version of that argument in three points. Then ask me which of the three is hardest to refute – and why.

Round C – Which counter-argument is strongest? Did anything surprise you?

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Round D

10 min

Numbers and the trade dimension

21. Copy the prompt and write the key findings in your own words.

Prompt D

I need specific figures to support my position:

What is Austria's ecological footprint per capita in global hectares (gha), and how many "Earths" would be needed if everyone lived like Austrians?

What share of Austria's CO_2 footprint is caused by imported goods (so-called "outsourced" or "embedded" emissions)?

Which two EU policies aim to reduce the ecological footprint?

For every number, give a verifiable source (institution, year, document type). Mark unclear or disputed figures as such. Then ask me which figure matters most for my position.

Round D – Write down the numbers + sources here.
You will fact-check them in phase 3!

Round E

5 min

Sharpen, do not confirm

22. Copy the prompt and write the key findings in your own words.

Prompt E

I now have a stronger factual basis. My preliminary position is: "_____ [insert your position]".

Ask me three hard follow-up questions that will help me stress-test my position before I record my mini-podcast in **phase 4**. Do not confirm my position – I want to challenge it again myself.

Round E – Which three questions? Which one shakes you most?

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3 Phase 3: independent deepening without AI (homework)

Close the AI tool. This phase is done entirely without AI. Use it to prepare evidence for your mini-podcast.

AI answers may confuse indicators, dates or the difference between per-capita and national totals. Check claims against the original sources.

3.1 Fact-check: verify what the AI told you

23. Pick two specific numbers or claims the AI gave you in Rounds A or D and verify them independently. Use the original source where possible. Recommended starting points include Global Footprint Network, Eurostat, OECD, Statistik Austria, IPCC and Umweltbundesamt Austria. For numbers, check the indicator, unit, data year and publication year.

For each claim note: a) what the AI said, b) what your source says, c) match / mismatch / missing context

3.2 Your own source

24. Find one additional source that did not appear in your AI dialogue. This could be a recent newspaper article (Der Standard, The Guardian Environment, Financial Times Climate), an NGO position paper (WWF, Greenpeace, Global 2000) or a government report. Record who produced it and distinguish evidence from opinion.

Source (URL / citation, year, author) + new perspective in 2–3 sentences:

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4 Phase 4: mini-podcast (homework, two-minute audio)

25. Record a two-minute voice message in English. Speak from brief notes and aim for one take.

What your podcast must include

- Three mandatory parts, in this order. About two minutes total.
- Part 1 (max. 30 sec): your own thesis, clearly stated
- Part 2 (max. 45 sec): the strongest counter-argument you take seriously
- Part 3 (max. 45 sec): one specific AI claim from **phase 2** that you had to correct or relativise in **phase 3** — name the source of your correction
- Closing line: your sharpened final position in one sentence

Recording guidelines

- Guiding question to speak about: "Should wealthy countries like Austria actively shrink their economies to reduce the ecological footprint, or can growth and sustainability go hand in hand?"
- Record a two-minute voice message in English. Speak freely and aim for one take without editing. Small hesitations and short pauses are fine; they show real thinking.
- A short bullet-point cheat sheet is allowed (max. 10 bullet points). Use keywords and short notes.
- Write your own notes and record your own voice. Work without AI. If a technical problem makes editing or a second take necessary, explain this in your **phase 5** reflection.
- Submit the audio file (.m4a or .mp3) to your teacher and include the source link of your **phase 3** fact-check correction.

Space for your bullet-point cheat sheet

Cheat sheet (max. 10 bullet points):

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5 Phase 5: reflection on your thinking process (homework)

Answer all five questions in writing, 2–4 sentences each. Be honest. "The AI was helpful" is not enough. Give specific examples from your notes and dialogue.

26. Compare your notes from **phase 1** with what you said in your mini-podcast in **phase 4**. Where did your thinking actually change – and through which specific piece of information?

Your answer:

27. Where did the AI try to give you a quick answer instead of asking you back? How did you react?

Your answer:

28. Which AI claim did you have to correct or relativise in the **phase 3** fact-check? What does that tell you about trusting AI answers on environmental data?

Your answer:

29. Would your mini-podcast in **phase 4** have been better, worse or just different without the AI dialogue? Justify your answer.

Your answer:

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30. Formulate one personal rule about when you will use AI for schoolwork in the future – and when you will deliberately avoid it.

Your answer:

Grading overview

Here is what earns points. 100 points in total.

Phases	What we assess	Points
Phase 1: own position	picture interpretation + reading comprehension + own hypotheses and guiding question	**30**
Phase 2: AI dialogue	all five rounds documented, including your own guiding question and reasoning	**20**
Phase 3: deepening (no AI)	two reliable sources, fact-check carried out	**10**
Phase 4: mini-podcast	thesis, counter-argument, AI fact-check with source	**25**
Phase 5: reflection	depth of self-observation, critical distance from AI	**15**

Grading scale: 90–100 = Sehr gut • 80–89 = Gut • 70–79 = Befriedigend • 60–69 = Genügend • 0–59 = Nicht genügend

Data protection — important

Use only an AI platform your school has approved and that is data-protection compliant for your age group (e.g. a school-approved, GDPR-compliant AI platform).

- Never enter personal data in prompts – no names, addresses, phone numbers or school names.
- Do not write anything to the AI that you would not show your teacher.
- If the AI writes something strange or offensive, show it to your teacher.

Follow your school's rules for AI use, recording and submission. Your teacher will explain the approved tool and how to submit your work.

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