



REFLECTED IN WATER

1a WARM UP: Today you are Epoch Detectives!

Imagine you're geologists 10,000 years in the future. You study rocks and sediments and try to understand what happened in *our* time. Scan your QR code to see a landscape from the human epoch. Your job is to decide what future scientists would see in the geological records.

1b JIGSAW READING: HOLOCENE vs ANTHROPOCENE

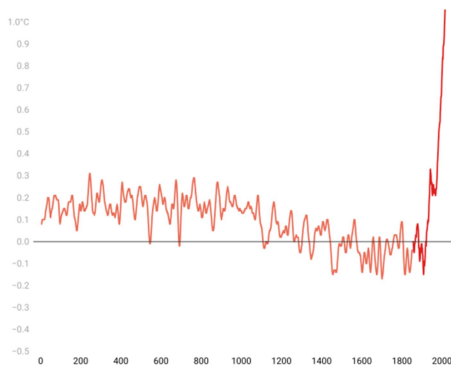
Read your text silently. Choose 8 key words that help you remember the main ideas and write them on a separate paper. Turn your text over and keep only your 8 words. Now explain your period to your partner using only your 8 words as prompts. Do not read from the text.

☛ Reflective Question:

What has changed from the Holocene to the Anthropocene?

1c THE GREAT ACCELERATION

Look at the graph. Which things in our world do you think have followed the 'hockey stick' pattern since around 1950? In pairs, make a list of possible examples and be ready to share your ideas with the class.



Examples:

[Source: <https://time.com/6088531/ipcc-climate-report-hockey-stick-curve>]

1d THE GREAT ACCELERATION

Read the text below about the 'Great Acceleration'.

The Great Acceleration is the rapid increase in human activities - like energy use, pollution, and resource extraction - that started around 1950 and accelerated sharply towards the end of the 20th century. This was unprecedented in human history because so many activities grew so fast at the same time.

Now work with your partner. Complete the sentence with your own ideas. List as many ideas as you can. Use the example to help you.

Example: The Great Acceleration means that plastic production has increased very fast since around 1950, and this affects our oceans and wildlife.

Your sentence: The Great Acceleration means that _____ has increased very fast since around 1950, and this affects _____.

2a THE CLIMATE MYSTERY

Your teacher will give you four cards. Each card has one idea about how warming affects water and soil. Your job is to use these cards to solve the climate mystery:

How can global warming cause both droughts AND floods?

Work in your group. Use the cards to make two separate cause-effect chains:

- One chain explains drought
- One chain explains heavy rainfall / floods

Important:

- Each chain can use one, two, three or all four cards.
- The same card can appear in both chains if it helps explain both drought and floods.
- Try to use each card at least once somewhere.

Once you have decided on a cause-effect chain, copy it below and draw arrows between the ideas to show how one leads to the next.

a. THE DROUGHT CHAIN

b. THE FLOOD CHAIN

2b CASE FILE ANALYSIS

Your teacher will give each group a real climate case. Read your Climate Case File together. Use your drought and flood chains to help explain what is happening in your place:

- Which card(s) (A, B, C, or D) are most important? Why?
- How does warming play a role in this case?
- Where does human vulnerability increase the impact? (e.g. city design, infrastructure, dry soils, burned land, living in low areas, etc.)

2c PRESENTATION OF CASE FILE

Prepare a 1-minute “scientist explanation” as if you are climate scientists on the news. Include:

- the name of your place
- which chain(s) you used (drought/flood/both)
- which card(s) are more relevant (A,B,C, or D)
- one sentence on human vulnerability (why the impacts are so bad there)



● Reflective Questions:

Are there any similarities in these cases?

If rainfall patterns are changing this much, what happens to cities, dams, water systems and other infrastructure built using old data?

3a UNPREDICTABILITY: WHO IS MOST AT RISK?

Climate unpredictability (droughts, floods, weird seasons) can affect many parts of society. Rank the following risks from 1 (most affected by climate unpredictability) to 6 (least affected). Justify your top 2 choices with one sentence each. Then decide: Which systems influence each other?

- ☐ flood barriers
- ☐ agricultural planning
- ☐ insurance system
- ☐ tourism
- ☐ drinking water supply
- ☐ emergency services

3b USING SYSTEMS THINKING TO NAVIGATE UNPREDICTABILITY

In real life, things are connected in circles (or loops), not just straight lines

Example:

Rainfall unpredictability → crop failure → higher food prices → more social tension

- Can you think of another example where one problem makes another worse, and that new problem makes the first one worse again?

3c UNPREDICTABILITY AS A SYSTEM: LOOPY

You're going to visualize unpredictability as a system with [Loopy](#).

In your group, draw a simple "system map" or create a simple Loopy diagram (if available). Include at least the following required four elements (nodes):

- climate unpredictability (e.g. strange rainfall, heatwaves, sudden floods)
- one system from your ranking (e.g. agriculture, tourism, or drinking water)
- one social or economic effect (e.g. prices, jobs, migration, health)
- a feedback effect (something that makes the situation better or worse again)

Use arrows with simple words like: increases, decreases, leads to, worsens, improves

Example:

Unpredictable rainfall → agricultural losses → higher food prices → political pressure → policy changes in farming or water use → can improve or worsen climate vulnerability



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3d SYSTEM REFLECTION: Understanding and intervening in loops

Look at the system map you drew. Answer these questions:

- Describe one reinforcing loop in your system that makes the problem worse. What are the steps?
- Are there any loops that stabilise the system?
- If feedback loops can amplify problems, what small change today could prevent a reinforcing loop from becoming dangerous? Explain how your change would weaken or break the loop.

Designed in collaboration with:



Name: _____