THE STANDARD

Changing Global Temperatures

Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

ANCHORING PHENOMENON

The Hockey Stick Graph

A graph of Earth's average surface temperature from the year 1000 to today. For nine centuries, the line wobbles slightly but stays roughly flat. Then around 1900, it bends upward sharply. The shape looks like a hockey stick lying on its side: a long flat handle, then a blade that turns straight up. Students will keep circling back to this all week. What changed?

> **DRIVING QUESTION**
> *"What happened around 1900 that pushed a thousand-year temperature pattern straight upward?"*

INVESTIGATIVE 1

800,000 Years of CO2 in an Ice Core

A graph from Antarctic ice cores showing atmospheric CO2 for the past 800,000 years. The line cycles between about 180 ppm and 280 ppm, over and over, matching ice ages and warm periods. Then in the last 150 years, it shoots past 430 ppm. The modern spike doesn't fit the natural cycle. Use this to sharpen the question the anchor is pushing on: what made the recent change different?

> **DRIVING QUESTION**
> *"If CO2 has cycled naturally for hundreds of thousands of years, why is the modern level so far outside the cycle?"*

INVESTIGATIVE 2

Arctic Sea Ice Then and Now

Satellite images of Arctic sea ice at the end of summer in 1979 and again in 2024. The 1979 image shows ice covering most of the Arctic Ocean. The 2024 image shows roughly half that area, with open water reaching much closer to the North Pole. Same satellite system, same time of year, same measurement method. The change is the ice itself. Same kind of gradual change as the anchor, only visible on a map.

> **DRIVING QUESTION**
> *"What does a shrinking ice cap tell us about how stable Earth's climate system is right now?"*