Climate evidence: station record sheet.

Name: _____ Class: _____ Date: _____

Fill in one box at each station. Give numbers, and say where each one comes from, for example (NOAA) or (State of the Climate 2024). After all eight stations, answer the last question together.

STATION 1 Measuring today

a How is carbon dioxide measured at Mauna Loa or Cape Grim, and why there?

b Carbon dioxide in 2025: _____ ppm. Why does it rise and fall each year?

c Two pieces of evidence that the climate is warming now, with numbers:

STATION 2 Reading proxies

a Three proxies:

PROXY	WHAT IT RECORDS	HOW FAR BACK IT REACHES
Ice core		
Foram shells		

b Over the last 800,000 years, carbon dioxide ranged from _____ to _____ ppm. In 2025 it was _____ ppm.

c Explain how oxygen isotopes in foram shells show when ice sheets grew.

STATION 3 Human records

a A historical record, and what it shows about past climate:

b A prehistorical record, and what it shows:

c Does the Medieval Warm Period show that today's warming is natural? Use the PAGES 2k findings.

STATION 4 The human fingerprint

a Explain the enhanced greenhouse effect in two or three sentences.

b Three human activities:

ACTIVITY	GREENHOUSE GAS IT ADDS

c One piece of evidence that the extra carbon dioxide comes from fossil fuels:

STATION 5 Carbon stores

a Three stores of carbon:

STORE	CARBON HELD	HOW LONG CARBON STAYS

b One benefit and one risk of geosequestration:

STATION 6 Policies

a A policy at each level:

LEVEL	EXAMPLE	HOW IT CAN CHANGE GREENHOUSE GAS LEVELS
Local		
State		
National		
Global		

b Why did CFCs in the air fall, while carbon dioxide kept rising?

STATION 7 Effects on the spheres

a One effect of climate change on each sphere:

SPHERE	EFFECT
Atmosphere	
Hydrosphere	
Biosphere	
Geosphere	

b Why does melting land ice raise sea level, when melting sea ice barely does?

c How does thawing permafrost link the spheres?

STATION 8 Climate models

a How a general circulation model works, in three steps:

b How are models tested?

c Warming projected for 2081–2100: lowest scenario _____ °C; highest scenario _____ °C. Why the range?

TOGETHER Putting it together

How do we know Earth's climate is changing, and that human activities are the main cause? Use evidence from at least three stations.