

Climate Pattern Detectives

Use long-term seasonal evidence to identify a region's climate.

4.4.c "long term seasonal weather trends determine the climate of a region."

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline clues that describe usual weather over many years, and *circle* clues that describe weather for only a short time. These clues help you tell climate from weather.

Meadow Creek's Seasons

- ① Weather can change from hour to hour. A windy Tuesday, a foggy morning, or a week of heavy rain tells what the air is doing for a short time. Climate describes the usual weather patterns in a region over many years. Scientists look for repeated seasonal patterns, such as summers that are usually hot or winters that are often snowy.
- ② To study climate, scientists collect weather measurements for many years, then find seasonal averages. The table shows a 30-year record for Meadow Creek, a made-up inland town. The numbers do not predict tomorrow's temperature. They show the temperatures that are typical for each season across the whole record. A pattern appears when the seasons are compared.

MEADOW CREEK: AVERAGE SEASONAL TEMPERATURE OVER 30 YEARS

Season	Average Temperature
Spring	57°F
Summer	81°F
Fall	60°F
Winter	34°F

- ③ Meadow Creek's record shows a warmest season and a coldest season, but one unusual day can still happen. A hot winter afternoon is weather, not proof that winter climate has changed. If winter temperatures became warmer in record after record over several decades, scientists could say the region's climate trend was changing. Long-term evidence makes the difference.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What temperature pattern does the table show from winter to summer? Use both seasons in your answer.

2 Which season is usually the warmest in Meadow Creek? What evidence supports your answer?

3 A hot winter afternoon happens in Meadow Creek. Does this one event prove that the winter climate has changed? Explain.

4 Why do scientists use seasonal averages from many years instead of tomorrow's temperature to describe climate?

3 YOUR TURN _____ Your own words

Invent a region called Harbor Plain. Write exactly three sentences describing its usual weather over many years in at least two seasons. In your third sentence, state what its climate is like and use seasonal evidence.

PART 1 • READ AND MARK

Underline clues that describe usual weather over many years, and *circle* clues that describe weather for only a short time. These clues help you tell climate from weather. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What temperature pattern does the table show from winter to summer? Use both seasons in your answer.	Winter is typically cold, averaging 34°F, while summer is typically warm, averaging 81°F.
2	Which season is usually the warmest in Meadow Creek? What evidence supports your answer?	Summer is usually the warmest season because its 30-year average temperature is 81°F, the highest value in the table.
3	A hot winter afternoon happens in Meadow Creek. Does this one event prove that the winter climate has changed? Explain.	No. One hot winter afternoon is weather, and climate change must be shown by long-term records over several decades.
4	Why do scientists use seasonal averages from many years instead of tomorrow's temperature to describe climate?	Seasonal averages from many years show the usual, repeated weather patterns of a region. Tomorrow's temperature is only short-term weather.

PART 3 • YOUR TURN (SAMPLE ANSWER)

For many years, Harbor Plain has had cool, rainy springs and warm, dry summers. Its autumns are mild, and its winters are chilly with frequent snow. These repeated seasonal patterns show that Harbor Plain has a climate with warm summers and cold, snowy winters.

Accept answers that use repeated seasonal conditions over many years as evidence of climate. For the open response, accept reasonable invented patterns if the student distinguishes long-term climate from a single weather event.