

Name: _____

Period: _____

Lesson 2: What is special about cities compared to rural places and other regions overall?

Part A Questions:

1. What do you notice about the data?

Fastest-Warming Summers

Since 1970, summers have been warming in 45 of the lower 48 states. In many of these states, this warming is driven largely by nighttime temperatures getting hotter.

Fastest Warming Summers

Rate of June-August Warming, °F/decade

1	New Mexico	0.65
2	Delaware	0.62
3	Texas	0.59
4	Maryland	0.54
5	Nevada	0.52
6	New Jersey	0.51
7	Utah	0.50
8	Arizona	0.49
9	Colorado	0.48
10	Idaho	0.47



2. The average summer temperature in Colorado is currently 82 degrees Fahrenheit. Using the rate of temperature change in Colorado in the table above, use the space below to calculate the average summer temperature in Colorado in 2100 (83 years from now or 8.3 decades).

3. Denver’s average summer temperature is currently 85.5 degrees Fahrenheit. In 2100, scientists predict the average summer temperature to be 10.9 degrees Fahrenheit hotter. What is the rate of change of the temperature per decade for Denver (Note: calculate the rate of change by dividing the average temperature increase by 8.3 decades)?

Write your answers, including units in the space below



4. Compare your data calculations as a group:
Predicted Average Summer Temperatures (°F) in 2100

Rate of Increase in Temperature (°F) per Decade (10 years)

Colorado: _____

Colorado: _____

Denver: _____

Denver: _____

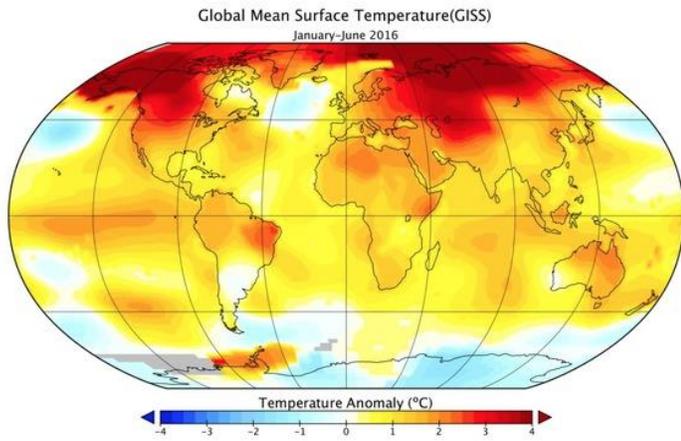
5. Based on your calculations, write a claim about the difference in rates of summer temperature increase between Denver (city) and Colorado (state). Include evidence (measurements and units) and reasoning from your calculations.

6. Write down all your ideas for why you think this difference in rates of temperature change is happening in Denver compared to Colorado.

Part B: What's going on in the world?

7. Look at the map of the world below. Temperature anomaly means the current difference from a long-term average temperature. What do you notice about the global temperature anomalies shown in the map? What differences do you see between regions? Specifically, where are the largest anomalies and where are the smallest anomalies? What is causing this?





8. Look at the graph below that represents the global temperature from 1880 until 2017. What do you notice about the overall temperature trend globally? What do you notice about the rate of temperature change? Why do you think this is happening?

GLOBAL LAND-OCEAN TEMPERATURE INDEX

Data source: NASA's Goddard Institute for Space Studies (GISS). Credit: NASA/GISS

