

## CREATING AND COMPARING CLIMOGRAPHS USING SPREADSHEETS

### Performance Standard (17A/17B).H

Complete a climograph using a spreadsheet program for two cities of approximately the same latitude in the United States, compare the locations and climates of the two cities and explain in a short essay the differences in the two cities' climates accordingly:

- *Knowledge*: know how to construct a climograph using a spreadsheet program and determine data for cities; (for example: Seattle and Minneapolis).
- *Reasoning*: use a climograph to compare locations and climates.
- *Communication*: produce an explanation that is well focused, well organized and well detailed; express all ideas in a way that provides evidence of knowledge and reasoning processes.

### Procedures

1. *In order to locate, describe and explain places, regions and features on Earth (17A) and analyze and explain characteristics and interactions of Earth's physical systems (17B)*, students should experience sufficient learning opportunities to develop the following skills:

- Demonstrate understanding of how to display spatial information by constructing maps, graphs, diagrams and charts to display spatial information (e.g., choropleth maps, climographs, population pyramids).
- Analyze climographs for selected places and suggest reasons for similarities and differences in climates (e.g., use a line to represent average monthly temperatures and a vertical bar to show average monthly precipitation).

Developing charts with spreadsheet programs is an important skill for business students to acquire.

This assessment aligns with Administrative Support Cluster occupational skill standards #86 (Database and Spreadsheet Operations/Create spreadsheet, input data into spreadsheet, update data in spreadsheet and store spreadsheet) and #91 (Computer Applications/Create graphs and charts from spreadsheets).

2. Have students review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Using the Internet or other sources such as the World Almanac and/or Atlas, students need to locate the average monthly precipitation and average monthly temperature data for two cities of approximately the same latitude. Data must be gathered for all 12 months.
4. Students will be responsible for completing a climograph for each city with this assessment. A line must represent the temperature data and a bar must represent the precipitation data.
5. Ask students to label each climograph by creating a title for each climograph.
6. Ask students to write a paragraph using the climographs to compare the locations and climates of the cities chosen. Students should explain how climatic differences of the cities result from location relative to large bodies of water, mountain ranges and wind patterns.
7. Evaluate each student's work using the attached rubric as follows and add the scores to determine the performance level:
  - *Knowledge*: Construction of the climograph and the determination of data for cities was complete and correct.
  - *Reasoning*: Analysis and comparisons of the two cities using the climograph was thorough and correct; data were used correctly to explain that although the two cities have about the same latitude, they may have warmer and wetter climates because of location, prevailing winds, the influence of water and land control, physical geography and the movement of storm systems.
  - *Communication*: The essay was well focused, well organized and well detailed; the knowledge and reasoning were accurately and effectively communicated in the essay.

**Examples of Student Work**

- [Meets](#)
- [Exceeds](#)

**Time Requirements**

- Two class periods

**Resources**

- Instructions are provided
- Internet to conduct research for data sets or additional resources available
- Spreadsheet software
- Map of United States – to determine cities of same latitude
- Social Science Rubric

## SOCIAL SCIENCE RUBRIC

NAME \_\_\_\_\_ DATE \_\_\_\_\_

- Exceeds standard (total points 11 - 12)                       Approaches standard (total points 5 - 7)  
 Meets standard (total points 8 - 10)                               Begins standard or absent (total points 1 - 4)

	<b>Knowledge</b> of evidence from the social sciences: facts/ supporting details; themes/ issues; and concepts/ideas	<b>Reasoning:</b> Analysis, evaluation and synthesis of evidence	<b>Communication:</b> Demonstrates knowledge and reasoning through oral, written, visual, dramatic or mixed media presentation
<b>4</b>	<ul style="list-style-type: none"> <li>• Key concepts/themes/ issues/ideas are thoroughly identified, defined and described.</li> <li>• Significant facts/ supporting details are included and accurately described.</li> <li>• Has little or no factual inaccuracies.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies and logically organizes almost all relevant evidence.</li> <li>• Uses appropriate and comprehensive critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence.</li> <li>• Reaches informed conclusions based on the evidence.</li> </ul>	<ul style="list-style-type: none"> <li>• Almost all ideas in the presentation are expressed in a way that provides evidence of the student's knowledge and reasoning processes.</li> <li>• The presentation is well focused with a well-defined thesis.</li> <li>• Presentation shows substantial evidence of organization.</li> <li>• Presentation shows attention to the details of specific performance conventions.</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>• Key concepts/themes/ issues/ideas are identified, defined and described.</li> <li>• Facts/supporting details are included.</li> <li>• May have a major factual inaccuracy, but most information is correct.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies and organizes most of the relevant evidence.</li> <li>• Uses partial critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence.</li> <li>• Reaches informed conclusions based on the evidence.</li> </ul>	<ul style="list-style-type: none"> <li>• Most ideas in the presentation are expressed in a way that provides evidence of the student's knowledge and reasoning processes.</li> <li>• The presentation demonstrates a focus and thesis with several narrative gaps.</li> <li>• Presentation demonstrates adequate evidence of organization.</li> <li>• Presentation has mistakes in attention to the details of specific performance conventions.</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>• Some key concepts/ themes/issues/ideas are identified, defined and described.</li> <li>• Some facts/supporting details are included.</li> <li>• Has some correct and some incorrect information.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies some relevant evidence and omits most of the other evidence.</li> <li>• Uses unclear, inappropriate or incomplete critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence.</li> <li>• Reaches incomplete or inaccurate conclusions based on the evidence.</li> </ul>	<ul style="list-style-type: none"> <li>• Some ideas in the presentation are expressed in a way that provides evidence of the student's knowledge and reasoning processes.</li> <li>• The presentation demonstrates an inadequate focus and thesis.</li> <li>• Presentation demonstrates inadequate evidence of organization.</li> <li>• Presentation has insufficient attention to the details of specific performance conventions.</li> </ul>
<b>1</b>	<ul style="list-style-type: none"> <li>• Few or no key concepts/ themes/issues/ideas are identified, defined and described.</li> <li>• Few or no facts/supporting details are included.</li> <li>• Information is largely inaccurate, absent or irrelevant.</li> </ul>	<ul style="list-style-type: none"> <li>• Important evidence relevant to the problem is not identified.</li> <li>• Critical thinking skills and habits of mind are absent.</li> <li>• Conclusions are lacking, absent or unclear.</li> </ul>	<ul style="list-style-type: none"> <li>• Expression of almost all ideas in the presentation is unclear.</li> <li>• The presentation demonstrates little focus and lacks a thesis.</li> <li>• Presentation demonstrates little or no evidence of organization.</li> <li>• Presentation has multiple mistakes in attention to the details of specific performance conventions.</li> </ul>
<b>Score</b>			