

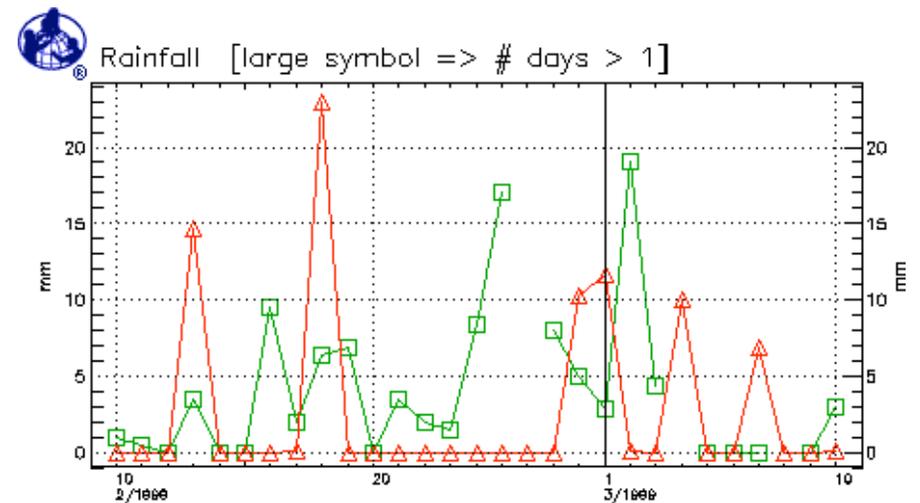
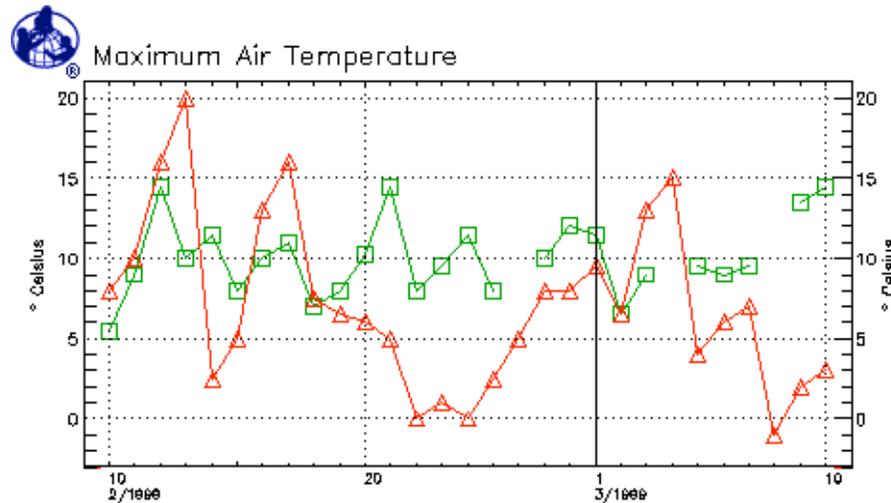
LAND COVER INVESTIGATION AREA GLOBE SAMPLE STUDENT ASSESSMENT TOOL – HIGH SCHOOL

(Given data from the GLOBE data archives)

GLOBE Data for:

- 1) West Chester High School, West Chester, PA
- 2) Kent Prairie Elementary School, Arlington, WA

School	Latitude	Longitude	Elevation (m)
West Chester High School	39.9662 N	75.5977 W	338
Kent Prairie Elementary School	48.1832 N	-122.1198 W	157



△ West Chester B. Reed Henderson High School – West Chester PA US ATM-02 PC △ West Chester B. Reed Henderson High School – West Chester PA US ATM-02
□ Kent Prairie Elementary School – Arlington WA US ATM-01 School Location □ Kent Prairie Elementary School – Arlington WA US ATM-01 School Location

(Present problem requiring use of GLOBE data archives)

West Chester High School and Kent Prairie Elementary are two GLOBE schools that have similar MUC codes. However, locations that have the same MUC may or may not have similar weather patterns. Recently, the two schools have decided to collaborate on a plant-growing science project and you and a small group of students have been asked to write the final report. The project involves finding which school has more favorable conditions for plant

growth. Given air temperature and rainfall data from both schools, your job is to help determine which environmental factors are most important to plants growing at the two land cover sites.

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- 1) **(Plan Investigations: Pose relevant questions)** Look at the GLOBE data above. Think of two questions you might ask regarding the data. A sample question might be “Is there anything unusual regarding air temperature between the two schools considering they have the same MUC code?”
- 2) **(Interpret GLOBE Data: Infer patterns, trends)** One of the students in your investigation group, Martha, suggested that finding trends in different sets of data is sometimes helpful for analysis. What trend do you see regarding the air temperature for West Chester High School? What trend do you see regarding the rainfall for West Chester?
- 3) **(Take GLOBE Measurements: Use quality assurance procedures)** You have watched some of the students at your school collect GLOBE data and have been impressed by how thorough they are. As a check, are there any data that you suspect might be due to a measurement error? How can you tell? What would you tell these students to insure that this doesn't happen again?
- 4) **(Analyze and Compare GLOBE Data: Identify data components)** Another student in your investigation group, Antonio, mentioned that finding trends between different variables can be a very useful part of analysis. What is the relationship between the two variables given? For example, if rainfall increases, what happens to the air temperature?

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- 5) **(Interpret GLOBE Data: Create multiple formats to represent data)** Using the maximum air temperature graph, break the graph into four 1-week groups. Make a table showing the range in temperature for each week at each school. Compare the range in temperatures between the two schools. How may this table you just created be helpful in finding which school has more favorable conditions for plant growth?
- 6) **(Interpret GLOBE Data: Create multiple formats to represent data)** Using the rainfall graph, create a similar table to the one you made for question 5 but find the total amount of rainfall for each school for each week. Compare the amount of rainfall between the two schools. How may this table you just created be helpful in finding which school has more favorable conditions for plant growth?

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- 7) **(Analyze and Compare GLOBE Data: Identify data components)** When analyzing graphs there is a lot of information to be aware of. What does it mean if there is a break in one of the graphs? If you are looking at the maximum air temperature graph, what does the line between two data points mean? If you are looking at the rainfall graph, what does the line between two data points mean?
- 8) **(Plan Investigations: Set up another problem)** Choose another school with the same or very similar MUC code from the GLOBE database and compare this school with the two schools above. What trends do you see from this new school? In other words, how is this school the same and/or different from the two schools given above? What other land cover variables might you look at to tell you more about the environmental factors at each school? Why did you choose these variables?
- 9) **(Communicate: Compose reports to explain or persuade)** Using the data analysis you have done, write a short report (1 – 2 pages) that summarizes your findings and explains which school site has more favorable conditions for plants. Keep in mind that not all plants require the same environmental conditions for growth. Be sure to support your conclusions with data you have analyzed and suggest other data that might be helpful for further study of the land cover sites.