

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

(Given data from the GLOBE data archives)

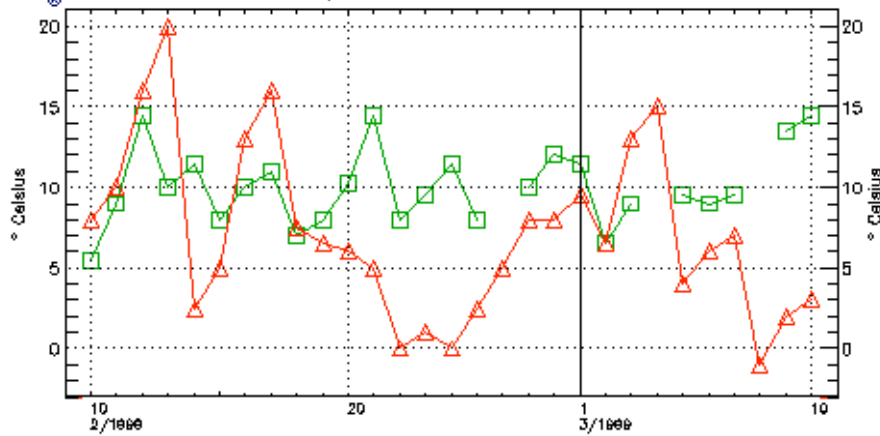
GLOBE Data for:

- 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



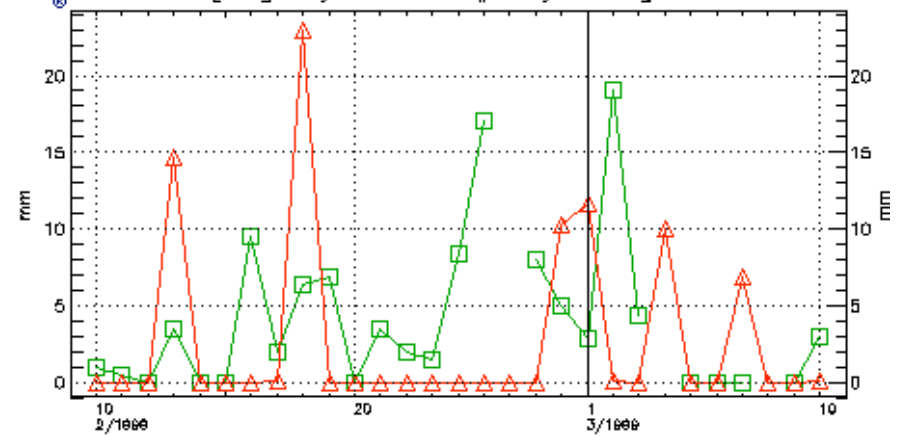
Maximum Air Temperature



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



Rainfall [large symbol => # days > 1]



△ West Chester B. Reed Henderson High School – West Chester PA US ATM-02
□ 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 work together 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 schools.

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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 you think they have done a pretty good job. What do you think are the three most important things to be careful of when collecting and reporting data?
- 4) **(Analyze and Compare GLOBE Data: Identify similarities and differences)** Another student in your investigation group, Antonio, mentioned that comparing data between two schools might be helpful in figuring out which school is the better one to grow certain plants at. Looking at the maximum air temperature graph, what are two things that look different between the two schools? In other words, what are two ways in which the graph line for West Chester High School looks different from the graph line for Kent Prairie Elementary School?

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- 5) **(Interpret GLOBE Data: Create multiple formats to represent data)** Using the maximum air temperature graph, look at the graph lines for the two schools for the week from February 15th to February 21st. Make a table that shows the temperature for each school on each of these days. How might this type of table be helpful in your search to find the school that can grow certain plants better?
- 6) **(Interpret GLOBE Data: Create multiple formats to represent data)** Using the rainfall graph, make a table that shows the total rainfall for each school for February 10th – 20th, February 21st – 28th, and March 1st – 10th. 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?
- 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.