

Average High and Low Temperatures in Augusta, GA – A Line Graph Activity

In this activity, we are going to draw a line graph representing the average monthly highs in Augusta, GA.

Materials needed:

- graph paper
- a #2 pencil
- a computer with internet access
- 2 different coloured pencils

A. Go to the following website, which gives the average monthly high and low temperatures in Augusta:

<http://www.weather.com/activities/other/other/weather/climo-monthly.html?locid=30906>

B. On an xy-axis, label the x-axis with the months of the year and the y-axis with temperatures. Make sure you start your labeling on the y-axis in such a way that you can fit all of the temperatures in the chart on the web page.

What is the domain of this relation? _____

What is the range of the relation between the months and the average **highs**? _____

What is the range of the relation between the months and the average **lows**? _____

What is the lowest average low? _____ What is the highest average high? _____

These last two numbers will tell you the range of values your y-axis needs to cover.

C. Plot the points for the average highs on your xy-axis and connect them with one of your coloured pencils. Plot the points for the average lows on the same xy-axis and connect them with your other coloured pencil. **Don't connect the two graphs together in any way!** These two graphs are called line graphs.

The following questions are based on your line graphs and other data in the chart on the website.

1. Is there any place on the graph where your two line graphs cross? _____ If they were to cross, what would it mean at the point of intersection? _____

What would it mean if the "average low" relation were higher than the "average high" relation at any point?

2. What month has the lowest average high temperature? _____ What month has the lowest average low temperature? _____ (These temperature values are called the *minimums* of your graphs.) In what month would you expect the lowest **daily** temperatures to be? _____

3. What month has the highest average high temperature? _____ What month has the highest average low temperature? _____ (These temperature values are called the *maximums* of your graphs.) In what month would you expect the highest average **daily** temperatures to be? _____

4. Which month is the wettest overall? _____ What is the average monthly precipitation for that month? _____

5. Which month is the driest overall? _____ What is the average monthly precipitation for that month? _____

On your chart on the website, the individual months are hyperlinked. If you click on a particular month, it gives daily average information, record highs and lows, and times of the sunrise and sunset.

6. Find the **date** (month, day, year) of when the lowest record low occurred. _____ What temperature was reached on this day? _____
7. Find the **date** of when the highest record high occurred. _____ What temperature was reached on this day? _____
8. What is the difference between the record low temperature ever in Augusta and the record high temperature in Augusta? _____
9. Find the “longest” day(s) of the year (the days with the most sunlight). What are the date(s)? _____

 How much sunlight does Augusta get on those days? (In hours and remaining minutes) _____
10. Find the “shortest” day(s) of the year (the days with the least amount of sunlight). What are the date(s)?

 How much sunlight does Augusta get on those days? (In hours and remaining minutes) _____

The longest day of the year is called *Summer Solstice*; the shortest day of the year is called *Winter Solstice* and both are important days in many ancient belief systems. These dates also mark the first day of Summer and Winter, respectively.

For more on Summer Solstice, go here: <http://scienceworld.wolfram.com/astronomy/SummerSolstice.html>

For more on Winter Solstice, go here: <http://scienceworld.wolfram.com/astronomy/WinterSolstice.html>

Both of these pages have neat graphs that show how the actual dates of Summer and Winter Solstice change over time between one day and another. Check against the charts at the bottom of these web pages to see how accurate you are in the dates you got.

11. Actual Summer Solstice for this year _____ Actual Winter Solstice for this year _____

12. If you got more than one date for the solstices, why do you suppose that is? _____

13. Days where there is exactly as much “daytime” as there is “nighttime” have _____ hours of both daylight and darkness. Find dates where this occurs. _____

These days occur around the time of the dates called the *Vernal Equinox* (in the spring) and the *Autumnal Equinox* (in the fall). The Vernal Equinox is the date marking the first day of spring; the Autumnal Equinox is the date marking the first day of fall.

For more information on Vernal Equinox, go to <http://scienceworld.wolfram.com/astronomy/VernalEquinox.html>

For more information on Autumnal Equinox, go to <http://scienceworld.wolfram.com/astronomy/AutumnalEquinox.html>

Again, the dates of the equinoxes change depending on the year. Check the charts at the bottom of these pages to see how close to the actual equinoxes you got.

14. Actual Vernal Equinox this year _____ Actual Autumnal Equinox this year _____

15. Find your birthday on the weather.com website. What is the average daily high for that day? _____
 Average daily low _____ Record high for that day and when it occurred _____
 Record low for that day and when it occurred _____ What is the average amount of daylight for that day? _____

<u>Jan</u>	56°F	33°F	45°F	4.50 in	83°F (1949)	-1°F (1985)
<u>Feb</u>	61°F	36°F	49°F	4.11 in	86°F (1962)	9°F (1973)
<u>Mar</u>	69°F	43°F	56°F	4.61 in	89°F (1995)	12°F (1980)
<u>Apr</u>	77°F	48°F	62°F	2.94 in	96°F (1986)	26°F (1982)
<u>May</u>	84°F	57°F	70°F	3.07 in	99°F (1964)	35°F (1971)
<u>Jun</u>	90°F	65°F	78°F	4.19 in	105°F (1952)	47°F (1984)
<u>Jul</u>	92°F	70°F	81°F	4.07 in	107°F (1980)	55°F (1951)
<u>Aug</u>	90°F	68°F	79°F	4.48 in	108°F (1983)	54°F (1968)
<u>Sep</u>	85°F	62°F	74°F	3.59 in	101°F (1999)	36°F (1967)
<u>Oct</u>	76°F	50°F	63°F	3.20 in	97°F (1954)	22°F (1952)
<u>Nov</u>	68°F	41°F	54°F	2.68 in	90°F (1961)	11°F (1950)
<u>Dec</u>	59°F	35°F	47°F	3.14 in	82°F (1998)	5°F (1981)