# ACCESSING THE INTERNET

Log on.

Double click on Netscape Navigator.

In the location box type:

**http://www.nbc4.com**

Click on Weathernet 4.

Click on Intellicast.

A. Click on "USA".

B. Locate desired city on map and click.

I. Click on "city almanac" in the left column.
II. Copy high temperatures onto given chart below.

C. Repeat steps A and B above until chart is complete.

## MONTHLY AVERAGE HIGH TEMPERATURES ( ° F )

| | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Miami | | | | | | | | | | | | |
| Chicago | | | | | | | | | | | | |
| Dallas | | | | | | | | | | | | |
| Fairbanks | | | | | | | | | | | | |

# GRAPHING THE DATA

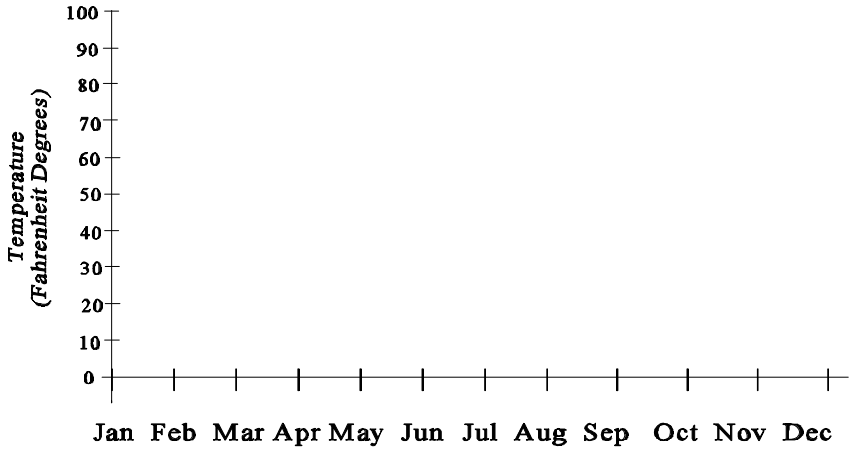
INSTRUCTIONS:

1 a. Press **STAT.**
b. Choose **EDIT.**
c. In **L1** enter 0, 1, 2 ....., 11 to represent the months January through December.
d. In **L2** enter Miami temperatures.

2. a. Press **Stat Plot** ( 2nd Y= ).
b. Choose **1.**
c. Choose **On.**
d. Choose Type: **Scatter Plot**.
e. X list: L1; Y list: L2
f. Press **Window**: [-1,12]; Xscale 1; [0,100]; Yscale 10.
g. Press **Graph.**

3. a. Copy graph on axes provided.
b. Is this temperature data periodic? _____
c. What type of graph does this appear to be?_____

**MIAMI**

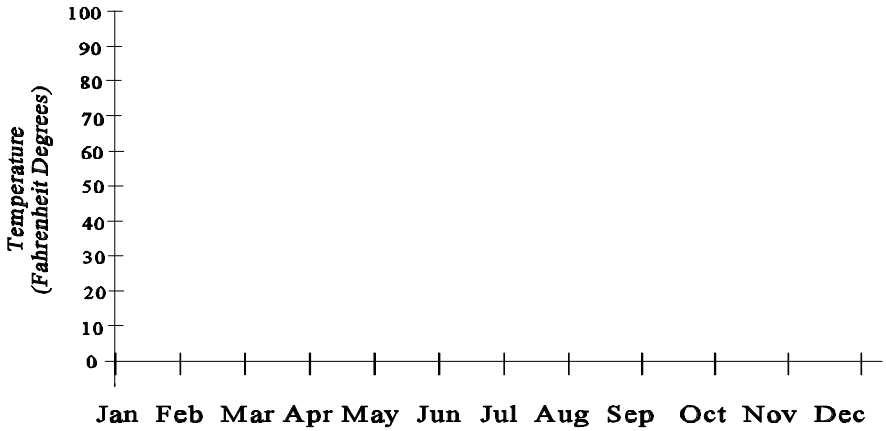



4. a. What is the amplitude?_____
b. What is the period?_____
c. Write the equation of the curve above in the form $y = A \cos (Bx) + D$.

_____

d. Verify your answer by entering your equation in Y1 and graphing on top of the stat plot.

**Repeat Instructions 1-3 on the previous page for Chicago, Dallas, and Fairbanks.**




**CHICAGO**

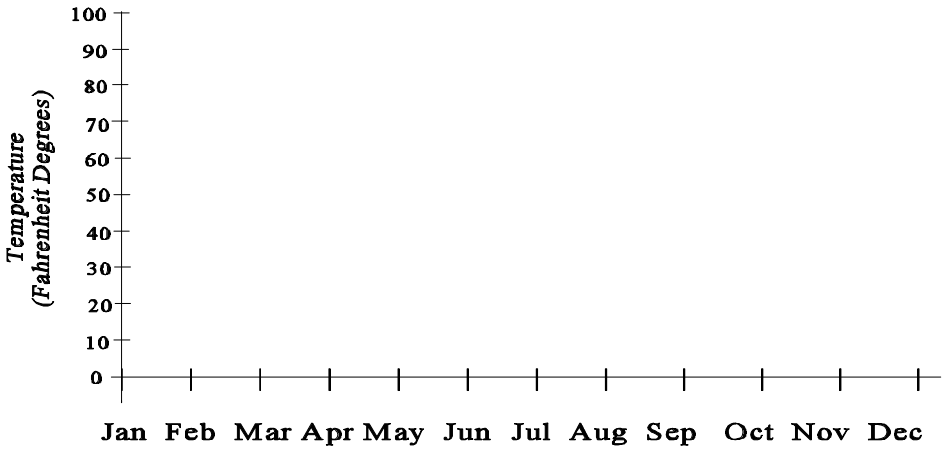
a. What is the amplitude?_____

b. What is the period?_____

c. Write the equation of the curve above in the form $y = A \cos (Bx) + D$.

_____

d. Verify your answer by entering your equation in Y1 and graphing on top of the stat plot.

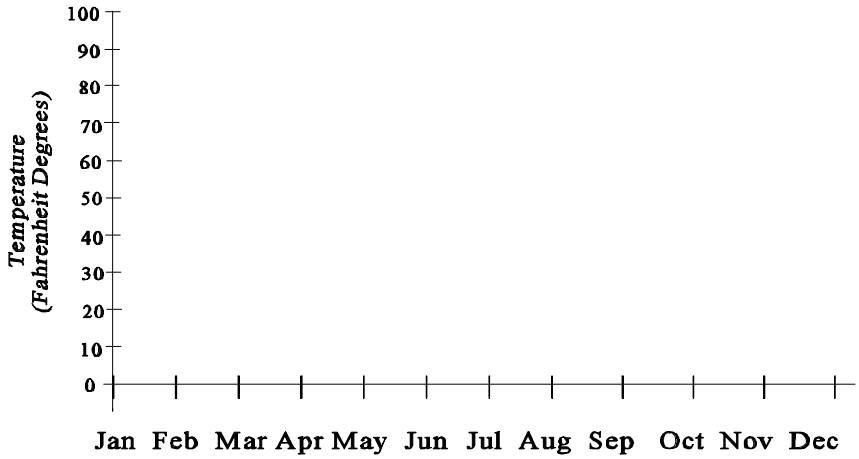



**DALLAS**

a. What is the amplitude?_____
b. What is the period?_____
c. Write the equation of the curve above in the form $y = A \cos (Bx) + D$.

_____

d. Verify your answer by entering your equation in Y1 and graphing on top of the stat plot.




**FAIRBANKS**

a. What is the amplitude?_____

b. What is the period?_____

c. Write the equation of the curve above in the form $y = A \cos(Bx) + D$.

_____

d. Verify your answer by entering your equation in Y1 and graphing on top of the stat plot.

**SUMMARY**

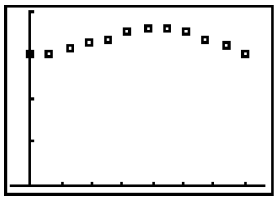
1. What is the same about all the **A** values?_____
   Explain why?_____
2. Where in the world do you think the A-values would have the opposite sign?
   Give 2 specific cities _____ _____
   Why did you choose these cities? _____
3. What is true about the periods of the graphs of all cities observed?_____
   Why?_____
4. Which city shows the greatest variation in average high temperatures?_____
5. List the four cities in order from greatest to least variation.

   _____
   _____
   _____
   _____

# TEACHER RESOURCE

## MONTHLY AVERAGE HIGH TEMPERATURES ( ° F )

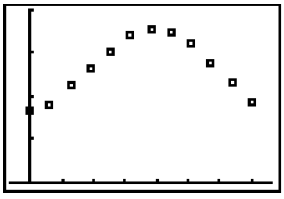
| | **J A N** | | **M A R** | **A P R** | | **J U N** | **J U L** | | **S E P** | **O C T** | | **D E C** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Miami | | 75 | 79 | | 84 | 88 | | 90 | 88 | | 84 | 75 |
| | 28 | 34 | | 59 | 70 | | 82 | 82 | | 64 | 48 | |
| Dallas | 55 | | 66 | 75 | | 91 | 97 | | 90 | 79 | | 59 |
| Fairbanks | | 7 | 25 | | 59 | 70 | | 66 | 55 | | 10 | 1 |



4. a. What is the amplitude?_____
   b. What is the period?__12___

y = -7.5 cos(π





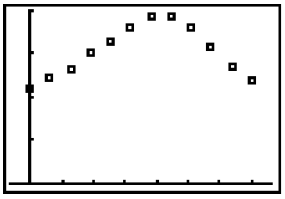
CHICAGO

__28__

b. What is the period?_____

c. Write the equation of the curve above in the form y = A cos (Bx ) + D.

y = -28 cos ( x/6) + 56

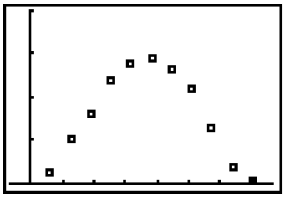


DALLAS

a. What is the amplitude? 21
b. What is the period? 12
c. Write the equation of the curve above in the form $y = A \cos (Bx) + D$.

$y = -21 \cos (\pi x/6) + 76$

Activity 1, Page 4



FAIRBANKS

a. What is the amplitude? 37
b. What is the period? 12
c. Write the equation of the curve above in the form $y = A \cos (Bx) + D$.

$y = -37 \cos (\pi x/6) + 36$

**SUMMARY**

1. What is the same about all the **A** values? They are all negative.
   Explain why? They are located in the northern hemisphere.

2. Where in the world do you think the A-values would have the opposite sign?
   Give 2 specific cities Answers will vary ex: Santiago, Chile; Sydney, Australia
   Why did you choose these cities? They are located in the southern hemisphere.

3. What is true about the periods of the graphs of all cities observed? All the periods are 12.
   Why? There are 12 months in a year.

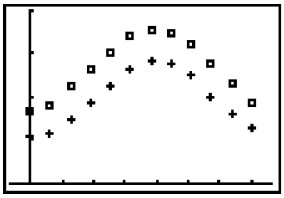
4. Which city shows the greatest variation in average high temperatures? Fairbanks, Alaska

5. List the four cities in order from greatest to least variation.
   Fairbanks
   Chicago
   Dallas
   Miami

Activity 2 Page 1

| Wash.D.C | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HIGH TEMP** | **42.3** | **45.9** | **56.5** | **66.7** | **76.2** | **84.7** | **88.5** | **86.9** | **80.1** | **69.1** | **58.3** | **47** |
| **LOW TEMP** | **26.8** | **29.1** | **37.7** | **46.4** | **56.6** | **66.5** | **71.4** | **70** | **62.5** | **50.3** | **41.1** | **31.7** |

6.



Activity 2, Page 2

7. WASHINGTON D.C. Write an equation, h(x), for the function graphed in Stat Plot #1 (average high temperatures in Washington D.C.)

   $h(x) = -23.1\cos(\pi x/6) + 65.4$

8. a. Describe the graph of Stat Plot #2 (average low temperatures) in terms of the highs.

   All values are below the corresponding high temperatures.

   b. Write an equation, w(x), to represent the low temperatures in terms of the function h(x).

   $w(x) =$ h(x) - 16

   c. What type of transformation is represented by these two graphs?

   Vertical translation 16 units

   d. Check to see if this is the correct transformation by entering w(x) in **Y1=** . Graph and compare results to Stat Plot #2. Discuss with your partner(s). What do you conclude?

   Answers will vary.