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MEASURING WEATHER AND CLIMATE: TEMPERATURE WORKSHEET

1. **Put a "W" by each example of weather and a "C" by each example of climate.** (5 points)

W The maximum temperature last Tuesday was 75 °F.

C The average rainfall here is about 18 inches per year.

C We are experiencing longer periods of drought now compared to 100 years ago.

W We are expecting over 6 inches of snowfall from a storm next Saturday.

W The winds reached 30 miles per hour yesterday.

2. **In teams of two students and using I-pads, computers, and/or the classroom computer/digital projector or Smart TV, follow the steps to answer: What was the average temperature at the_____ local active weather station last Saturday?**

_____ °F (1 point)

Steps

1 Open your Internet browser (use Safari, Firefox, or Chrome because Internet Explorer doesn't work well with this database)
2 Type scacis.rcc-acis.org into the address box of your browser and hit return
3 Select **Single-Station Products**
4 Select **Daily Data Listing**
5 For the **Start date** and **End date,** type in the date of last Saturday (year, month, and day…but a 0 before any month or day under 10)
6 Check **Avg temp** under **Value**
7 Select **Station/Area selection**
8 Type your **town, state** in the search box and hit the search icon
9 Click on the blue pin that indicates the **local active weather station** the teacher wants to use for these worksheet exercises
10 Click **Go** and answer the question above

Reference: National Oceanic and Atmospheric Administration Regional Climate Centers, *SC ACIS*. Retrieved from http://scacis.rcc-acis.org/

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3. **Accessing the Temperature Graph, how many Record Minimum and Record Maximum daily temperatures happened at the _____ local active weather station in _____ (year of interest)?**

_____ Number of Record Minimum daily temperatures in _____ (year of interest) (1 point)

_____ Number of Record Maximum daily temperatures in _____ (year of interest) (1 point)

Steps

1 Open your Internet browser (Safari, Firefox, or Chrome)
2 Type scacis.rcc-acis.org into the address box of your browser and hit return
3 Select **Single-Station Products**
4 Select **Temperature Graph**
5 For **Year** type in your year of interest and for **Period of interest** click **Annual**
6 If you have already selected the _____ local active weather station for your **Station/Area,** just click **Go** and answer the questions. If not, redo steps 7-9 in Part 2 of this worksheet before clicking **Go**
7 Each dark blue bar represents the range of temperatures on any given day of the year
8 For record minimum temperatures**,** the dark blue bar touches the light blue **Record Min** graph (all-time lows for each day of the year at the _____ local active weather station)
9 For record maximum temperatures, the dark blue bar touches the red **Record Max** graph (all-time highs for each day of the year at the at the _____ local active weather station)
10 To make sure it is a record minimum or maximum temperature for that day, put your cursor on the dark blue bar for that day and check the text box that appears for the record minimum and maximum temperatures and their years for that day

4. **Hypothesis** (3 points)

In your teams of two, write a hypothesis on whether it has gotten warmer, cooler, been variable, or temperature has not changed at the _____ local active weather station over the last 70 years. Remember to use the if/then/because format and make your writing clear. Check with your teacher if you need some coaching.

Think about these questions as you write your hypothesis: What have you noticed about the temperature in your area over the last few years. What have you heard or noticed about the temperature in other parts of the region and state over the last few years? What have you observed in nature that makes you think your hypothesis is correct?

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Example: If we take 10-year average yearly temperatures at the _____ local active weather station from _____ (year) to _____ year (20-year period), then our area will have warmed because of an increasing greenhouse effect over North America.

5. Hypothesis Testing

Steps

1 Open your Internet browser (Safari, Firefox or Chrome)
2 Type scacis.rcc-acis.org into the address box of your browser and hit return
3 Select **Single-Station Products**
4 Select **Monthly Summarized Data**
5 For **Output,** select **Table**
6 For **Variable**, select **Avg temp** and for **Summary**, select **Mean**
7 For **Year range** type in the latest ten-year period (example: **2009 – 2018)**
8 Set the **Season Calculation Method** at **Average of months** and the **Month range** at **1-12**
9 If you have already selected the _____ local active weather station for your **Station/Area,** just click **Go** to add the **Annual Mean** or average yearly temperature for the 10-year period to the data table below. If not, redo steps 7-9 Part 2 of this worksheet before clicking **Go**
10 Repeat steps 7-9 for all of the 10-year periods to complete the table. Change the year ranges in the table if the ones below aren't the 10-year periods you want to study (7 points)

Year ranges	1949-58	1959-68	1969-78	1979-88	1989-99	1999-2008	2009-18
Mean or average yearly temperature for each 10-year period in °F							

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Was your hypothesis correct or incorrect? Why? (2 points)

Depends on the data and a student team's hypothesis.

6. **Graphing**

Each team member will graph the mean or average yearly temperature for each of the 10-year periods on a piece of graph paper using a pencil and a ruler. The teacher may provide you with graph paper that already has the Y axis and X axis drawn and labeled. If not, set up the Y-axis of the graph to fit all seven of the 10-year temperature averages and the X axis to fit the seven decades at equal intervals apart. Put the seven data points on your graph and connect them using a ruler to observe the local temperature trend over the 70-year period. (3 points)