Name Key Date _____ Period/Mod _____

MEASURING WEATHER AND CLIMATE: PRECIPITATION WORKSHEET

1. **Put a check mark (√) by only those components of a weather station listed below that measure precipitation.** (5 points)

_____ Anemometer

__✓__ Standard Rain Gauge

_____ Soil Thermometer

__✓__ Fisher & Porter Rain Gauge

_____ Air Thermometer

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: How much precipitation fell at the_____ local active weather station on _____ (the last date we know there was precipitation in our area)?**

_____ inches (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 last date we know there was precipitation in our area (year, month, and day…but a 0 before any month or day under 10)
6 Check **Precipitation** 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

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

3. **Accessing the Accumulation Graph, what was the wettest year on record at the _____ local active weather station?**

_____ (1 point)

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How much more precipitation was there in that wettest year than or last complete year?

_____ inches in wettest year - _____ inches in our last complete year = _____ inches more of precipitation (3 points)

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 **Accumulation Graph**
5 For the **Start date** type in the numbers for the year of interest, January, and the first day of January (example: **2018-01-01**) and for the **End date,** type in the numbers for the same year, December, and the last day of December (example: **2018-12-31**)
6 For **Variable** select **Precipitation**
7 For **Additional lines** check **Normal**, **Highest year**, and **Lowest year**
8 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**

4. **Hypothesis** (3 points)

In your teams of two, write a hypothesis on whether it has gotten wetter, drier, precipitation has varied, or precipitation 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 rain and snowfall in your area over the last few years. What have you heard or noticed about the rain and snowfall in other parts of your region or state over the last few years? What have you observed in nature that makes you think your hypothesis is correct?

Example: If we take 10-year averages of yearly precipitation at the _____ local active weather station from _____ (year) to _____ (year) (70-year period), then the area will have gotten drier because many of our forest conifers are dead or dying and our streams and lakes are seldom full of water.

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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 **Precipitation** and for **Summary**, select **Sum**
7 For **Year range** type in the latest ten-year period (example: **2009 – 2018)**
8 Set 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 precipitation for the 10-year period to the data table below. If not, redo steps 7-9 in 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	1989-98	1999-2008	2009-18
Mean or average yearly precipitation in inches for each 10-year period							

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

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

6. Graphing

Each team member will graph the mean or average yearly precipitation 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 precipitation 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 precipitation trend over the 70-year period. (3 points)