Name: Date: Period:

Floods IQuest

Before you embark upon this IQuest assignment, take a few minutes to consider what you already know about floods, and answer the following questions:

- What causes flooding to occur?
- How does flooding impact people?
- How can flooding impact Earth's surface?
- What can be done to predict flooding?

Begin by going to this website and opening up the Floods IQuest (insert url here). You will read the information and follow the directions to complete this assignment. The urls will also be listed on this capture sheet to assist you in knowing which links to have open when you are responding to questions.

> ➢ "PBS: The Hows and Whys of Floods":
>   http://www.pbs.org/newshour/infocus/floods/science.html

1. Why does Frank Richards say that a flood is an "imbalance"? Explain what he means by that, using information about the water cycle in your response.
2. Which type of flood is more dangerous? Why?
3. What do meteorologists need to find out to do a better job of predicting flash floods?
4. Why are urban areas more prone to flash flooding than rural areas?

> ➢ "National Weather Service: Flood Safety":
>   http://www.nws.noaa.gov/floodsafety/floodsafe.shtml

1. Why should citizens of the USA be concerned about floods?
2. For which flood severity category should people evacuate? Why?

➢ "GPM: Hurricanes Beyond the Tropics":
http://pmm.nasa.gov/education/videos/gpm-hurricanes-beyond-tropics
1. What are "tropical cyclones"?
2. What is "TRMM"?
3. How will GPM increase our ability to predict flooding?

➢ "The Weather Channel": http://www.weather.com
    A. enter your zip code
    B. click on "monthly"
    C. click on "averages"
    D. look at bottom graphic and enter precipitation data below

Month Precipitation (")	Month Precipitation (")
Jan:	July:
Feb:	Aug:
March:	Sept:
April:	Oct:
May:	Nov:
June:	Dec:

➢ "NOAA National Climatic Data Center": http://www.ncdc.noaa.gov/cag/
    A. parameter: precipitation
    B. time scale: annual
    C. month: select current month
    D. start year: 1895   end year: 2013
    E. State: enter your state
    F. Climate Division/City: statewide
    G. Click on "plot"
    H. In options box: display trend, per decade

Use your data to answer these questions:
1. What was the wettest year on record? How much precipitation did your state receive?
2. What was the driest year on record? How much precipitation did your state receive?
3. What can you say about the trend? Be specific and use data to back up your response.

➢ "The Ping Project": http://www.nssl.noaa.gov/projects/ping/

This is a "Citizen Science" project that allows people to report precipitation data using their Smartphone or computer. This is a fun way to get involved in keeping track of where there is precipitation. Click on "View the reports" and use the information to answer these questions:

1. What types of precipitation are being reported today?
2. What is being reported for your area right now?
3. Do you think this data could be used for scientific research projects? Why or why not?

➢ "For Good Measure":
http://pmm.nasa.gov/education/videos/for-good-measure
 1. Why aren't ground-based measurements sufficient to measure precipitation around the Earth?
 2. How will this mission serve as a "reference standard"?

➢ KWWL News Report:
http://www.kwwl.com/story/22058477/2013/04/23/iowa-flood-center-partners-wtih-nasa-for-unprecedented-project-

1. Who will NASA partner with for this study?
2. What do they hope to learn from this study?
3. How will they conduct their study?

➢ NASA's GPM page:
http://www.nasa.gov/mission_pages/GPM/news/iowa-ground-campaign-floods.html
1. How will ground data from this study be used?
2. What types of societal applications will this study assist with?
3. How can using the ground data help scientists develop more accurate computer models for predicting floods?
4. What are some of the variables that go into flood prediction?
5. What types of ground-based instruments will be used in this study?
6. What type of information can be determined by using the NPOL instrument?
7. How will the results of this study be useful for NASA?

➢ Iowa Flood Center: http://iowafloodcenter.org/projects/ifloods/
You can take a look at the latest information for this study here.