2010 Science Olympiad
Compute This! (Division B)
Cy-Falls invitational

Background
Hurricanes are damaging storms that occur every year between August and November. The regions of North America most commonly affected by these large systems of low pressure are the Gulf coast region, Texas to Florida, and the East coastal Region, roughly Florida to Maine. The National Oceanic and Atmospheric Administration (NOAA) has devoted a large amount of research towards predicting and understanding these particular weather phenomena. The damage that can range from minor to extremely deadly usually comes from a combination of two forces, wind damage and storm surge. In Today's competition, you will be looking through the **noaa.gov** website to find information about hurricanes that have occurred in the past, to answer the items below:

Graphical Problem
In the past 100 years hurricanes have wreaked havoc over the coastal regions of our country. The National Oceanic & Atmospheric Agency has tracked the most damaging storms for that time. On the NOAA website, the National Hurricane Center has archived the storms that have done so much damage that their names cannot be used again due to their destructive power. 67 names have been retired since 1954.

In 2005, the US experienced a particularly active hurricane season, resulting in the most retired storm names of a single season. Using Internet Explorer and the noaa.gov website, identify these retired storm names from the 2005 season as well as their official recorded US death toll and US monetary damage.

Please put this data in a data table and plot this data in MS Excel using a Bar graph. You will create two graphs. One graph will be monetary damage; the other will be loss of life. For the first graph: The X-Axis should represent each storm. The Y-Axis should represent the amount of monetary damage each storm caused. On the second graph the Y-Axis should represent the number of lives lost, and the X-Axis should represent each storm.

Please place an appropriate title above your chart, please make sure each data column is labeled with its value, and be sure to label both the X and Y axes per the instructions in the paragraph above.

Short Answer Questions:
In Microsoft Word, please provide the <u>answer</u> and associated <u>URL</u> for each of the following questions. Once again, official NOAA web sites should be used as the source for your answers. Please note that several questions require two separate answers, and that complete sentences are NOT required in your response.
1. Please list the 2011 Hurricane Names. (10 points)

2. Where does the name Hurricane come from? (10 points)

3. What are the sustained winds for a Category 3 Hurricane? (10 points)

4. What is the deadliest single Tropical Cyclone spawned tornado? From what hurricane did it develop? (5 points each x2)

5. How many people were killed by Hurricane Camille in 1969? How many of these deaths are attributed to flooding in Virginia? (5 points each x2)

General Instructions:
1. Please place your <u>school name</u> and <u>team number</u> at the top of your Excel and Word files.
2. Please name your files <u>(school name).xls</u> and <u>(school name).doc</u> and save as instructed.
3. <u>Save your work regularly throughout the event.</u>
4. Your <u>Excel document</u> should include both a <u>spreadsheet data table and your 2 bar graphs</u> as described above.
5. Your <u>Word document</u> needs to include <u>only the answers and URLs</u> for each of the five questions.
6. Reference materials and calculators are not permitted. You may use blank scrap paper to organize your work.
7. This is a two-person event. <u>Absolutely no external communication with others</u> (e-mail, chat, or other).
8. Please <u>raise your hand if you have a technical problem or question</u> on the event.
9. Please speak in a low tone with your partner. Let's keep the noise level down.
10. When you are done, please **print your documents** and **hand in your forms**.

HAVE FUN AND GOOD LUCK!

2010 Science Olympiad
Compute This! (Division B)
Cy-Falls invitational

SCHOOL NAME _____ TEAM NUMBER _____

STUDENT SIGNATURES   1. _____

                          2. _____

_____

(Do Not Write Below This Line)
(Event Supervisor Use Only)

PLACE _____

Completeness & Accuracy of Quantitative Data Collected   **(20 Points Max)**   _____

    Specific infamous storms   _____ (10 Points)

    Associated monetary damage   _____ (5 Points)
    Associated life loss   _____ (5 Points)

Completeness, Accuracy, and Format of Graphical Data   **(30 Points Max)**   _____

    Bar graph Format- monetary loss   _____ (3 Points)
    Title above Graph   _____ (3 Points)
    X Axis Labeled   _____ (3 Points)
    Y Axis Labeled   _____ (3 Points)
    Data labels on bars   _____ (3 Points)

    Bar graph Format- loss of life   _____ (3 Points)
    Title above Graph   _____ (3 Points)
    X Axis Labeled   _____ (3 Points)
    Y Axis Labeled   _____ (3 Points)
    Data labels on bars   _____ (3 Points)

Answers and URL's for Short Answer Questions   **(50 Points Max)**   _____

    1. 2011 hurricane names   _____ (10 Points)

    2. Hurricane origins   _____ (10 Points)

    3. Sustained winds- category 3   _____ (10 Points)

    4. Cyclone tornado, system   _____ (10 Points – 5x2)

    5. Camille deaths, flooding deaths   _____ (10 Points – 5x2)

TOTAL SCORE   _____

TIE BREAKER: [ ] Short Answer Questions   [ ] Quantitative Data Collected   [ ] Overall Graphical Quality