HURRICANE LAB WORKSHEET

A Storm is Born

1. What is the temperature of the Atlantic Ocean Basin at 30º North and 80º West?

_____

2. What is the temperature of the Pacific Ocean Basin at 30º North and 120º West?

_____

3. What is the temperature difference between the Pacific and Atlantic at 30º North? Why is it different at the same latitude? _____

_____

4. Are temperature conditions conducive to tropical cyclone-hurricane formation in either ocean basin at this time? _____

_____

'Tis the Season

1. 1929 Beginning Month _____ Ending Month _____ No. Hurricanes ____
2. 1933 Beginning Month _____ Ending Month _____ No. Hurricanes _____
3. 1945 Beginning Month _____ Ending Month _____ No. Hurricanes _____
4. 1951 Beginning Month _____ Ending Month _____ No. Hurricanes _____
5. 1963 Beginning Month _____ Ending Month _____ No. Hurricanes _____
6. 1979 Beginning Month _____ Ending Month _____ No. Hurricanes _____
7. 2003 Beginning Month _____ Ending Month _____ No. Hurricanes _____
8. 2005 Beginning Month _____ Ending Month _____ No. Hurricanes _____
9. Which year(s) experienced the longest hurricane season? _____
10. Which year experienced the shortest hurricane season?_____
11. Which year(s) experienced the most hurricanes? _____
12. Which year experienced the least number of hurricanes?_____

Measurement, Scales and other Fish Stories

1. What factor is used to determine the intensity of a hurricane and to classify this type of storm? _____
2. What is the minimum duration (minutes) for this factor for the US?

_____

3. How many categories of hurricanes make up the Saffir-Simpson Scale?

_____

4. List each category and the minimum value of the determining factor necessary to achieve each:_____

_____

_____

_____

_____

5. How does a Tropical Depression (TD) differ from a Tropical Storm (TS)?

_____

6. How does a Tropical Storm differ from a Hurricane (H)?

_____

_____

_____

Name it Andrew, Hugo or John… anything but Sue!

1. What system of naming was employed in 1949? _____
2. When did the United States begin using the phonetic alphabet Able, Baker, Charlie, Dog, Easy, Fox… to name hurricanes? _____
3. When did the United States switch to female names only? _____
4. When did the United States use both female and male names alternately? _____
5. What names will be used to begin and end the list for Atlantic Ocean Basin hurricanes in the year 2003? _____
6. What names will be used to begin and end the list for Atlantic Ocean Basin hurricanes in the year 2013? (Hint: Think recycling) _____

The Guinness Book of World Records

1. Where did the most intense U.S. hurricane at landfall occur? _____

   _____

   In what year? _____
2. Where did the deadliest U.S. hurricane occur? _____

   In what year? _____ How many fatalities? _____
3. What was the most expensive hurricane? _____

   Where did it occur? _____In what year? _____

   What was the dollar value of property damage? _____
4. Which American State has received the most hurricane strikes? _____
5. Which decade experienced the greatest number of hurricanes? _____

A Sense of Place

1. When were you born? _____How many hurricanes (Careful! Hurricanes only) occurred in this year?_____
2. How many tropical storms occurred in this year? _____
3. Which hurricane lasted the longest?_____

   (*Now investigate the Hurricane season of 1997)*
4. Locate Hurricane # 5 on the map. What is the name of this Hurricane?_____

5. On what date did this storm become a Tropical Depression (TD)? _____
6. On what date did it become a Tropical Storm (TS)? _____
7. On what date did it attain Hurricane (H) status? _____
8. How long did this storm survive as a hurricane? _____
9. Where did this hurricane make landfall (U.S. State)? _____
10. What happened after the hurricane moved over land? _____
11. Did this storm ever regain energy? When and what state? _____

Enough! Let's Wrap it up, This Storm is Extratropical

1. Name three category 5 hurricanes. _____
2. What latitudinal range did hurricane Gilbert experience? _____
   (Hint: Measure the hurricane's path from its southernmost to northernmost points or CLICK on DETAILS Tracking Information.)
3. What longitudinal range did hurricane Hugo experience? _____
   (Hint: Measure the hurricane's path from its westernmost to easternmost points or CLICK on DETAILS Tracking Information.)
4. What was the range of wind speed associated with hurricane Andrew? (From tropical storm to hurricane?) _____
   (Hint: CLICK on DETAILS Tracking Information.)
5. Which of these three hurricanes sustained the highest winds? _____

Now that you have the picture, one last bit of critical thinking…

Click on the Details Tracking INformation Gif Image of Andrew off the coast of Louisiana (2031Z 25AUG92). You are now looking down into the storm. Notice the eye at the center of the storm. This is an area typically 5 -15 miles across where winds are minimal. The eye is a symbol of the hurricane's intensity, its violence. The smaller the eye, the more intense (violent) the storm. Compare the eyes of Andrew and Gilbert at peak intensity. What is the relationsh between eye size and peak wind speed?

Hurricane	**Eye Size** **(Small, Medium, Large)**	**Peak Wind Speed**
Andrew		
Gilbert		

The eye wall, an amphitheater of clouds, towering miles into the troposphere where violent updrafts and winds occur surrounds the eye of the storm. Radiating outward are spiral bands where rain is commonplace. ***Print a copy of Andrew off Louisiana now.***

In this image, Hurricane Andrew is moving to the NW (top of the screen/photo is north). Divide the hurricane into four quadrants (draw a line through the eye and parallel to the axis of advance of the hurricane (NW); then draw a line perpendicular to the first, also through the eye). Wind speeds and storm surge will vary in each quadrant.

Storm surge is a rise in sea level along a shoreline caused primarily by strong on-shore winds and, to a lesser extent, low pressure associated with a storm. Storm surge is largely responsible for flooding, erosion of the shoreline and damage to the property. On-shore winds cause water to pile up as it is pushed up a sloping sea floor, one that becomes increasingly shallow. Waves tower and then collapse near or on the shore.

In this photo of Hurricane Andrew along the Louisiana coast, winds, storm surge and shoreline damage will be greatest in the NE quadrant. ***Why?*** _____

_____

_____

_____

_____

_____

_____

_____

_____