

**NOAA's  
National Climatic Data Center  
2003 Tropical Cyclones of the World**



**Description:**

This task focuses on tropical cyclones. Scientists study the satellite images of tropical cyclones to aid them in predicting future cyclones. Students will analyze data collected from space-based instruments and relate it to actual weather occurrences.

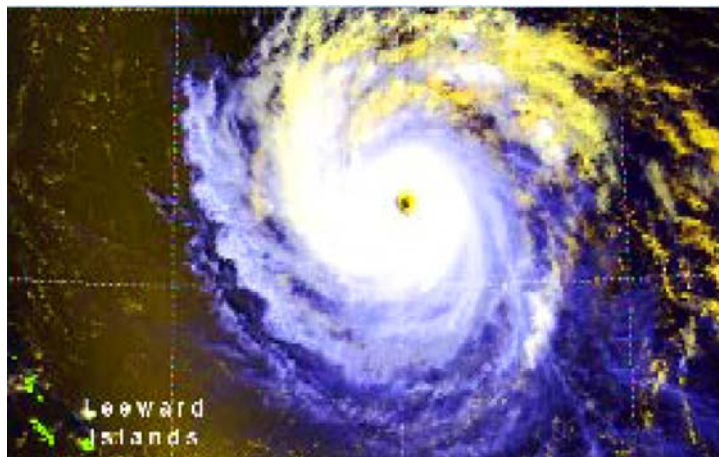
**Content Area:** Earth Science 7<sup>th</sup> Grade

**Prior Knowledge/Skills Required for Task:** Working knowledge of basic weather and climate.

**Materials and Resources Needed:** Color copies of the 2003 Tropical Cyclones of the World.

**QUESTIONS**

- (1) Which satellites were used to develop these images?
- (2) Which instrument was used on board these satellites?
- (3) During calendar year 2003, how many tropical cyclones occurred with sustained surface winds of at least 74 mph?
- (4) How many tropical cyclones were there in the Atlantic Ocean, Eastern Pacific Ocean, Western Pacific Ocean, South Pacific Ocean, North Indian Ocean, South Indian Ocean?
- (5) The Saffir-Simpson Hurricane Scale is used to measure hurricane Intensity. How many category 1,2 3, 4, and 5 tropical cyclones were there?
- (6) Make a prediction about the impact that tropical cyclones have on the climate.



Satellite Image of 2003 Hurricane Isabel when it was strongest and category 5.

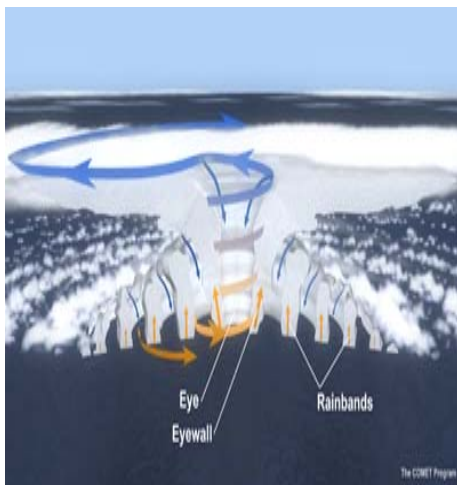
**Answer(s) & Learning Objective(s):** (additional pages may be attached)

**LEARNING OBJECTIVE:**

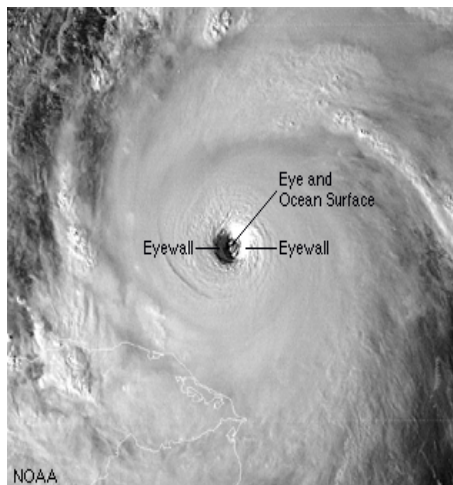
To learn how to interpret real world data. To understand scales and how to differentiate between categories.

**ANSWERS**

- (1) NOAA's Polar-orbiting Operational Environmental Satellite (POES)
- (2) Advanced Very High Resolution Radiometer (AVHRR)
- (3) 51
- (4) Atlantic Ocean - 7  
Eastern Pacific Ocean - 7  
Western Pacific Ocean - 17  
South Pacific Ocean - 7  
North Indian Ocean - 2  
South Indian Ocean - 11
- (5) Category 1 - 18  
Category 2 - 9  
Category 3 - 7  
Category 4 - 11  
Category 5 - 6
- (6) Various answers. Scientists require more years of study to be able to make a prediction at this time.



The main parts of a hurricane are the rainbands on its outer edges, the eye, and the eyewall. Hurricanes cause flooding, heavy rain, tornadoes, water spouts, and deaths, while destroying dwellings and drowning ships.



The structure of the hurricane eye.

## **N.C. Standard Course of Study and Grade Level Competencies**

Grade 7 – Competency Goal 3

The learner will make observations and build an understanding of weather concepts.

Objectives

3.05 Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards:

- Humidity.
- Temperature.
- Wind speed and direction.
- Air pressure.
- Precipitation.
- Tornadoes.
- Hurricanes.
- Floods.
- Storms.

Objectives

3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards:

- Satellites.
- Weather maps.
- Predicting.
- Recording.
- Communicating information about conditions.



Erosions and flooding from waves can cause damage to bridges, homes, roads, and loss of lives.