

Case Details

Case Title:

Evil Genius: The case of the terrible weather

Author(s):

Dericka DeLoney, Columbia Middle School
Aron Barbey, Emory University

Date Published:

6/28/2011

Grade Level(s):

Middle School

Subject(s):

Earth Science

Summary:

This case familiarizes students with weather phenomena and their effect on Earth's surface. Students will be expected to interpret weather maps, create and identify various weather equipment used by meteorologist. Students will also have the opportunity to study the different type of clouds, air pressure, relative humidity, and investigate convection currents.

Suggested Citation:

DeLoney, D. Y., & Barbey, A. (2011). *Evil genius: The case of the terrible weather*. Retrieved June 03, 2012 from Emory University, CASES Online Web site: http://www.cse.emory.edu/cases/casedisplay.cfm?case_id=808

Learning Objectives:

1. Explain how the sun is the driving force in weather.
2. Explain the role of air pressure in weather.
3. Explain how tropical depressions and hurricanes form and describe the factors that lead to their development.
4. Describe and predict how tropical depressions and hurricanes affect the natural ecology of affected areas.
5. Explain how and why the weather of any particular area changes from day to day.
6. Demonstrate and explain how water can be changed from one state to another by heating or cooling.
7. Define the main types of clouds and explain how clouds affect weather and climate.
8. Explain the water cycle.
9. Demonstrate convection currents and explain how heat flows from warmer objects to cooler ones.
10. Demonstrate and explain how wind is created.
11. Define and explain relative humidity.
12. Create and record readings from weather instruments such as a barometer and

psychrometer.

National/State Standards:

Georgia Performance Standards

S6CS1. Students will explore the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works. (NSES Content Standard A)

S6CS2. Students will use standard safety practices for all classroom laboratory and field investigations.

S6CS3. Students will use computation and estimation skills necessary for analyzing data and following scientific explanations.

S6CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.

S6CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

S6CS6. Students will communicate scientific ideas and activities clearly.

S6CS9. Students will investigate the features of the process of scientific inquiry.

S6E4. Students will understand how the distribution of land and oceans affects climate and weather. (NSES Content Standard B) a. Demonstrate that land and water absorb and lose heat at different rates and explain the resulting effects on weather patterns. b. Relate unequal heating of land and water surfaces to form large global wind systems and weather events such as tornados and thunderstorms. c. Relate how moisture evaporating from the oceans affects the weather patterns and weather events such as hurricanes.