

Sec.: _____ Name: _____

Experiment: Acid Rain: The Invisible Threat
(E. Science 9-21-2d)

Purpose: To understand what acid rain is, what the effects are and then what can be done to lower the amount of acid rain.

Materials: Science 16 "Acid Rain: The Invisible Threat" further info see:

<http://www.epa.gov/ebtpages/airairpoachidrain.html>

Methods and Results:

1. What has gone wrong with these lakes with their eerie silence?
2. What has destroyed these ecosystems?
3. What is an ecosystem?
4. _____ is a corrosive class of solutions.
5. How do you test for acidity?
6. pH values between 7 and 14 are a _____.
7. A pH value of 7 is _____.
8. pH values below 7 is an _____.
9. What is the pH of unpolluted rain?
10. What are the sources of natural carbon dioxide?
11. What are the two kinds of chemicals that are in pollutants that cause acid rain?
 - a. _____
 - b. _____
12. Where does 19 million tons of nitrogen oxides annually come from?
13. How much sulfur dioxide is released yearly by fossil fuel burning power plants?
14. What resulted from the attempts of building tall smoke stacks to remove pollution?
15. Where does Vermont, on the East coast of the US, get their pollution from?
16. What happened between 1963 and 1983 in the Vermont forests?
17. The area with highest amount of forest destruction receives the most or the least amount of acid rain?
18. What does low pH in water do with the toxic metals in the nearby soil?

Conclusions:

1. During which day is the most water used? Why?
2. Calculate the total amount of water used by your family during the week.
3. Calculate the average amount of water each person used during the week by dividing the total amount of water used by the number of persons. (Assume 4 person family)
4. Calculate the monthly average for this family.

Discussion:

1. Why is your answer to question 3 only an estimate of the amount of water used?
2. How might the time of the year affect the rate at which your family uses water?
3. What are some things your family could do to conserve water?
- 4a. Use the nuclear reactor information booklet to determine and then record what nuclear reactor is nearest the school (Berrien Springs)?
- 4b. Record what year it was constructed.
- 4c. Find out whether or not there have been any "incidents" which required the reactor to be shut down for any period of time. If so record dates.
 - 4d. Record what system would notify us of a nuclear accident were to occur.
 - 4e. If an accident were to occur what measures would have to be taken to ensure that you, your family, and your classmates would be safe?
 - 4f. If the reactor did not exist, what alternative energy source would take its place?
 - 4g. How well is Cook Nuclear plant prepared for terrorist attacks or natural disasters? (list 6 steps).
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
- 4h. What would most likely happen if a jetliner hits Cook Nuclear Plant?