

Acid Rain—Constructed Response

STANDARDS ASSESSED

Grades 9-12

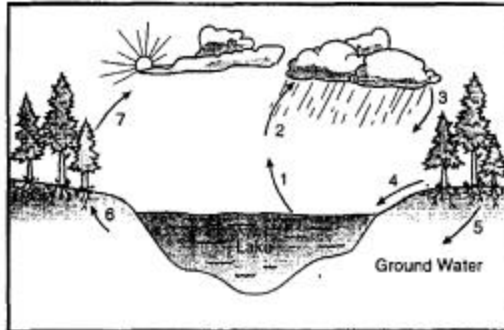
Vermont Standards: 7.1 ddd, ggg Scientific Method; 7.13 ccc The Living World; 7.15 eee
VT GEs: S 9-12:7 Inquiry; S9-12: 15 Chemical Change; S9-12:36 Equilibrium; S9-12:48 Atmosphere
(S7-8:12 Water Cycle)
NSES: LS 9-12 4.2 Ecosystems

Acid Rain Constructed Response Question

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"Acid Rain"

In the picture below, numbered arrows show water cycling through the living and nonliving parts of the ecosystem.



1. Briefly describe the water cycle by explaining all the processes represented by the arrows

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2. Choose one of the arrows that represents a change of state of water. Discuss this change of state in terms of
- The motion and arrangement of water molecules, and
 - The cause of the change of the state of matter.

3. The steady decline of the red spruce forest on Camel's Hump and at other high elevations in Vermont has led researchers to study possible causes. Some scientists believe the decline of the red spruce forest is the result of acidic clouds and rainfall.

Using the concept of the water cycle, explain with a labeled drawing and/or words how gaseous pollutants such as SO_2 from the Midwest and Canada could be partly responsible for the acid clouds that are causing damage on Camel's Hump. Include these points in your answer:

- The sources of SO_2 in the Midwest and Canada
- A description of the chemical change that occurs when SO_2 becomes part of the water cycle
- How a pollutant such as SO_2 becomes part of the water cycle
- How a pollutant such as SO_2 is transported after leaving its source
