

# WebQuest Design Template- Rain, Rain Go Away!

Stephanie Green

## Teacher/ Design Information:

**Learners:** This WebQuest is appropriate for grades 6-8. Teachers may wish to modify some of the tasks as appropriate for their classroom needs.

**Educational Goals:** Students will be able to

- Research and gather information about Acid Rain using the internet
- Use appropriate technology to process information (Ex: NoteStar, Bubbl.us, Word, Excel, video programs, etc)
- Demonstrate knowledge of different sciences and how they interrelate to role-play different scientists
- Work cooperatively
- Assess the cause and effect relationship of acid rain
- Classify the basic chemical principles involved in acid rain
- Identify alternate energy sources
- Examine the effects of acid rain and propose solutions
- Design and develop a web-site, PowerPoint or video to organize information
- Write a Environmental Newsletter detailing the problems caused by acid rain and recommend ways that these problems can be alleviated
- Post to a Blog
- Reference information sources

## Standards

- **SCI.II.1.MS.5** Develop an awareness of and sensitivity to the natural world.
- **SCI.IV.2.MS.4** Describe the origins of pollution in the hydrosphere
- **SCI.V.3.MS.4** Describe health effects of pollution
- **S.IP.06.13** Use tools and equipment appropriate to scientific investigations.
- **S.IP.06.11** Generate scientific questions based on observations, investigations, and research.
- **S.IP.06.12** Design and conduct scientific investigations.
- **S.IA.06.11** Analyze information from data tables and graphs to answer scientific questions.
- **S.IA.06.12** Evaluate data, claims, and personal knowledge through collaborative science discourse.
- **S.IA.06.13** Communicate and defend findings of observations and investigations using evidence.

- **S.IA.06.14** Draw conclusions from sets of data from multiple trials of a scientific investigation.
- **S.IA.06.15** Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.
- **S.RS.06.11** Evaluate the strengths and weaknesses of claims, arguments, and data.
- **S.RS.06.12** Describe limitations in personal and scientific knowledge.
- **S.RS.06.13** Identify the need for evidence in making scientific decisions.
- **S.RS.06.14** Evaluate scientific explanations based on current evidence and scientific principles.
- **S.RS.06.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
- **S.RS.06.16** Design solutions to problems using technology.
- **S.RS.06.17** Describe the effect humans and other organisms have on the balance of the natural world.
- **S.RS.06.18** Describe what science and technology can and cannot reasonably contribute to society.
- **L.EC.06.41** Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.

**METS:**

**6-8.CI. Creativity and Innovation** – By the end of Grade 8 each student will:

1. apply common software features (e.g., spellchecker, thesaurus, formulas, charts, graphics, sounds) to enhance communication with an audience and to support creativity
2. create an original project (e.g., presentation, web page, newsletter, information brochure) using a variety of media (e.g., animations, graphs, charts, audio, graphics, video) to present content information to an audience
3. illustrate a content-related concept using a model, simulation, or concept mapping software

**6-8.RI. Research and Information Fluency** – By the end of Grade 8 each student will:

1. use a variety of digital resources to locate information
2. evaluate information from online information resources for accuracy and bias
3. understand that using information from a single Internet source might result in the reporting of erroneous facts and that multiple sources should always be researched

## Process

Explain to students that the Environmental Protection Agency has hired them, and a group of other researchers, to investigate the problem of acid rain in order to amend the Clean Air Act. Each student will take on the role of a Pollution Engineer, Ecologist, Physician, or Environmental Lawyer and examine the issue from that perspective. Working within this team, students will create either a Web Site, a PowerPoint Presentation, or a Video detailing the problems caused by acid rain and recommend ways that these problems can be alleviated. Tell students they need to decide who is going to assume each of the roles. Give students ample time to research each role. Remind students that while they are responsible for completing their section of the report, they will also be responsible for drawing up a series of recommendations, along with the other members of their team, on how to combat this serious issue.

## Resources

### Materials Needed:

- Computer access for web search of given sites/minimum: one per group
- Overhead Projector/Screen/VCR/TV Videos
- Experiment Materials-Water Monitoring Kits, pH 7.0 Buffer solution, litmus paper, pH graphic organizer
- Acid Rain Posters (numerous)
- EPA class set of Acid Rain Students First Sourcebook (can be ordered through the EPA's website  
<http://www.epa.gov/region5/enved/orderpublications.html> )
- You may want students to view the film *Trouble in the Forest* found at [http://nfb.ca/film/Trouble\\_in\\_the\\_Forest/](http://nfb.ca/film/Trouble_in_the_Forest/)

There is a virtual Lab Simulation that each student will have a link to. You may want to demonstrate how to use this lab first using the projector and whole class instruction.

Acid Rain Simulation: Virtual Lab

[http://www.mhhe.com/biosci/genbio/virtual\\_labs/BL\\_09/BL\\_09.html](http://www.mhhe.com/biosci/genbio/virtual_labs/BL_09/BL_09.html)

Students will be required to post summaries of their project to a blog. You may want to go the blog and read some of the blogs as a class.

<http://blog.epa.gov/blog/category/studentsforclimateaction/page/3/>

### Articles:

Beidler, A. (2008). The Harmful Effects of Acid Rain: Acidification of Lakes and Streams Damages the Natural Environment. *Science & Nature February 2008*, 16-28. Available at [http://climate-change.suite101.com/article.cfm/the\\_harmful\\_effects\\_of\\_acid\\_rain](http://climate-change.suite101.com/article.cfm/the_harmful_effects_of_acid_rain)

Bransford, J., Brown, A.L., & Cocking, R. R. (2000). *How people learn; Brain , mind,experience, and school* (expanded edition). Washington, D.C.: National Academic Press. Available at: <http://fermat.nap.edu/html/howpeople1/>

Dowdey, Sarah. (2007) *How Acid Rain Works*. HowStuffWorks.com. <http://science.howstuffworks.com/acid-rain.htm>

Yoder, M.B. (2006). Adventures in Electronic Constructivism. *Learning & Leading with Technology September 2006*, 24-31. Available at <http://www.iste.org>

### **Helpful Websites:**

<http://webquest.org>

<http://kickyoutube.com/>

<http://notestar.4teachers.org/>

<http://bubbl.us/edit.php>

<http://videos.howstuffworks.com/>

<http://www.newtonsapple.tv/>

<http://dsc.discovery.com/>

<http://www.webs.com/>

[http://www.educationworld.com/a\\_tech/tutorials/ew\\_ppt.htm](http://www.educationworld.com/a_tech/tutorials/ew_ppt.htm)

<http://edtech.kennesaw.edu/nisa/moviemaker.htm>

<http://blog.epa.gov/blog/category/studentsforclimateaction/page/3/>

<http://rubistar.4teachers.org/>

### **WebQuest Elements:**

#### **Title**

#### **Rain, Rain Go Away!**

A webquest designed for students in grades 6-8 to study Environmental Science.

Designed by: Stephanie Green

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#### **Introduction**

Have you ever wondered why the buildings in your city are fading and the statues around them are cracking? Why the lakes are becoming acidic and the

fish are dying? While sitting in your room late at night, you listen to the gentle pitter-patter of the rain on your window. ...Ahh, so soothing and relaxing. Have you ever really wondered what that rain is really made of? Is that just water or is it acid slowly streaming down out there? That rain you hear just might be acid rain, and it could change the way you live your life.

In this activity, you will become part of a team of scientific experts that will research the effects of acid rain on living organisms and non living objects. You will present your findings to a National Committee on Environmental Effects (your class) using a PowerPoint, a website or a video. Your team will also write an environmental newsletter based on your research to post on the blog "Greenversations- Student Climate for Action"

**Task:**

Your research team has been hired by The Environmental Protection Agency (EPA) to research possible amendments to The Clean Air Act. Your team members will take on the roles of a Pollution Control Engineer, an Ecologist, a Physician, or an Environmental Lawyer and examine the issue from that perspective. Working within this team, you will create a presentation detailing the problems caused by acid rain and recommend ways that these problems can be alleviated. Your presentation can be in the form of a website, a PowerPoint, or a video.

Within your group, decide who is going to assume each of the roles and which type of presentation you will create. Through your research, you will identify what acid rain is, and how and why it forms. You will also determine the effects of acid rain on a variety of living organisms, as well as man-made materials through experimentation. In addition, you will identify methods that are effective in reducing acid rain and solutions the EPA can use.

**Research Roles**

Look at each role and decide which role each person will be taking on. Once your group has decided, each person will find a list of the type of questions their role must research and the website links that can be used to find out information.

**Pollution Control Engineer**

- Does acid rain affect building materials?
- Does acid rain have an effect on architecture?
- What does acid rain do to our roads, highways, and bridges?
- What is the effect of acid rain on things made from metal such as automobiles, trains, buses, and other means of transportation?
- What are natural and man-made sources of acid rain?

- What steps can be taken to reduce acid rain?
- What costs are involved in the reduction of acid rain?
- What are some alternative energy sources?

### **Pollution Control Engineer Resources:**

<http://science.howstuffworks.com/acid-rain2.htm>- Effects of Acid Rain  
[http://www.epa.gov/acidrain/education/site\\_students/whatcauses.html](http://www.epa.gov/acidrain/education/site_students/whatcauses.html)  
 - Causes  
[http://www.policyalmanac.org/environment/archive/acid\\_rain.shtml](http://www.policyalmanac.org/environment/archive/acid_rain.shtml)-  
 Causes of Acid Rain  
<http://www.upei.ca/~physics/p261/projects/acidprec1/Sources%20of%20Acid%20Rain.htm>- Sources of Acid Rain  
<http://www.ec.gc.ca/acidrain/done-you.html>- Solutions  
[http://www.nyserda.org/programs/environment/emep/teachers\\_&\\_students.asp](http://www.nyserda.org/programs/environment/emep/teachers_&_students.asp) Alternate Energy  
<http://science.howstuffworks.com/clean-coal.htm> - Clean Coal  
 Alternative

Acid Rain Animation-

[http://www.epa.gov/acidrain/education/site\\_students/acid\\_anim.html](http://www.epa.gov/acidrain/education/site_students/acid_anim.html)

Acid Rain Videos-

<http://www.newtonsapple.tv/video.php?id=901>

<http://kickyoutube.com/#Aei2sP0znPE->

<http://videos.howstuffworks.com/hsw/6191-energy-acid-rain-video.htm>

Acid Rain Simulation: Virtual Lab

[http://www.mhhe.com/biosci/genbio/virtual\\_labs/BL\\_09/BL\\_09.html](http://www.mhhe.com/biosci/genbio/virtual_labs/BL_09/BL_09.html)

### **Ecologist**

- What is the history of acid rain in the United States?
- What effect does acid rain have on trees and soil?
- How does the effect of acid rain on trees and soil affect us?
- What happens when lakes and aquatic systems become acidic?
- How do acidic water systems affect organisms and the environment?
- Are the aquatic systems in our area being affected by acid rain? If yes, to what extent?
- What are the danger signs of the effect of acid rain on aquatic systems?
- What does the effect of acid rain cost us in terms of money?
- What are the economic consequences of acid rain on fisheries, forestry, and agriculture?

## **Ecologist Resources**

[http://en.wikipedia.org/w/index.php?title=Acid\\_precipitation](http://en.wikipedia.org/w/index.php?title=Acid_precipitation)- History

<http://www.epa.gov/kids/>- Effects

<http://an018.k12.sd.us/8Science/sterling%20science%20acid%20rain.htm> -Trees and Soil/ Aquatic Systems

[http://www.epa.gov/acidrain/effects/surface\\_water.html](http://www.epa.gov/acidrain/effects/surface_water.html) - Water System

<http://www.sciencedaily.com/releases/2008/11/081112124418.htm> - Costs

<http://www.libraryindex.com/pages/1139/Acid-Rain-EFFECTS-ACID-RAIN-ON-OUR-ENVIRONMENT.html>- Fisheries, Forests, Agriculture

## **Acid Rain Animation:**

[http://www.epa.gov/acidrain/education/site\\_students/acid\\_anim.html](http://www.epa.gov/acidrain/education/site_students/acid_anim.html)

## **Acid Rain Videos**

<http://www.newtonsapple.tv/video.php?id=901>

<http://kickyoutube.com/#Aei2sP0znPE->

<http://videos.howstuffworks.com/hsw/6204-water-in-our-environment-acid-rain-video.htm>

## **Acid Rain Simulation: Virtual Lab**

[http://www.mhhe.com/biosci/genbio/virtual\\_labs/BL\\_09/BL\\_09.html](http://www.mhhe.com/biosci/genbio/virtual_labs/BL_09/BL_09.html)

## **Physician**

- How does acid rain affect humans?
- What are some of the direct effects of acid rain on humans?
- Are there any health problems associated with acid rain?
- What are some of the indirect effects of acid rain on humans?
- Does acid rain affect our sources of food, water, and air?
- What are the consequences of the effects of acid rain on people?
- Gather maps that locate areas of acid rain around the world, not just the in the United States. Describe the areas where people are most at risk.

## **Physician Resources**

[http://www.epa.gov/acidrain/education/site\\_students/foodweb.html](http://www.epa.gov/acidrain/education/site_students/foodweb.html)- Effects on food

[http://www.ehow.com/about\\_5463201\\_effects-acidic-water.html](http://www.ehow.com/about_5463201_effects-acidic-water.html) - Humans

[http://www.epa.gov/acidrain/education/site\\_students/whyharmful.html](http://www.epa.gov/acidrain/education/site_students/whyharmful.html) -Direct Effects

[http://www.studyworld.com/newsite/reportessay/Science/Earth%5CAcid\\_Rain-361349.htm](http://www.studyworld.com/newsite/reportessay/Science/Earth%5CAcid_Rain-361349.htm) Indirect Effects

<http://www.epa.gov/acidrain/effects/health.html> Consequences

<http://environment.mapsofworld.com/air/acid-rain.html> Maps  
<http://maps.howstuffworks.com/world-annual-precipitation-map.htm>  
Maps

**Acid Rain Animation:**

[http://www.epa.gov/acidrain/education/site\\_students/acid\\_anim.html](http://www.epa.gov/acidrain/education/site_students/acid_anim.html)

**Acid Rain Videos:**

<http://www.newtonsapple.tv/video.php?id=901>

<http://kickyoutube.com/#Aei2sP0znPE->

<http://www.cbsnews.com/video/watch/?id=650486n>

**Acid Rain Simulation: Virtual Lab**

[http://www.mhhe.com/biosci/genbio/virtual\\_labs/BL\\_09/BL\\_09.html](http://www.mhhe.com/biosci/genbio/virtual_labs/BL_09/BL_09.html)

**Environmental Lawyer**

- What is the EPA?
- What current legislation exists to reduce acid rain?
- When did pollutant legislation first appear in the United States?
- What new laws or amendments have been recently proposed?
- What provisions for pollution have been set for power companies in current legislation?
- What are some benefits that an electric utility company will bring to the community? (in addition to jobs and taxes)
- What are the economic losses due to acid rain?
- What are some possible amendments that environmental groups are suggesting?

**Environmental Lawyer Resources**

<http://www.epa.gov/> EPA

<http://climate->

[change.suite101.com/article.cfm/the\\_harmful\\_effects\\_of\\_acid\\_rain-](http://climate-change.suite101.com/article.cfm/the_harmful_effects_of_acid_rain-)

Clean Air Act

[http://www.epa.gov/acidrain/education/site\\_students/beingdone.html](http://www.epa.gov/acidrain/education/site_students/beingdone.html) -

Legislation

<http://ametsoc.org/sloan/cleanair/cleanairlegisl.html> - Legislation

<http://www.epa.gov/apti/course422/apc1.html> Government Regulations

<http://www.dnr.state.wi.us/org/caer/cea/ecpp/agreements/wepco/agreements/final/factsheet20010205.pdf> Benefits of electric companies

<http://www.puco.ohio.gov/PUCO/Consumer/Information.cfm?id=5728>

Electricity and the environment

<http://www.mass.gov/dep/air/laws/regulati.htm> Laws



<http://www.epa.gov/lawsregs/> Laws and Amendments  
[http://www.ec.gc.ca/cleanair-airpur/Health, Environment and the Economy/Economic Issues/Measuring Economic Values for the Environment-WSDB24CA96-1\\_En.htm](http://www.ec.gc.ca/cleanair-airpur/Health,_Environment_and_the_Economy/Economic_Issues/Measuring_Economic_Values_for_the_Environment-WSDB24CA96-1_En.htm) - Economic Impact  
[http://en.wikipedia.org/wiki/List\\_of\\_environmental\\_organizations](http://en.wikipedia.org/wiki/List_of_environmental_organizations) - Groups

**Acid Rain Animation:**

[http://www.epa.gov/acidrain/education/site\\_students/acid\\_anim.html](http://www.epa.gov/acidrain/education/site_students/acid_anim.html)

**Acid Rain Videos:**

<http://www.newtonsapple.tv/video.php?id=901>  
<http://kickyoutube.com/#Aei2sP0znPE->  
<http://www.cbsnews.com/video/watch/?id=650486n>

**Acid Rain Simulation: Virtual Lab**

[http://www.mhhe.com/biosci/genbio/virtual\\_labs/BL\\_09/BL\\_09.html](http://www.mhhe.com/biosci/genbio/virtual_labs/BL_09/BL_09.html)

While you are researching your particular area of concern, look for solutions to the problems caused by acid rain. While the final section of your report, the recommendations, will be drawn up by the entire group, you must be prepared to offer solutions in your specific area of concern.

***Research Presentation Forums***

Choose a forum in which to present your findings. A link next to each provides a tutorial on how to create your presentations.

- **PowerPoint** see [http://www.educationworld.com/a\\_tech/tutorials/ew\\_ppt.htm](http://www.educationworld.com/a_tech/tutorials/ew_ppt.htm)
- **Website** see <http://www.webs.com/>
- **Video** see <http://edtech.kennesaw.edu/nisa/moviemaker.htm>

**Process**

Your team must perform a series of experiments concerning acid rain and must research several aspects about acid rain, including questions about our area. Everyone will be involved in the experiment portion of this project, but will be assigned separate roles to accomplish the research portion. Once both of these parts have been accomplished, the team will come back together to coordinate

the final products needed for the presentation to the Environmental Committee. Then you will summarize your findings as a whole and post your findings to the Students for Action EPA blog.

## **Part 1**

The end product of this webquest will be the creation of a presentation detailing the causes and effects of acid rain. Each "scientist" will be responsible for his/her section of the report while the recommendations and conclusions will be arrived at through the cooperative efforts of the entire group that you are working with.

1. Get together with the other members of your group and decide who will assume the responsibilities of each of the four roles. Do some "brainstorming" on acid rain in order to come up with ideas for the focus of your presentation. Use [www.bubbi.us](http://www.bubbi.us) to help you concept map your ideas.
2. Develop a plan of action to determine the organization, contents, and "look" of your multimedia report. Know your main objectives and devise an outline using your concept above of all the information your presentation will contain.
3. Using the sites listed in the Task section, begin to research your project. Locate the information necessary to answer the questions listed under your role in the Task section.
4. Find some pictures that you can use to help illustrate the causes of acid rain and the problems that it creates. Use Excel to create at least one graph that shows the effects of acid rain within your field of study. See <http://www.algebra.org/passage/passage.aspx?file=EnvironmentalScienceAcidRain.xml> for example graphs.
5. Take notes as you do your research. Use <http://notestar.4teachers.org/> to help you take notes and cite specific links used in your research. Keep in mind the rules defining plagiarism. Plagiarism occurs when you steal or use the ideas or writings of another and present these writings or ideas as your own. You are not allowed to borrow or copy and paste information from any sites without identifying them.
6. After you have completed your research, begin writing the first draft of your report. Make sure that you introduce your section so that the reader knows what you are writing about. Remember that you are writing a report about the problems caused by acid rain and not just a set of answers to a series of questions. Be aware of the reader - just because you understand what you are writing about doesn't mean that the reader does.
7. Once each "scientist" has completed his/her section, meet with your group and present your draft findings. This is the time that you can ask the other members of your group for advice on revising your writing. Use

the **Track Changes** file in your document to help you peer edit. Write your final draft.

Decide, as a group, what your position is on acid rain. Determine the recommendations and conclusions that you will present. Determine which members of the group will be responsible for writing this section, and which members of the group will put all the pieces of the presentation together. All group members must present in the oral presentation to the Environmental Committee.

## Part 2

All members of the group are required to perform at least two experiments using the scientific method to find out about acid rain.

1. Go to EPA's Experiment site and read about the experiments on acid rain. <http://www.epa.gov/acidrain/education/experiments.html>
2. Choose two experiments to perform with your group.
3. Gather materials that your group will need to perform the experiments.
4. Conduct your experiments.
5. Write a lab report for each experiment and relate how your experiment helped you conclude something about acid rain. Follow the Lab Report Template found here. <http://sciencespot.net/Media/indinvest.pdf>
6. Include your findings for both experiments in your oral presentation to the Environmental Committee.

## Part 3

Your final activity is to summarize and explain your findings throughout this project in a word document. As a group, decide on the most important information to include and develop several solutions that could be implemented to reduce the amount of Acid Rain in our planet. Revise and edit your summary and post your final work to the **Greenversations – Students for Climate Change** blog. Take a screenshot of your post and turn it in with your presentation to the Environmental committee.

<http://blog.epa.gov/blog/category/studentsforclimateaction/page/3/>

## Evaluation

### Part 1 Rubric

**Individual Rubric:**

[http://rubistar.4teachers.org/index.php?screen=ShowRubric&module=Rubistar&rubric\\_id=1820813&](http://rubistar.4teachers.org/index.php?screen=ShowRubric&module=Rubistar&rubric_id=1820813&)

**Ruric for PowerPoint**

[http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric\\_id=1820566&](http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric_id=1820566&)

**Rubric For Website**

[http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric\\_id=1820572&](http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric_id=1820572&)

**Rubric for Video production**

[http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric\\_id=1820568&](http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric_id=1820568&)

**Part 2 Rubric**

**Lab Report**

[http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric\\_id=1820575&](http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric_id=1820575&)

**Part 3 Rubric**

**Written Summary Assessment Rubric**

<b>Criteria</b>	<b>1—Limited</b>	<b>3—Proficient</b>	<b>5—Advanced</b>
<b>Student includes essential content—  identifying key concepts and condensing relevant supporting information to explain the</b>	Student may identify the topic, but does not include key concepts. Student is missing most of the supporting information, <i>and/or</i> student indiscriminately lists information from their	Student accurately identifies most key concepts and combines enough supporting information to generally explain the concepts.	Student accurately identifies all of the key concepts and synthesizes supporting information to create an exact explanation of the concepts.

<b>concepts.</b>	presentation.		
<b>Student organizes information from the reading selection in a logical format.</b>	Student organizes information in a disconnected, random fashion. Summary lacks an introduction, body and/or conclusion.	Student organizes information into an orderly format, using some transition words to move from one concept to the next. Summary has indication of an introductory statement (including the source of information), a body and a concluding statement.	Student organizes information into a logical format, smoothly transitioning from point to point. Summary has a clearly developed introduction, (including the source of information), body and conclusion.
<b>Student demonstrates control of the written form.</b>	Writing is unclear or simplistic; sentences are choppy or awkward. Convention errors confuse meaning. Word choice is simple and may not reflect vocabulary appropriate to the subject.	Writing is understandable; sentences may be mechanical, but fit together. Some convention errors may occur, but do not inhibit understanding. Student writes mostly in his/her own words and includes vocabulary appropriate to the subject.	Writing is clear and expressive; sentences connect with a natural flow/rhythm and are varied in style. Few convention errors occur. Student uses her/his own words in a precise and natural way, applying vocabulary appropriate to the

			subject.
<b>Student posts summary on required site</b>	No post	Posted Summary, but format makes it unclear or not easily readable	Summary is posted in an easily readable format
<b>Screen Shot</b>	No Screen shot available		Screen Shot is taken of post

## Conclusion

Upon completion of the project, your team will have learned about the controversial issues surrounding the problem of acid rain and the role our government plays in working to resolve the issues. You will have discovered the basic causes of acid rain and surmised which areas around the world are most affected by these reasons. You will have determined the effects of acid rain on living and non living materials and developed some solutions of your own to combat this problem. You will have summarized your findings and voiced your opinion on the Greenversations blog for students.

After researching the occurrence of this issue, you should have a clear point of view on how you personally feel about our country's reaction to it. Possibly, you think we should be doing more to alleviate this problem. Some ideas you could do to extend your learning:

1. Create a letter to the editor that alerts the community to acid rain in the surrounding area and the health effects related to acid rain. Each letter to the editor should include:

- An understanding of the issues based on research
- Visual connections that relate acid rain to health issues in the form of graphs or data tables
- Alternatives/solutions to the stated problems
- Personal view on the issue

You can use the online submission for The News Herald at <http://www.heritageneews.com/lettertoeditor/>

2. Create and start your own petition online to promote global awareness of the acid rain problem. Go to <http://www.ipetitions.com/start-petition/> to create and post a free online petition.

You can also sign petitions at this site, although some petitions require you to be 18 years or older to sign. Be sure you read the petition entirely before you sign it! (Signing your name means you agree with everything in the petition.)

**Credits:**

I used the ideas and questioning techniques for my webquest based on the following webquest originally created by Gerald Robillard:

<http://www.swlauriersb.qc.ca/english/edservices/pedresources/webquest/raiwq.htm>

[http://www.personal.psu.edu/jxz8/Student\\_Webquests/shenk/quest.html](http://www.personal.psu.edu/jxz8/Student_Webquests/shenk/quest.html)

<http://rubistar.4teachers.org/>

<http://www.sciencespot.net/>

<http://www.epa.gov/>

<http://www.howstuffworks.com/>

<http://catalogs.mhhe.com/mhhe/home.do>

