

Logbook - Bobby Baker

12/15/04

To do list (Research Cycle)

Question

Plan

Gather Information

Sort and Sift

Synthesize

Evaluate

Report (Writing Process):

Prewrite

Draft

Revise

Edit

Publish

Attached is my organizer for questioning and planning:

?
Research topic:
Acid Rain
(Bobby Baker)

What I Know

Acid rain can damage things like plants and trees.	Acid rain is rain that comes from air pollution (especially from cars).
When pollution goes up in the air, the chemicals make the rain have a high pH.	pH is a way of measuring whether something is acidic (or not).
Acid rain is bad for other things like the metal on cars and statues.	People can limit acid rain by car pooling and riding bikes.

What I Want to Know

1) How bad is acid rain where I live?	3) What happens to plants that are exposed to acid rain?	5) Is there anything we can do to help protect plants from damage from acid rain?
2) Is there more or less pollution that is causing acid rain now?	4) What can we do to help prevent acid rain?	6) What kind of experiment can I do about acid rain?

How I'll learn it

newspaper, magazine	Newspaper, magazine	book	book	Interview an Environmentalist	Check the Internet
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QUEST to organize your trip to the Library!

Worksheet Bobby Baker

Q – Question

I need to find this information:

Answers to my research questions (see attached organizer)

These important words are part of my assignment:

Acid rain, plants, prevention, causes, trends, experiment

U – Understand

This is what my assignment is about:

I need to write a research report about acid rain in order to design an experiment for my science fair project.

I have my assignment sheet: YES NO - bring logbook & STEM Fair packet

My assignment is due on this date: February 1, 2006

E – Envision

I will present my project as a: (book report, speech, poster, etc.)

5 paragraph essay – research report

S – Strategize

I need to take these supplies to the library: (assignment sheet, paper, pencil, library card, textbook, money)

logbook, packet, sources handout, notes handout, pencil, library card, money for Xeroxing, scoring tools

I will go to these sources for information: (encyclopedias, books, Internet, databases, librarian)

encyclopedia, books, magazines, newspapers, Internet

T – Target

I need to include the following things in my project to earn that “A”:

See the scoring tool (attached)

Did I do everything I need to do?

Yes

Research Notes
 Topic: Acid Rain
 Name: Bobby Baker

Source #	Notes	Question # (optional)
1	Acid rain is "rain, snow, sleet, or other wet precipitation that is polluted by such acids as sulfuric acid and nitric acid"	7
1	Pollution (SO ₂ – sulfuric dioxide and NO _x nitrogen oxides) causes acid rain to form	8
1	Acid rain happens when chemicals mix with water vapor in the air. The chemicals react with the water and make the water more acidic	7
2	One result of acid rain is that plants grow slower or die	3
2	Acid rain hinders photosynthesis (how plants make their food with sunlight)	3
3	the acid makes it harder for plants to get the nutrients they need	3
4	The acid rain problem is decreasing	2
4	In the US acid rain is worst in the North East states. Maryland (the state where I live) is not as bad as the states to the north but worse than the states to the south or west.	1
4	Normal rain has a pH of 5.6, vinegar has a pH of around 3	5
4	Acid rain can blow hundreds of miles from where the pollution started	8
4	Sometimes the acid rain doesn't cause as much harm to plants because the soil buffers the acid	3
4	Some plants are not as harmed by acid rain as others – forests are really damaged – crops not so much	3
4	crops are less affected by acid rain because farmers put nutrients back into the soil which helps to cancel out the harmful effects of the acid in the rain	3
4	Acid rain makes it hard for plants to take up water	3
4	To prevent acid rain we can clean up smokestacks	4
4	To prevent acid rain we can use alternative energy sources	4
4	To prevent acid rain we can drive cleaner running cars	4

Source #	Notes	Question # (optional)
4	Directions for an experiment with vinegar water and plants is available at http://www.epa.gov/airmarkets/aCidrain/experiments/exp7.html	5
5	Most of the pollution that turns into acid rain is made by electrical power plants and coal mining	8
5	To prevent acid rain we can conserve energy	4
5	To decrease the harm caused by acid rain we put limestone in the soil to cancel it out	4

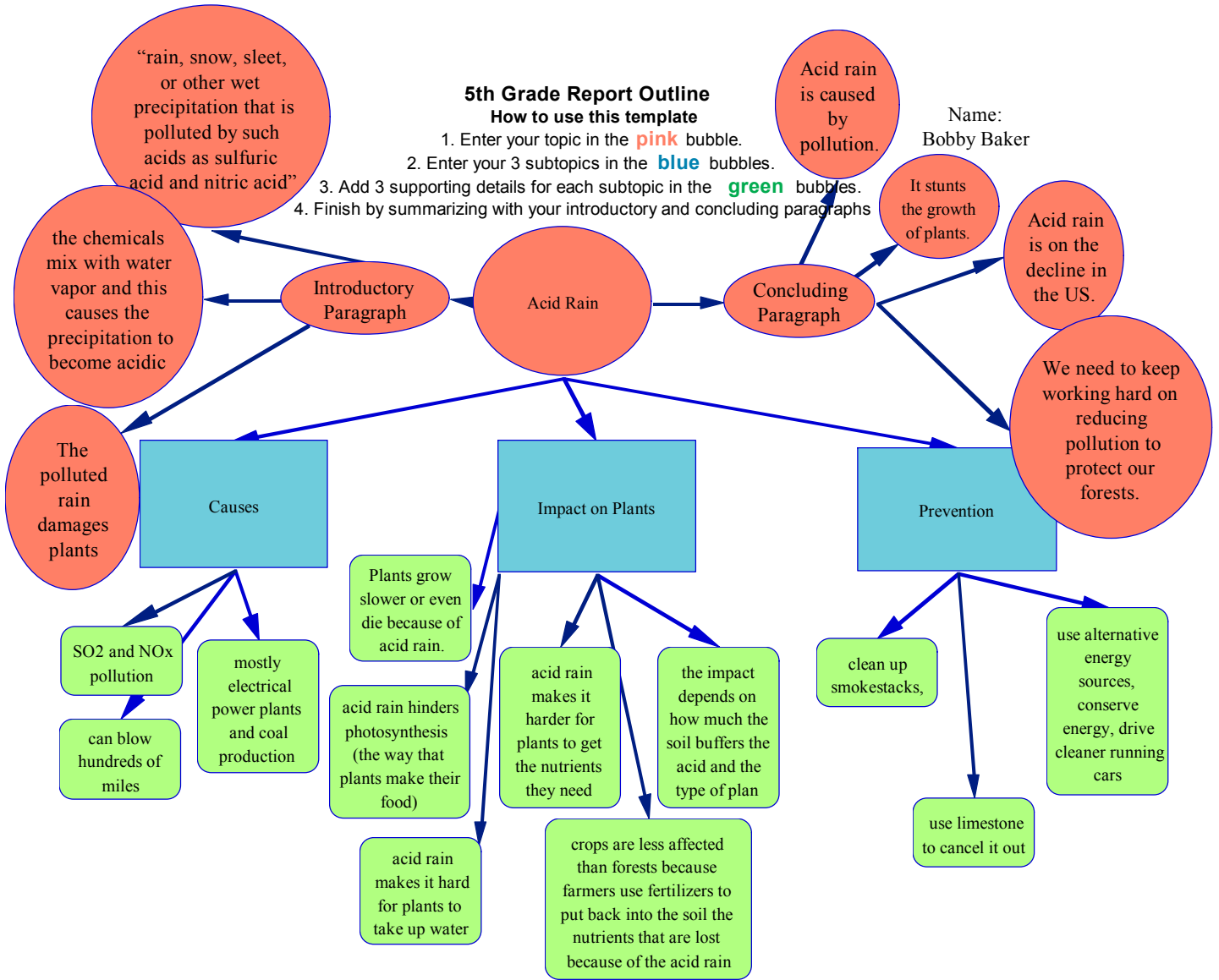
Where did you find that information?
Creating a Bibliography

#	Type (book, magazine, webpage, encyclopedia, interview)	Title	Author	Other Information (listed on the following page)
1	Encyclopedia	Acid Rain	Marian R. Chertow	<u>From:</u> World Book Online Reference Center <u>Copyright:</u> 2005 by World Book, Inc. <u>Accessed:</u> 22 Oct. 2005 <u>URL:</u> http://www.worldbookonline.com/wb/Article?id=ar002930
2	Encyclopedia Special Report	Polluting the Earth	George Woodwell	<u>From:</u> World Book Online Reference Center <u>Copyright:</u> 2005 by World Book, Inc. <u>Accessed:</u> 22 Oct. 2005 <u>URL:</u> http://www.worldbookonline.com/wb/Media?id=sr393020
3	Magazine	New Concern About Acid Rain	Christol Hope	<u>Name of Magazine:</u> <i>Futurist</i> <u>Date Published:</u> Nov/Dec 2002 Vol. 36 Issue 6 <u>Pages:</u> p8, 2p.
4	Website	EPA's Clean Air Market Program – Acid Rain	None	<u>Organization:</u> US Environmental Protection Agency <u>Date Accessed:</u> 22 Oct. 2005 <u>URL:</u> http://www.epa.gov/airmarkets/acidrain/index.html
5	Website	Acid Rain Student Site	None	<u>Organization:</u> US Environmental Protection Agency <u>Date Accessed:</u> 22 Oct. 2005 <u>URL:</u> http://www.epa.gov/acidrain/site_students/index.html

5th Grade Report Outline
How to use this template

1. Enter your topic in the **pink** bubble.
2. Enter your 3 subtopics in the **blue** bubbles.
3. Add 3 supporting details for each subtopic in the **green** bubbles.
4. Finish by summarizing with your introductory and concluding paragraphs

Name:
 Bobby Baker



Acid Rain - DRAFT

By Bobby Baker

I decided to research acid rain, because I was concerned about protecting our environment. According to the Worldbook Encyclopedia, acid rain is “rain, snow, sleet, or other wet precipitation that is polluted by such acids as sulfuric acid and nitric acid”. The chemicals mix with water vapor and this causes the precipitation to become acidic. The polluted rain damages plants.

Acid rain is caused by pollution. Sulfur dioxide and nitrogen oxides are two chemicals which can cause acid rain to form. The acid rain can blow hundreds of miles. This pollution is mostly from electrical power plants and coal production.

Acid rain makes plants grow slower or even die because of acid rain. One impact of acid rain is that it hinders photosynthesis (the way that plants make their food). Another impact of acid rain is that it makes it hard for plants to take up water. Also, acid rain makes it harder for plants to get the nutrients they need. The amount of harm depends on how much the soil buffers the acid and the type of plant. For example, crops are less affected than forests because farmers use fertilizers to put back into the soil the nutrients that are lost because of the acid rain.

There are several ways we can prevent plants from being harmed by acid rain. First, we can prevent acid rain by cleaning up smokestacks, so less pollution will be made. Additionally, we can use alternative energy sources, conserve energy, and drive cleaner running cars. Also, we can apply limestone to the soil of our plants in order to cancel out the effects of acid rain.

Acid rain is on the decline in the US. Acid rain is caused by pollution. It stunts the growth of plants. We need to keep working hard on reducing pollution to protect our forests. I am going to research how water with vinegar in it works with plants. I want to know if they grow or not when the water is acidic. The more we know about acid rain, the better job we can do of protecting plants.

Acid Rain

By Bobby Baker

Mrs. Smith

January 25, 2006

ACID RAIN

Acid rain is an important topic because we need to protect our environment. According to the World Book Encyclopedia, acid rain is “rain, snow, sleet, or other wet precipitation that is polluted by such acids as sulfuric acid and nitric acid”. The chemicals mix with water vapor and this causes the precipitation to become acidic. The polluted rain damages plants.

Acid rain is caused by pollution. Sulfur dioxide and nitrogen oxides are two chemicals which can cause acid rain to form. The acid rain can blow hundreds of miles. This pollution is mostly from electrical power plants and coal production. We get our energy from power plants and/or coal which cause pollution and the pollution results in acid rain.

Acid rain makes plants grow slower or even die. One impact of acid rain is that it hinders photosynthesis (the way that plants make their food). Additionally, acid rain makes it hard for plants to take up water. Also, acid rain makes it difficult for plants to get the nutrients they need. The amount of harm depends on how much the soil buffers the acid and the type of plant. For example, crops are less affected than forests because farmers use fertilizers to put back into the soil the nutrients that are lost from acid rain. Thus, the impact of acid rain depends on multiple factors.

There are several ways we can prevent plants from being harmed by acid rain. First, we can prevent acid rain by cleaning up smokestacks, so less pollution will be made. Additionally, we can use alternative energy sources, conserve energy, and drive cleaner running cars, so less energy will be needed. Also, we can apply limestone to the soil of our plants in order to cancel out the effects of acid rain. The effects of acid rain are not unavoidable – we can improve the situation.

Acid rain is caused by pollution. Because the amount of pollution generated is declining, acid rain is also declining in the US. Acid rain stunts the growth of plants. We need to keep working hard on reducing pollution to protect our forests. I am going to research how water with vinegar in it works with plants. I want to know if they grow or not when the water is acidic. If we know more about acid rain, we can protect forests.

BIBLIOGRAPHY

Acid Rain Student Site. US Environmental Protection Agency. 22 Oct. 2005
<http://www.epa.gov/acidrain/site_students/index.html>.

Chertow, Marian R. "Acid rain." *World Book Online Reference Center*. 2005. World Book, Inc. 22 Oct. 2005
<<http://www.worldbookonline.com/wb/Article?id=ar002930>>.

Christol, Hope. "New Concern About Acid Rain." *Futurist*, Nov/Dec2002, Vol. 36 Issue 6, p8, 2p.

EPA's Clean Air Market Program - Acid Rain. 22 Oct. 2005. US Environmental Protection Agency . 22 Oct. 2005 <<http://www.epa.gov/airmarkets/acidrain/index.html>>.

Woodwell, George. "Special Report: Polluting the Earth" *World Book Online Reference Center*. 2005. World Book, Inc. 22 Oct. 2005.
<<http://www.worldbookonline.com/wb/Media?id=sr393020>>.