

Flash, Crash, Boom: How Does Lightning Work?

A WebQuest for Fifth Grade Science



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Based on a template from The WebQuest Page: <http://webquest.sdsu.edu/>

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Introduction

In class, you have been learning about static and current electricity. Because of your expertise in this field, a lightning safety committee in the community has appointed you to be its newest member. Your expertise is needed because of the relationship between electricity and lightning. The committee feels if people understand how lightning works, they can apply their knowledge to lightning safety. To inform the community, the committee is creating a brochure about how lightning works and how to be safe during a lightning storm.



As a newly appointed member to this committee, you might be wondering what the connections are between electricity and lightning. How does lightning work? How does someone stay safe during a lightning storm?

The lightning safety committee expects you to have answers to these questions for their community brochure.

The Task

Your task is to create a brochure on the computer that promotes an awareness of how lightning works and provides safety tips that your class and community can follow during a lightning storm. You will research the following questions, and use that information to inform your community:

- How does lightning work?
- What are the roles of static and current electricity in producing lightning?
- How does this knowledge apply to being safe during a lightning storm?



You will need to be prepared to share and discuss your brochures with the rest of the class. You will also educate your school community about lightning safety by visiting younger grades and presenting information from your brochure.

The Process



To accomplish this task you will do the following:

1. First, you will be assigned to a team of three or four students.
2. Each team of students will review some web sites about lightning and lightning safety.
3. Please explore the websites listed below. Each group member should explore all of the web sites and take notes.

<http://skydiary.com/kids/lightning.html>

<http://www.nationalgeographic.com/lightning> (click on "flash landing", then click on "when lightning strikes")

<http://www.ucar.edu/communications/infopack/lightning/kids.html>

<http://www.uic.edu/labs/lightninginjury/index.htm>

<http://www.usatoday.com/weather/tg/wstroke/wstroke.htm>

4. Identify the answers to the following questions:
 - How does lightning work?
 - What are the roles of static and current electricity in producing lightning?
 - How does this knowledge apply to being safe during a lightning storm?
5. Share your information with your group and work together as you construct your final project.
6. As a group, review the following web site that describes how to make a brochure: <http://www.microsoft.com/Education/ThemeBrochure.aspx>

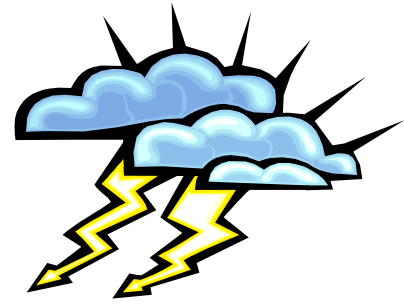
7. Work together to create a brochure in Microsoft Word or Microsoft Publisher to describe the results of your investigation.
8. Print out your brochure and turn it in to your teacher.

Evaluation

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Completeness	Brochure answers none or very little of the questions presented. Responses given are incomplete and inaccurate.	Brochure includes answers to all of the questions, but may include inaccurate or incomplete information	Brochure answers the majority of the questions given, most of which are thorough and accurate.	Brochure answers all three questions presented in the task, with thoroughness and accuracy.	
Design and Creativity	Design of brochure is unprofessional and difficult to follow. It lacks creativity and organization.	Design of brochure is fairly attractive and creative, but still lacks organization.	Design of brochure is attractive and creative. Information is fairly organized.	Design of brochure is visually pleasing, professional, and creative. Information is well organized.	
Grammar, Punctuation, and Spelling	Brochure contains many grammatical, punctual, and spelling errors.	Brochure contains many errors in grammar, punctuation, or spelling.	Brochure contains few grammatical, punctual, or spelling errors.	Brochure has no, or very few, errors in grammar, punctuation, and spelling.	

Conclusion

Congratulations! You have completed your research and successfully designed a brochure that promotes awareness of how lightning works and also provides safety tips for community members to follow during a lightning storm.



With the research you conducted, you now have an understanding of how lightning works, the roles of static and current electricity in producing lightning, and how to stay safe during a lightning storm. This information helped you on the lightning safety committee for this activity, but will also be useful to you in real life because lightning storms happen often in many areas. Can you think of the worst lightning storm you were ever in? Were you scared? Now that you know more about lightning, you know how to protect yourself and do not have to be as scared. You can also use what you have learned to help your family or friends stay safe during future storms. If you want to know how to be safe from other natural disasters, use your researching skills to learn about tornados, hurricanes, earthquakes, and volcanoes so you will be prepared if any of these occur near your community.



Credits and References

WebQuest Template Site:

<http://webquest.sdsu.edu>

Websites included in WebQuest activity:

<http://skydiary.com/kids/lightning.html>

<http://www.nationalgeographic.com/lightning>

<http://www.ucar.edu/communications/infopack/lightning/kids.html>

<http://www.uic.edu/labs/lightninginjury/index.htm>

<http://www.usatoday.com/weather/tg/wstroke/wstroke.htm>

Lightning clip art:

http://www.grsites.com/webgraphics/clipart_skyspace_lightning_001.shtml

Sources of other graphic clips:

Clip art from Microsoft Word Clip Gallery

Individual deserving a 'thank you' for giving resources and other help:

Dr. Leigh Smith