

Weather or Not to Become a Meteorologist

WebQuest Description: In this webquest you will explore the characteristics of air and how it plays a role in weather prediction. You will search the internet to develop the skills you will need to become Jr. Meteorologists.

Grade Level: 9-12

Curriculum: Science

Keywords: Weather, air masses, continental, maritime, tropical, polar, fronts, occluded, cold, warm

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Introduction

Jr. Meteorologists, It is now time to begin your mission. Today we will be exploring some of the properties of air and how it influences our weather. This knowledge is crucial to the understanding of weather systems and how to predict them. With my guidance you will visit reputable web sites and learn about air masses and fronts as well as what types of weather are brought on by them. May the internet rise to meet you May the classroom breeze be always at your back The monitor shine warm upon your face The knowledge fall soft upon your brains OK, Here We Go!!!

Tasks

At the end of today's web quest you will be able to: Define the term air mass. List the four descriptors used to identify air masses. List and identify the four types of air masses. Define the term front as it applies to meteorology. List the types of fronts. Draw the types of fronts and explain how they are related to air masses. Identify the types of fronts on a weather map and explain the types of weather associated with each. The successful completion of these objectives will be demonstrated on worksheets that will be submitted by each individual student as a final project.

Process

1. First we need to learn about air masses. Visit this link:

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/af/arms/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/af/arms/home.rxml) to discover the definition of an air mass. 2. Now we need to learn the types of air masses, where they form, and the characteristics of the air in each. Visit this link:

<http://www.usatoday.com/weather/tg/wamsorce/wamsorce.htm> to achieve this objective and learn which air masses affect us in the U.S. 3. Now that you know the types of air masses, click on this link:

<http://www.wunderground.com/> and see if you can identify the types of air masses that are present in the U.S. today by clicking on Temperature and Humidity next to the map and comparing the two views. Use a pencil and try to draw these air masses on the map provided to you. 4. Ok, now that we made it this far it is time to learn about fronts. Click on this link:

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/af/frnts/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/af/frnts/home.rxml) to find the definition of a front. 5. Now click on the following links to learn about the types of fronts, their symbols, and the weather they bring:

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/af/frnts/cfrnt/def.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/af/frnts/cfrnt/def.rxml);

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/af/frnts/wfrnt/def.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/af/frnts/wfrnt/def.rxml);

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/af/frnts/ofdef.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/af/frnts/ofdef.rxml);

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/af/frnts/sfdef.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/af/frnts/sfdef.rxml); 6. Now click on this link to see a nifty animation and learn why cold fronts bring the weather they do:

http://apollo.lsc.vsc.edu/classes/met130/notes/chapter11/graphics/59_Cold_Front/59.html; 7. Click on this link to see a nifty animation and learn why warm fronts bring the weather they do:

http://apollo.lsc.vsc.edu/classes/met130/notes/chapter11/graphics/58_Warm_Front/58.html; 8. Now revisit this site:

<http://www.wunderground.com/> and click on fronts. Is there a correlation between where you placed the air masses on your map and where the fronts are located? Draw the fronts on your map. 9. Looking at the same map, what will the weather be like in the next 24-48 hours. It may help if you click on animate under the map. Write down your prediction. 10. As a final project, you are to write a 5 paragraph essay describing the impact of air masses and fronts on our weather. The paper should be at least 1 1/2 pages in length and if typed (preferred) should be in 12 pt. Times New Roman font and double spaced. See the rubric under EVALUATION for information on grading.

Evaluation

Category and Score	Advanced 4	Proficient 3	Basic 2	Below Basic 1	Score
Focus Presentation and development of a specific topic and/or thesis.	Sharp distinct main point made about a single topic that follows requirements of the assignment.	Apparent point made about a single topic that mostly follows requirements of the assignment	No apparent point but evidence of a specific topic.	Minimal evidence of a topic	%25
Content The presence of ideas developed through facts, examples, anecdotes, details, opinions, statistics, reasons and/or explanations.	Substantial, specific, and/or illustrative content demonstrating strong development and sophisticated ideas	Sufficiently developed content with adequate elaboration or explanation	Limited content with inadequate elaboration or explanation	Superficial and/or minimal content	%25
Organization The development of order using an introduction, transitional devices, and conclusion.	Sophisticated arrangement of content with evident and/or subtle transitions	Functional arrangement of content that sustains a logical order with some evidence of transitions	Confused or inconsistent arrangement of content with or without attempts at transition	Minimal control of content arrangement	%25
Style The choice, use and arrangement of words and sentence structures that create tone and voice.	Precise, illustrative use of a variety of words and sentence structures to create consistent writer's voice and tone appropriate to audience	Generic use of variety of words and sentence structures that may or may not create writer's voice and tone appropriate to audience	Limited word choice and control of sentence structures that inhibit voice and tone	Description of identifiable performance characteristics reflecting the highest level of performance.	%25
				Total Score	%100

Conclusion

Congratulations on the successful completion of this Web Quest. At this point in time you should be able to: Define the term air mass. List the four descriptors used to identify air masses. List and identify the four types of air masses. Define the term front as it applies to meteorology. List the types of fronts. Draw the types of fronts and explain how they are related to air masses. Identify the types of fronts on a weather map and explain the types of weather associated with each. I hope you have found this exercise to be both enjoyable and rewarding.

Teacher Page

Focus: This WebQuest focuses on the Meteorological concepts of Air Masses and Fronts. **Objectives/Goals:** I recommend using this Web Quest after the concepts of Air Density, Air Pressure, Heat Transfer, Layers of the Atmosphere, Global Winds, Humidity, and Cloud formation and types have been taught. The objectives for the quest are for the students to be able to: Define the term air mass. List the four descriptors used to identify air masses. List and identify the four types of air masses. Define the term front as it applies to meteorology. List the types of fronts. Draw the types of fronts and explain how they are related to air masses. Identify the types of fronts on a weather map and explain the types of weather associated with each. **Resources:** Prerequisite Skills: Comfort level with the Internet. Time Required: 2 class periods with additional time for 5 paragraph essay assignment. Technology Needs/Materials Needed: Students will each have a laptop. Credits: The resources and web links included on this website are external websites and I would like to thank them for creating such useful WebPages.

Standards

Credits

Other