

Problem-Based Learning Activity

How Do Oceans Contribute to Our Global Energy Budget?

Scenario: The National Oceanographic and Atmospheric Administration (NOAA) has been contracted to research the effects of ocean winds and currents on global warming. Scientists recognized some anomalies as they researched the temperature in six different locations, four of which are located in coastal areas (near a major body of water) and two are land-locked.

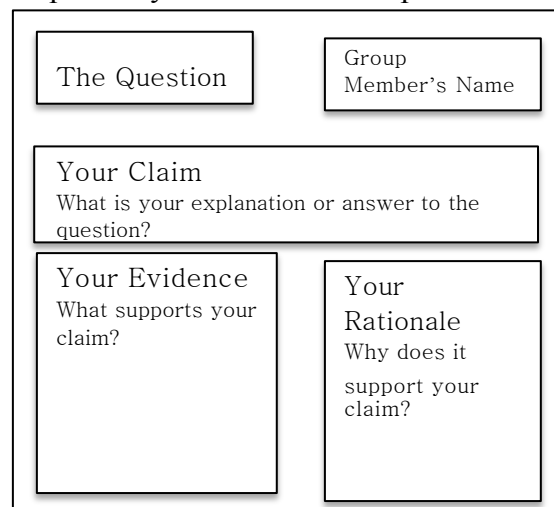
Task:

Choose six (6) locations: four coastal (near major bodies of water) and two land-locked on at least four (4) continents. You are to research climate, temperature, wind, and ocean current data for your six (6) chosen locations. Use this data to prepare a persuasive letter to present to the administrator of the Environmental Protection Agency (EPA) explaining the importance of oceans to our global energy budget and why funding should be granted for further research on its properties and conservation.

Once your group has researched and included maps and evidence to support the importance of oceans to our energy budget and developed an explanation that answers this question, prepare a flip chart that you can use to communicate and present your ideas. Your flip chart should include all information shown in the diagram.

To share your work with others, we will be using a presentation format. One person in the group will be the reporter to share your results with the class.

Remember, as you critique the work of others, you have to decide whether their conclusions are valid or acceptable based on the quality of their explanation and how well they are able to support their ideas. In other words, you need to determine if the argument is convincing. Use sticky notes to write down your constructive criticisms so that every group is able to create the best group presentation possible.



Extension:

After your research has been peer reviewed, you will prepare a PowerPoint or Prezi about the climate of your six areas, what factors influence the climate, what affect the presence of water has on the climate, and what steps can be done to balance our global energy budget. Use the information learned from the laboratory experiments and reading passages to enhance your rationale.

Finally, type a letter proposing recommendations to the Administrator of the EPA, Ms. Gina McCarthy, to submit to the President of the United States regarding the importance of oceans to the global energy budget. Make sure that you address your claim, evidence, and rationale within the body of your letter. The best persuasive letter will receive ten (10) extra credit points on the assignment and be hung up in the classroom. Good luck!