Science Topic Area Paper Instructions

1. **To be completed individually.** Do some research about the science concept(s) of your Topic Area Question and write a 1500 word overview of the concept. This will serve as the background and rationale/literature review for the final project and activity. Although you will work in partners to complete the project, the science topic area paper should be completed individually. You should discuss what you think should be included in your paper with your partner. Include the following:
   a. Topic Area and Topic Area Question
   b. Why the concept or topic area is of interest to you
   c. Why the concept or topic area is relevant to climate science
   d. A thoughtful explanation of the science content relevant to your particular concept or topic
      - (e.g., if you were writing about ocean acidification, you would include: What is ocean acidification? What causes ocean acidification? Which organisms are affected by it? How are they affected? Are there particular regions more impacted by ocean acidification than others? Why is that the case?)
      - The Ocean and Climate Literacy Principles discussed below will be helpful in determining what additional grade level appropriate content and concepts you might include.
   e. In what ways the concept or topic area can be relevant to middle school students
   f. Headings for various sections within the paper to make it easy to follow

2. **Answer the following questions about the data needed (with partner).**
   a. Where might your investigation take place (geographic source of the data) to investigate the Topic Area Question?
   b. Over what time period might your investigation take place (which hours, days, weeks, months, or years) to investigate the Topic Area Question?
   c. What environmental parameters or other types of data might you need to address the Topic Area Question?

3. **Become familiar with the Ocean Literacy Framework composed of the Ocean Literacy Principles and the Ocean Literacy Scope & Sequence available at oceanliteracy.net.** These will be helpful in thinking about grade appropriate concepts to focus on in designing your activity. There are seven Ocean Literacy principles, and the complementary Scope and Sequence is comprised of 28 conceptual flow diagrams that provide additional grade-band appropriate concepts. Learn about the Principles and the Scope and Sequence at http://oceanliteracy.wp2.coexploration.org/ocean-literacy-framework/principles-and-concepts/. Climate Literacy Principles can be accessed at: http://cpo.noaa.gov/OutreachandEducation/ClimateLiteracy.aspx