

## **Cruise Conditions Graphing & Statistics**

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### **OBJECTIVES**

1. Students will graph some of the weather conditions at 10N, 95W for the 18-day period when the Ronald H. Brown NOAA research vessel was stationed there.
2. Students will do basic statistical calculations using the data they plotted.
3. Students will look for trends in the data.

### **AGE**

Grades 8-10

### **TIME ALLOWANCE**

2 hours

### **MATERIALS**

- Access to the daily logs posted by Jennifer Richards, Teacher at Sea ([www.ogp.noaa.gov/epic](http://www.ogp.noaa.gov/epic))
- Graph paper
- Copies of student handout

### **INSTRUCTION:**

1. Students will review the daily logs to find the 18 days during which the ship was stationed at 10N, 95W
2. Students will calculate the following:
  - mean temperature (air and water)
  - median temperature (air and water)
  - mode temperature (air and water)
  - percent difference between the highest temperature (air and water) and the lowest temperature recorded during this period
  - percent difference between the air and water temperatures on the day when the two were closest, and on the day when the two were farthest apart.

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- standard deviation (air and water)
  - students will construct a properly-labeled bell curve for the air and water temperature
3. On one graph, students will plot the air temperature and water temperature for each day of the trip. Note: air temperature was measured at noon each day.
- from a science perspective, students should make a correlation between air temperature and water temperature, based on visual observations of the graph

### **EVALUATION / ASSESSMENT**

Teacher will assess students based on accuracy of their responses to the above questions.

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Using the data provided in Teacher at Sea Jennifer Richards' daily logs while aboard the Ronald H. Brown NOAA research vessel ([www.ogp.noaa.gov/epic](http://www.ogp.noaa.gov/epic)), calculate the following:

1. Mean temperature (air and water)
2. Median temperature (air and water)
3. Mode temperature (air and water)
4. Percent difference between the highest temperature (air and water) and the lowest temperature recorded during this period

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5. Percent difference between the air and water temperatures on the day when the two were closest, and on the day when the two were farthest apart.
  
  
  
  
  
  
  
  
  
  
6. Standard deviation (air and water)
  
  
  
  
  
  
  
  
  
  
7. Construct a properly-labeled bell curve for the air and water temperature

On a sheet of graph paper, graph the air temperature and the water temperature during the 18 days in which the Ronald H. Brown NOAA research vessel was stationed at 10N, 95W.

8. Make a scientific correlation between air temperature and water temperature, based on your visual observations of the graph you created.