Education and Research: Testing Hypotheses

Light in the Arctic Seas

Jennifer Butera, HNMS

Tami McConnell, NHS

Heather Barrineau, NBMSS

Charlene Mauro, NBMSS

Joshua Brooks, PHS

Summary

Students will make graphs to compare chlorophyll concentrations to light penetration in the Arctic by monthly averages over the course of one year. Students will use this information and images taken on site to make inferences about ice conditions in the Arctic.

Chlorophyll

Light penetration

Arctic

Ice thickness

Key Concepts

- Graphing data
- Analyzing data
- Correlate light penetration to chlorophyll concentration
- NGSS ESS1-1
- NGSS ESS2-1
- NGSS PS1-1
- NGSS LS2-1
- NGSS LS-2
- NGSS PS3-2

Objectives

Include clear, measurable statements of what students will be able to do, such as:

- Create graphs using research data points from the Arctic
- Interpret data from graphs
- Draw conclusions based on data

Materials

- Class set of data point monthly averages worksheet
- 3 different color Post-it notes (one for each plot)
- Computers with internet access
- Scissors

Procedure

1. Construct a graph on graph paper with the correct intervals based on the given data points.
2. Overlay a Post-it note onto the graph. Using a pencil, plot each data point.
3. Cut out along the line that you have drawn.
4. Repeat for the three remaining graphs.
5. Overlay all Post-it notes to see the correlation between depth, light penetration, and chlorophyll concentration. Answer the questions provided.

Assessment

- Teacher will monitor group discussions.
- Students will produce accurate graphs with overlying data points.
- Students will accurately answer the the questions provided.

Additional Resources

https://sites.wp.odu.edu/BORG/