

Ship Mates <http://www.bigelow.org/shipmates/>

The Activity and Assessment for:

Content Standard: Matter, Energy and Organization in Living Systems

Distribution of Organisms

The distribution and abundance of phytoplankton in the Gulf of Maine are limited by the availability of energy such as sunlight and matter, such as nutrients and other abiotic factors or growing conditions.

Content Standard: Science as Inquiry

Using the scientifically collected data, students are able to conduct an investigation to test the accepted theories of the conditions that affect phytoplankton blooms in the Gulf of Maine.

Activity

How do seasonal variations in the availability of sunlight, nutrients and other abiotic factors influence the distribution and abundance of phytoplankton in the Gulf of Maine?

Use the online data collected by scientists to find out.

1. Open the Ship Mates website and click on the *button* in the bottom right hand corner labeled Mixed or Layered.
 - ___ Follow the directions for activities #1 - #3.
 - ___ Use the online data to complete the Data Tracking Sheet
 - ___ Explore the links to clarify any material that you do not fully understand.
 - ___ Separately write the answers to the questions in the activities to focus your inquiry.
2. When you have finished, you will have two completed pieces of work:
 - ___ the Data Tracking Sheet
 - ___ the answers to the questions in activities #1 - #3

Assessment

How do seasonal variations in the availability of sunlight, nutrients and other abiotic factors influence the distribution and abundance of phytoplankton in the Gulf of Maine?

Formulate a conclusion:

1. Analyze the data you have noted on your Data Tracking Sheet and review your answers to the activity questions. With this information you should be able to form a conclusion that answers the question above.
2. Organize your conclusion so that it includes:
 - ___ **The purpose** – to answer the question above.
 - ___ **Your understanding of the concept or content standard -**
Explain how populations of phytoplankton are limited by the availability of sunlight, nutrients and other abiotic factors.
 - ___ **Specific examples of how the data supports the concept** –
Now use specific examples from the data that help to prove that populations of phytoplankton are influenced by the availability of sunlight, nutrients and other abiotic factors.