



Education and Research: Testing Hypotheses

Lesson Plan—Marine Animals on the Move

Summary

Over the course of this project, students will be expected to collaborate and share collected data with a partner school to create a final product that interprets possible connections between organisms and their environment based on the use of real-time satellite tracking data.

Key Concepts

- There are certain basic needs that must be met for animals to survive in the open oceans
- Science and technology are closely linked when organisms under investigation are not easily accessible to scientists
- A variety of physical and biological factors are involved in determining the behavior, migratory patterns and activities of pelagic predators

Objectives

Students will be able to:

- **Identify** a variety of pelagic predators
- **Describe** different methods used by scientists to carry out pelagic research
- **Utilize** a satellite tracking data set to illustrate migratory patterns of pelagic species
- **Collaborate** with students of other levels to create an informative project or presentation

Materials

- Computers with Internet access
- Reference books about pelagic predators
- Science journal for each student
- Presentation materials (art supplies, paper, markers, scissors, etc.)

Procedure

1. Arrange for students to form long-term mentor-intern partnerships with students from lower grade levels.
2. Have partner pairs follow one of the tagged animals over the course of a few months, collecting real-time data on the animal's location, path and any other applicable variables.
3. Have older students engage their younger partners in age-appropriate discussions to investigate correlations between the organism and its travel parameters based on data collection and research. Students should focus on communicating and collaborating with younger "interns"—sharing data, delegating responsibilities, asking and answering questions.

4. Have students compile the information and the conclusions they have drawn into a final project to share with their fellow scientists and interns. All projects should include a written and oral component, accompanied by appropriate visual aids.
 - **Examples of final projects:**
 - Scientific magazine article
 - TV show (video and/or script)
 - PowerPoint presentation
5. Have students assist their intern in creating a final presentation to share with their peers and families at a mock scientific conference.
 - **Examples of age-appropriate final projects:**
 - Photo album with travel text
 - Puppet show
 - TV show (video or live)—students will act out the life of their organism
 - Big book

Secondary level “scientists” responsibilities:

- Research chosen organism (identification, habitat, life cycle, trophic relationships)
- Obtain real-time data on organism, its travels and location parameters
- Make correlations between organism, its travels and parameters based on data collection and research
- Communicate and collaborate with lower-grade “interns”—sharing data, delegating responsibilities, asking and answering questions
- Keep a scientific journal of progress
- Prepare and present final project

Elementary level “science intern” responsibilities:

- Research chosen organism (identification, habitat, life cycle, trophic relationships)
- Follow organism’s travels through collection of real-time data
- Communicate and collaborate with upper-grade “scientists”—sharing data, asking and answering questions
- Keep a scientific journal of progress
- Prepare and present final project

Assessment

- **Performance**—Did student participate in discussion sessions and demonstrate an understanding of the factors that influence migration patterns? Did students actively participate in the collaboration and help their partners to find and understand information about pelagic predators, satellite tracking and migration?
- **Product**—Did student’s presentation provide information on his/her organism’s travels and suggest correlations between migratory patterns and physical and/or biological factors? Did student present their information in an organized and understandable format? Did student’s project include both a written and oral component, and was it accompanied by appropriate visual aids?