**What is happening to Pteropod in the Oceans?**

Regional Class Research Vessels

**Description:**   
In this activity, the students will explore the topic of climate change by engaging in an experiment in which they will observe the estimated condition of pteropod shells collected from different time periods (past, present, and future). They will be able to collect data on the number of pteropods that have been affected by ocean acidification, as well as their different levels of shell dissolution. Students will then contrast their observations to estimate shell dissolution in the past, present, and future ocean. The students will analyze their data from their assigned experiment and determine the correlation between ocean acidification and the higher rates of shell dissolution. Students will then create an argument for or against ocean acidification effect on pteropod shells.

**Levels**4th grade- 12th grade

**Content Areas**Chemistry, Climate Science, Ocean Science

**Lesson Time**

60-90 Minutes

**Learning Objectives & Outcomes**

* Recognize patterns
* Data collection and data analysis
* Argument from evidence

**Contact**

http://smile.oregonstate.edu/

**Using This Lesson:**

The activity in this lesson will be in be done in small groups. The background information has been written so it can be used as reading material for students. Key terms are defined at the end of the lesson. Questions and charts are provided to promote discussion and critical thinking. See the resource page for links to documents that support this lesson.

**Next Generation Science Standards:**  
MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect population.   
Emphasis is on recognizing patterns in data ad making warranted inferences about changes in populations, as well as on evaluating empirical evidence supporting arguments about changes to ecosystems,   
Performance Expectation: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.   
MS-ESS3-3Disciplinary Core Idea: Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth’s environments can have different impacts (negative and positive) for different living things.   
ESS3.C Human Impacts on Earth’s Systems  
Crosscutting Concept: Cause and effect