**Lesson 12: Ocean Acidification Presentation**

**Storyline Summary**

Let students know that they should be proud of all they have learned in order to gain an understanding of the complex problem of ocean acidification. Explain that their final project is to tell the story of ocean acidification in a way that can be easily understood by the public. Students can review everything they have done throughout the unit and decide how to best make a presentation about the problem of ocean acidification and possible solutions.

Students can choose from a variety of methods to communicate their information. You will decide if they should work in groups or individually to decide on possible approaches for a presentation and then on the project itself.

**Final Project:** How can we use what we have learned to explain the science and challenges of Ocean Acidification in a presentation for the public?

**What Students Do:**

Students can design an informative poster, create a video, build a model, or write a formal letter to local public official explaining in a simplified form:

* The role of excess CO2 and the chemistry behind ocean acidification
* Effect of ocean acidification on shell-making organisms and the food chain
* Sources of excess CO2
* Proposed solutions

**What Students Have Learned:**

Answering the question, “How does Ocean acidification work?”, and explaining it clearly requires students to understand the fundamentals of:

* Atoms and molecules
* Covalent and ionic bonding
* Structure and polarity of the water molecule
* Dissolving of gases
* The effect of temperature on dissolving
* Chemical reactions
* Combustion reaction
* The effect of temperature on chemical reactions
* Acids, bases, and pH
* Possible solutions to problem of ocean acidification

**ENGAGE:**

1. **Introduce the final project.**

Explain to students that they will use what they have learned to present a detailed explanation of ocean acidification to the public.

They can use any form of communication but must present their project ideas to you for final approval.

Some ideas are:

* Detailed poster
* Informative video
* Model using different media
* Letter to a public official

**EXPLAIN**

1. **Review the main ideas covered throughout the unit.**

Remind students that each lesson of the Ocean Acidification unit was building toward understanding how ocean acidification works and its effects on ocean life.

Have students look back at their notes and remind them of all they have learned throughout the unit to build an increasingly complex understanding of how ocean acidification works.

Review this list with students and ask them for some highlights:

* Introductory reading about carbon dioxide
* Introductory demonstrations adding carbon dioxide to indicator solution
* Details of atoms and molecules
* Covalent and ionic bonding
* Structure and polarity of the water molecule
* Dissolving of gases
* The effect of temperature on dissolving
* Chemical reactions
* Combustion reaction
* The effect of temperature on chemical reactions
* Acids, bases, and pH
* Animated video showing the process and issues of ocean acidification
* Possible solutions to problem of ocean acidification

**EXPLORE**

1. **Give students time to work on and complete their final project.**

Let students know that everything they have worked on during the unit is available as a resource for the final project.

Give time for students to begin thinking and asking questions and discussing possible project ideas and to begin working on the project. The final project may take several class periods for students to complete.

**EVALUATE**

1. **Assess final projects.**

Invite students to share their projects and evaluate the work of others. A simple way to view student projects is by having a “gallery walk” where student work is displayed and visiting students are asked to comment on the work of their classmates.

You can increase interest during a gallery walk by inviting another class unfamiliar with the topic to view the work. You may also consider having students volunteer to display and present their work to the entire class. If you have limited time, having students make a short video (you can limit it to 1 minute) of themselves presenting is an efficient way of collecting and assessing student work.

**EXTEND**

1. **Encourage students to incorporate possible solutions into their projects.**

Remind students of the research they did from the previous lesson (Lesson 11) about ways to reduce carbon dioxide in the atmosphere. Advise students to be sure to include this information in their presentation and to add new information, if possible, about ways to reduce carbon dioxide gas in the atmosphere.