

Task Cards

Reference: **Teaching and learning model** ([5Es and Bloom's Taxonomy](#))

Phase: Engage

Task: Remembering

Draw a colored pH scale.

Indicate which end is acidic. Where is neutral? Which end is basic?

Include a bold title and clear labels.

Show on this scale: freshwater, seawater, a common acid, and a common base.

Phase: Explore

Task: Understanding

Ocean Acidification (title).

Make a Venn Diagram.

Compare and Contrast acids and bases.

Place neutral liquids in the middle. Place acids on the left side. Place bases on the right.

Make sure seawater is included.

Phase: Explain

Task: Applying

What questions would you ask a **marine scientist** from the Oregon State University Port Orford Field Station about **rising carbon** levels in seawater? *Make 3 questions.*

Ask a question about how to reduce carbon in the oceans.

Phase: Elaborate

Task: Analyzing

Ocean Acidification (topic)

Ponder this: What happened to the oysters?

You will make a brochure.

Make a shutterfold foldable. Include diagrams and pictures. Use the answers as talking points in your brochure, and include the following:

1. Analysis of the graph in the slide pack: *Changes in ocean pH due to increase in seawater CO₂*. Compare atmospheric CO₂, Seawater CO₂ and seawater pH starting in 1990.
2. Discuss and answer the following questions:
 - If CO₂ continues to increase what will atmospheric CO₂ be in 2020? What will be the CO₂ levels in seawater? What will happen to the pH of seawater in 2020?
 - Look at the pH values on the graph. Is seawater currently acidic, neutral, or basic?
 - Considering your answers to #1-2, why do you think increasing CO₂ in seawater is called ocean acidification?
3. Extend, on the graph, the trend lines to show what the CO₂ and pH levels will be by 2020.
4. Oysters are a \$100 million a year industry in the Pacific Northwest.
5. Try to persuade members of your community that what is happening to the oysters is caused by human activities.

Phase: Evaluate

Task: Creating and Evaluating

This task will be done by the entire group.

You will make a poster.

Show how each member of your group will reduce the amount of CO₂ getting into the atmosphere.

Title your poster "Making a Difference" in large bold letters at the top of the poster.

We will do a reveal, so cover your poster except the title.

Tape your poster up.

When all groups have their posters up, we will reveal and share.

Other groups will evaluate presentations by filling in an evaluation form. Presenting groups will respond to questions after they present their poster. Appropriate discussion between groups is encouraged.