

School: Port Angeles High School, Washington

Description: Port Angeles is a relatively rural region situated on the Straits of Juan de Fuca in Washington State. The district approximately 3,800 students, with 51% fitting the category of low-income. Approximately 1,250 attend the high school. Diversity is relatively low with about 73% of the students reporting as white, 10% as mixed race, 5% as native American, and 8% as Latino/Hispanic.

The high school science department includes a total of six teachers. One of the chemistry teachers expressed an interest in getting suggestions on STEM activities that she could incorporate into their chemistry curriculum.

Audience: At the moment, my proposed audience is the two chemistry teachers. I will also talk to the Environmental science/Marine Biology teacher and see if he is interested.

Project Goal: Provide resources and potential lesson plans that incorporate pH into STEM activities. I plan to provide information on curriculum and resources that focus on Acid Rain and bring in an Ocean Literacy focus.

The professional development session will include information on using online STEM resources including:

- The NOAA Ocean resources (with educational materials) site.
- My NASA DATA. There are no specific lesson plans that fit into ocean acidification and pH, but I plan to introduce them to this resource and show them some of the materials available for potential projects in other units.
- Jet Propulsion Lab. This has no direct ocean acidification activities but does have chemistry related lab and engineering activities.

Resources:

Jet Propulsion Lab (JPL), California Institute of Technology,
<https://www.jpl.nasa.gov/edu/teach/>

- Includes a searchable database of science and engineering STEM projects.
- This link is to a lab that has students using chemistry concepts to build a simplistic model for cleaning air on a space station.
<https://www.jpl.nasa.gov/edu/teach/activity/the-air-up-there-making-space-breathable/>

NOAA Ocean and Coasts Education Resources. Ocean Acidification.
<http://www.noaa.gov/resource-collections/ocean-acidification>

- This site includes a link to a STEM lab called Off Base where students investigate the concepts of pH and buffers which they will then apply to the context of the ocean.
(http://oceanexplorer.noaa.gov/oceanos/edu/collection/media/wdwe_offbase.pdf)

- Additionally, there are links to real data sources, video clips, and other educational resources to support this topic.

NOAA Ocean Service Education. Ocean Literacy: Essential Principles and Fundamental Concepts. Resource page with links on Ocean Literacy.

<https://oceanservice.noaa.gov/education/literacy.html>

NOAA Ocean Service Education website - Includes lesson plans with a STEM and ocean literacy focus.

<https://oceanservice.noaa.gov/education/lessons/welcome.html#>