Exploring the Pacific Ocean Research Assignment

Lesson Overview:
This lesson introduces students to the diversity of life in the Northwestern Pacific Ocean. Students will conduct research about three different species and present their findings to the class.

Grade Level:
High School: Grades 9 -12
With some minor adjustments the lesson could be adapted to the 6-8 (middle school) grade levels.

Time Required:
Research time: One 75-minute lesson
Presentation: One 75-minute lesson

Curriculum Connection:
Yukon Social Studies 10:
- Plan and conduct library and community research using primary and secondary sources.
- Identify and describe the physiographic regions of Canada and processes that formed these regions.

This lesson is extremely flexible in its application to a particular course. Any course in which oceanography or the biology of marine life is studied could be applicable.

Link to Canadian National Geography Standards:
Essential Element #2: Places and Regions
- Regional analysis of geographic issues and questions

Oceans Scope & Sequence Standard #2: Places and Regions
- Analysis of regional ocean issues and problems

Geographic Skill #2: Acquiring Geographic Information
- Systematically locate and gather geographic information from a variety of primary and secondary sources.

Additional Resources, Materials and Equipment Required:
- Access to appropriate research resources (library, computer lab)
- Copies of the Research Assignment Sheet
- Copies of the Research Planner Sheet each
Main Objective:
This lesson introduces students to the various marine environments of the North Western Pacific Ocean. Students will understand that the local ocean biome is made up of various "zones". This will reinforce the idea of the ocean as a multilayered ecosystem.

Learning Outcomes:
By the end of the lesson, students will be able to:
- Identify several of the major zones of oceanic life
- Be familiar with several species that live in the major zones of oceanic life.
- Understand the interactions between the major zones of oceanic life.
- Understand the impact humans have on various marine organisms.

The Lesson:

<table>
<thead>
<tr>
<th>Teacher Activity</th>
<th>Student Activity</th>
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<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
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<tr>
<td>The lesson should open with a brief introduction of the location of various oceans and seas in the Pacific Northwest.</td>
<td>Students brainstorm some of the species of fish or marine organisms they think come from the Pacific Northwest.</td>
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<tr>
<td>Have students brainstorm some of the species of fish or marine organisms that come from the Pacific Northwest.</td>
<td>Students spend a few minutes looking through the brochure.</td>
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<tr>
<td>Distribute copies of the “Oceans for Life” brochure to students. Use the brochure to illustrate the variety of species found in the ocean.</td>
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<td><strong>Lesson Development</strong></td>
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<tr>
<td>Distribute the Research Assignment worksheets. Outline the research assignment including the in-class presentation portion so that students are familiar with the requirements of the lesson. Refer to the Oceanic Zones Master List.</td>
<td>Each student receives a copy of the Research Assignment Sheet.</td>
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<tr>
<td>Ask students to select three species to research (teachers may chose to assign species or have a random draw).</td>
<td>Students choose three species to research.</td>
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<tr>
<td>Distribute the Research Planner Sheet.</td>
<td>Each student receives a copy of the Research Planner Sheet.</td>
</tr>
<tr>
<td>Take students to the library or computer lab to conduct research.</td>
<td>Students conduct research.</td>
</tr>
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</table>
### Conclusion

Re-create the Oceanic Zones Master List on a wall or chalk/white board. It needs to be large enough to accommodate all of the drawings.

Students present their findings to the class. They will plot the species on the Oceanic Zones master list.

As closure to this assignment, teachers might wish to have students look over the master list to answer the following questions:

- a) What parts of the ocean support the most life?
- b) Are the creatures of the supertidal, intertidal and subtidal dependent on each other?
- c) Who are the apex or top predators?
- d) What species are the most threatened?
- e) What species are the least studied? Why?
- f) Where do humans fit on this chart?

Students briefly present the researched species and add the drawings to the Oceanic Zones Master List.

Students participate in the discussion.

### Lesson Extension:

The questions provided in the Conclusion should provide an adequate chance for students to discuss the issues of conservation, exploration and resource management.

Other possible discussion topics include:
- Off shore oil exploration – how would this affect some of these creatures?
- Sewage and Pollution from land – how would this affect some of these creatures?

### Assessment of Student Learning:

The Research Planner sheet could be collected and assessed for accuracy and completeness. Student presentations could also be evaluated.

### Further Reading:

Books related to the Pacific Northwest marine environment may be helpful to students or teachers hoping to for a better understanding of marine ecosystems. Two particular books that provide information about fish in the area are:
