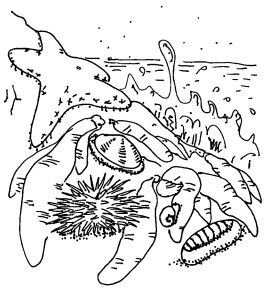
Grade

4-7



Amazing Invertebrates of BC

This lesson encourages students to explore the diversity of marine invertebrates found on the BC Coast. Students will become more familiar with our local invertebrates, begin to identify their form and function, compare and contrast between different species, and begin to connect specific invertebrates with their geographic habitat.

Students Will Be Able To:
[1] identify and describe select BC marine invertebrates
[2] compare and contrast local BC invertebrates
[3] locate invertebrate habitats on a BC coast map

LEARNING ENVIRONMENT

- ★ Gallery: Treasures of the B.C. Coast
- ★ Pair and Group Work

MATERIALS

- ★ Activity sheet and map (included here)
- ★ Pencil or pen
- ★ Drawing Materials
- ★ Clipboard or Binder

Steps

Students should have some knowledge of what an invertebrate is, and what types of invertebrates are found on our BC Coast. The Vancouver Aquarium has resources to help you pre-teach this information. Please see the section ‚Helpful Information' below for details of pre-teaching material.

1) Exploring the Treasures of the BC Coast Gallery (10 – 15 min). In pairs, have students explore the gallery, looking carefully at the exhibits. Instruct students to pay attention to the animal facts and maps associated with each exhibit.

2) Class Re-group (10 min). In a pre-arranged meeting spot (see the section ‚Helpful Information' for tips about meeting spots), discuss students' experience in the gallery. Were they surprised by the ‚treasures' found right here in BC? What geographic regions did they explore? You may choose to go over some characteristics of invertebrates (no backbone, specific phyla, etc.). Create student groups of

3 or 4. Distribute activity sheets and maps. Explain that students will explore the exhibits in groups to help each other complete the assignment. TIP: To avoid too many students trying to look at one exhibit at the same time, have different groups start at different geographic exhibits within the gallery. Provide students with clipboards so they have a hard surface on which to draw and write.

3) Treasures of the BC Coast Assignment (30 min). Using the worksheet, students should look for the specific invertebrates and/or specific geographic locations identified in the assignment and fill in the information to the best of their ability. A map is included for use at your discretion; please see ‚Helpful Information' for suggestions on how to incorporate it. If help is needed or students have questions, direct them to the information and signage associated with each animal exhibit. And don't be afraid to ask Aquarium staff for guidance – they love to talk! TIP: Adapt the activity sheet to suit your curriculum needs. Students could also look for specific animal adaptations; consider impacts of human activity on habitat; etc.

4) Class Re-Group (10 min). Returning to the pre-arranged meeting spot, discuss some ‚Amazing Facts' that students discovered.

5) Aquarium Extension Activity (10 - 15 min). Consider having students draw a Venn diagram on the back of their activity sheet and as a class, compare and contrast two specific invertebrates.

6) Enjoy the rest of your visit!

Helpful Information

Mapping: The map of British Columbia's coast has been included with the Activity sheet and can be used at your discretion. Here are some suggestions on how you might get your students to use it:

- Label geographic regions represented by the habitats in the Gallery
- and/or draw a representative specie from each region

The map may also serve as an alternative activity to suit the needs of your class and/or individual students who are visual learners or reluctant writers.

Aquarium Meeting Spot: The Vancouver Aquarium can be a busy place so locating a pre-arranged meeting space for your class is essential to reinforce learning during your visit. Some spots to

consider include the Underwater Dolphin and Arctic Galleries, the Exploration Gallery, and outdoors, weather permitting.

Working with Chaperones: Education staff at the Aquarium believe strongly in the effectiveness of small group learning, particularly with younger students in our often bustling galleries. Suggestions for adult chaperones include parent helpers, student teachers, and responsible high school students. The maximum student to chaperone ratio recommended is five to one. Pre-briefing your adult chaperones and organizing student groupings before you arrive at the Aquarium is ideal and will ensure all parties are best supported. Name tags are highly recommended for your students and chaperones to assist with group management.

Teacher Background Information: On the same page as you found this lesson (link), under the heading ‚Lesson Enrichment' you will find a link to the Aquarium AquaFacts and a detailed '*Vancouver Aquarium Resource Guide*' which contain relevant background information pertaining to marine species. The Vancouver Aquarium recommends pre-teaching relevant content as means of making your class visit a more meaningful learning experience.

Extension Activities

- As a class or in small groups, have students group invertebrates into the different phyla, identifying common features and characteristics of each group. Extend this activity to incorporate the creation of a dichotomous key as an example of one method Scientists use to classify animals.

- Consider how humans affect marine invertebrate habitats and discuss the need to protect marine environments. For older students, investigate how these marine ecosystems are impacted by such things as fishing practices, resource exploration, etc.

- While the students are completing the gallery assignment, take pictures of the invertebrates and use these images back at school for other learning opportunities.

CURRICULUM CONNECTIONS/BRITISH COLUMBIA, CA.

Grade 4 Science

Big Idea

- **All living things and their environment are interdependent**

Curricular Competencies

- Demonstrate curiosity about the natural world
- Make predictions based on prior knowledge
- Identify some simple environmental implications of their and others' actions

Content

- The ways organisms in ecosystems sense and respond to their environment

Grade 4 Social Studies

Big Idea

- The pursuit of valuable natural resources has played a key role in changing the land, people, and communities of Canada.

Curricular Competencies

- Use Social Studies inquiry processes and skills to: ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions

Grade 5 Science

Big Idea

- Multicellular organisms have organ systems that enable them to survive and interact within their environment.

Curricular Competencies

- Make observations in familiar or unfamiliar contexts
- Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations

Content

- Basic structures and functions of body systems

Grade 5 Social Studies

Big Idea

- Natural resources continue to shape the economy and identity of different regions of Canada

Curricular Competencies

- Use Social Studies inquiry processes and skills to: ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions

Content - resources and economic development in different regions of Canada

Grade 6 Science

Big Idea

- Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment.

Curricular Competencies

– Make observations in familiar or unfamiliar contexts
– Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations

Content
– Basic structures and functions of body systems

Grade 6 Social Studies
Curricular Competencies
– Use Social Studies inquiry processes and skills to: ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions
Content - international cooperation and responses to global issues

Grade 7 Science
Big Idea
– The theory of evolution by natural selection provides an explanation for the diversity and survival of living things.
Curricular Competencies
– Use scientific understandings to identify relationships and draw conclusions
– Consider social, ethical, and environmental implications of the findings from their own and others' investigations

Content
– Survival needs and interactions between organisms and the environment

Grade 7 Social Studies
Curricular Competencies
– Use Social Studies inquiry processes and skills to: ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions
Content - human responses to particular geographic challenges and opportunities, including climates, landforms, and natural resources

These Prescribed Learning Outcomes (PLOs) are related to sustainability & the environment as per the BC Ministry of Education Framework, Environmental Learning and Experience Curriculum Map: Complexity and Aesthetics

Amazing Invertebrates Activity Sheet

NAME : _____

Location	Common Name	Amazing Fact	Sketch
Barkley Sound	Giant Green Anemone **Scientific Name:** _____		
Bella Bella	Bat Star **Scientific Name:** _____	For example: Why is it named after bats?	
Port Hardy	Giant Pacific Octopus **Scientific Name:** _____		
Quadra Island	California Sea Cucumber **Scientific Name:** _____	For example: Where is its mouth?	

Location	Common Name	Amazing Fact	Sketch
Whytecliff Park	_____ (You choose) **Scientific Name:** _____		
Jervis Inlet	_____ (You choose) **Scientific Name:** _____		
Sechelt Inlet	_____ (Pick an animal with a soft body) **Scientific Name:** _____		
Long Beach	_____ (Pick an animal with arms or legs) **Scientific Name:** _____		

vancouver aquarium

Map of the British Columbia Coast