Optional Teacher Extension Lessons

Fall Extension 1: Shellfish Around the World

Subject
Social Studies

Materials/ Teacher Preparation

- large physical map set up with shellfish samples correctly placed around the world
- Shellfish Time and Place (Social Studies Support) Student Worksheet
- Live Tank
- Phytoplankton to feed oysters
- 2 or more oysters
- Predictions Paper (2) on clipboard next to Live Tank. Print and glue the following prompt on the paper. Make a prediction on the tank. How do you predict East coast colonies and native groups used oysters? What do you think oysters need to survive? Do oysters provide a service to the ecosystem in any way?
- Make copies of the five Colonial Regions Expert Groups (not provided here, A.Keiper has)
- write Work Time Tasks on the board
- Make 15 copies of Student Worksheet. Students will complete this in partnership

Size/setting/duration
45 minutes
NOTE: In the end, the Map Station took kids about 15 min (group of 3-4) and the Live Tank Prediction Station took about 5 min, then the map to the side of the tank was Free Exploration

Background
Shellfish live on coastlines all around the world, where they provide many ecosystem

services. Both the Coast Salish People and the British colonists used shellfish as a food source. Shellfish are filter feeders, and continuously clean the water that they live in.

Overview

Placement: November
Supports: the Colonization and Devastation portions of Unit 1 social studies

Big Ideas:

- the British colonists discovered a coastline much like our west coast and used shellfish as a resource
- Shellfish live on coastlines all around the world

Social Studies Conclusions:

- Coastlines are rich in biological diversity-- this is part of New England's geography where colonists lived
- What do shellfish need to survive on all these coastlines? What does this tell us about New England's geography? (Shellfish need well balanced water chemistry (pH) to survive and they also clean the water. The highly diverse shellfish fisheries tells us the ecosystem was healthy! Native communities were good stewards of the environment because they didn't overharvest and didn't have add too much carbon dioxide into the environment.

Target:

- I can describe the physical geography of the east coast where colonists were settled and where native people lived.

Focus Questions:

- What did the land look like where various colonists settled?
- What resources were available to help them survive and thrive?
- How did shellfish play an important role for colonists?

Success criteria:

- Students read a text and sketch important details about the east coast's geographic features.
- Students conclude that shellfish helped to provide a healthy ecosystem that colonists used to survive and thrive.

Procedure

1. Introduction at their desks (15 min):
    a. Connect to Yesterday: ...We've been learning about New England's geography and you're currently researching why different English colonists groups moved here. You've done some Picture File Card sorts (GLAD unit) and have ideas about what the land looked like.
    b. Target: Read target/success criteria.
    c. CCD: geography: physical characteristics of a place. resources: things that provide something useful
    d. Students move to 13 Colonies Input Map
2. Predict: T/T, based on what you know about the east coast region and the resources produced by colonists here, what do you predict the geography was like in these three regions?
3. Connect: New England predictions "Some of you talked about how the New England colonies were famous for its seafood. This group said the physical geography must be a lot like here on the west coast because we also have the ocean. What types of plants, animals, or physical characteristics of the land do you notice around here near the ocean? (coastal plain, shellfish, dolphins, whales, fish, rocks, pebble beaches, sand).
    a. Middle Colony predictions:
    b. Southern Colony predictions:
4. Set Partner Work Time Tasks (move to meeting place):
    a. Read a text about your assigned colony's region, highlight important information, and sketch a picture under each paragraph (teacher MODELS).
    b. When finished, they work on cartoon poster OR explore the Shellfish Stations. (Stations open all week)
    c. Shellfish Stations includes the Shellfish Map, samples, and Live Tank
        i. Shellfish Map (15 min groups of 3-4): kids should follow the prompts on the activity sheet.
        ii. touch these plants and things from the coastal ecosystem, these help you imagine you're on the coast of New England. The plants/animals there will be slightly different, but related to these plants and animals.
        iii. Week Long Oyster Live Tank.

1. What: Oyster tank placed in back of room with two oysters demonstrating how quickly it clears the water. Set up as around when kids read the Chesapeake Bay Close Read and learn the reason the bay was such an asset to colonists was partially because of shellfish adequately supporting the environment through filter feeding and they were a food source.
2. Something to remember: Many shellfish are filter feeders. They take out microscopic organisms (plankton) from the water to eat and leave the water cleaner than before...how might animals that clean the water be helpful? (Don't give away at this time)

5. 30 min (10:55-11:25) Individual/Partner Work Time

Day 2 (10 min)
Whole Group Conclusion Big Ideas:

- According to your text, what resources were available to colonists? (ocean for trade, shipping things to England and food, local rivers for travel routes and trade and fish; forests supplied timber; good soil; How did colonists use those resources (did they farm, did they build things?)
- What did you learn from the Shellfish Map? (shellfish live around the world on coastlines. The shells look similar/different all over the world. We have oysters here and on the east coast).
- Which British colonies do you think had access to resources from the sea? What kind of resources are provided by the sea? (food: fish/oysters/clams; ships could come and go, delivering food/trade; trade with other native nations).
- You saw the shellfish eating back there, they are filtering the tank. In a few days, or you may have noticed already, the tank water will be very clean. Here are some ideas from a few ideas about how the oyster tank affects the environment...

Repeat the Big Idea:

- Shellfish help make the coastal ecosystem very rich and healthy. They can be eaten, sold for money/supplies, used for jewelry/trading, and help keep the water clean so other organisms can thrive. For example, when the water is clean, plants and animals at the bottom of the waterway can get sunlight, and grow, providing even more food and oxygen for other plants and animals.

After Lesson Reflection/Notes:
*NOTE: In the end, the Map Station took kids about 15 min (group of 3-4) and the Live Tank Prediction Station took about 5 min, then the map to the side of the tank was Free Exploration

Next Generation Science Standards

Performance Expectations		
5-ESS3-1: Earth and Human Activity. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.		
Scientific and Engineering Practices	Disciplinary Core Ideas	Cross-cutting Concepts
Obtaining, evaluating, and communicating information	ESS3.C Human Impacts on Earth Systems	Science Addresses Questions about the Natural and Material World

Other Standards
Standard 1: Ecological, Social, and Economic Systems Standard 2: The Natural and Built Environment Standard 3: Sustainability and Civic Responsibility

Graphics

Vocabulary

- Geography - the study of the physical features of the earth and its atmosphere
- Resources - a source or supply from which a benefit is produced
- Shellfish - an aquatic shelled mollusk or crustacean

Extension

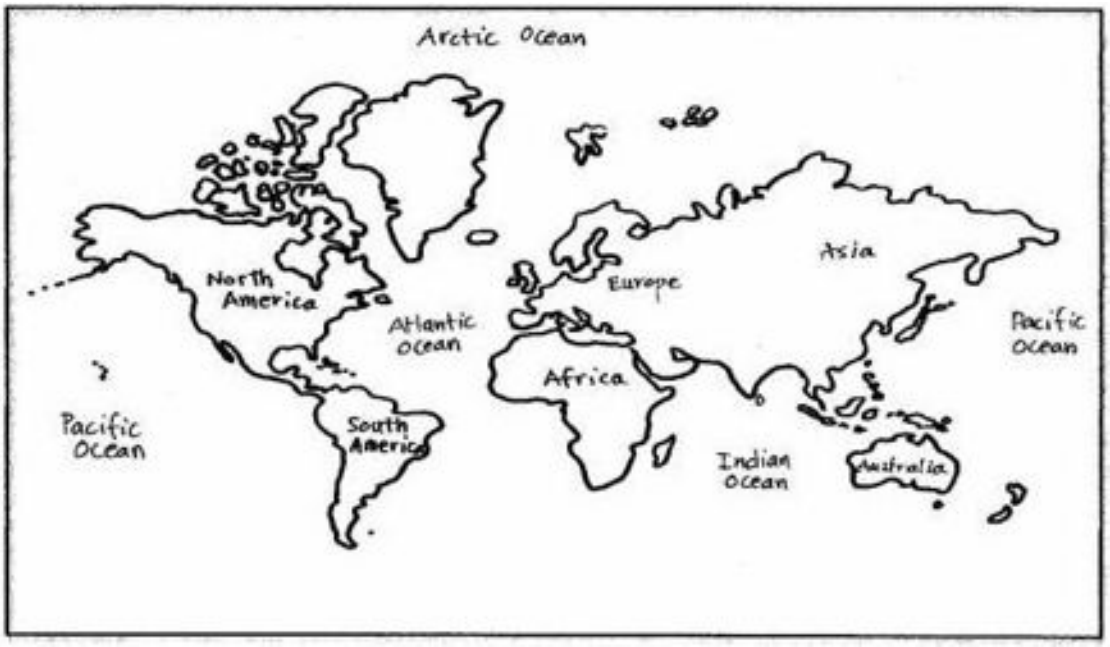
None

Worksheet

Shellfish around the World

Shellfish are mollusks that appeared on earth more than 500 million years ago according to the fossil record. Marine shellfish have lived along coastlines worldwide, providing food and resources to native peoples since before anyone can remember.

1) Trace the coastline of two continents where shellfish are found and record the continent names a)_____b)_____



2) Study the large map. What are two things that you notice about where the shellfish are located?

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3) What questions do you have?

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4) Name the oyster commonly found in the Chesapeake Bay, on the east coast of North America

_____

5) Pick a shell on the map to learn more about. Look at the card for this shell and record something interesting about it. Where is it found?

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Photos