

LESSON PLAN 13

Title: The Shore Thing: A Marine Habitat Study (Part 1 of 4)

Content Area Subjects:

- Career and Educational Development, Science, Health and Physical Education, History, ELA, Math, Social Studies

Grade level(s): Grades 3-12+

Standard(s):

Maine Learning Results

- Career and Educational Development. Interpersonal Skills (A3.pre-k to diploma.a,c)
- ELA. Informational texts (A3.3.c); (A3.3.e); (A3.6.e); A3.9-diploma.b); Research (C1.3-5.a,c,d)(C1.6-8.g); (C1.9-diploma.a,c); Listening (E1.3-diploma.c); (E1. 9-diploma.a); Speaking (E2.3-8.d); (E2. 9-diploma.a)
- Health and Physical Education. Cooperative Skills (I1.pre-k to diploma.a-d); Responsible Behavior (I2.pre-k to diploma)
- Math. Data (B1.4-8.a,b); (B1.9-diploma); Measurement and Approximation (B1.4-diploma.a,b); (B1.9-diploma.a,b,c); (B2.3-6); (B2.7.1a, 1b); (B2.8-diploma.3)
- Science. Scientific Inquiry and Technological Design (B1.3-diploma.a); (B1.3-diploma.b); (B1.3-diploma.c); (B1.3-diploma.d)
- Social Studies. Taking Action Using Social Studies Knowledge and skills (A3.3-diploma)

Common Core:

- ELA. (V.3-12.6); (SL.3-12.1c); (SL.3-5.1); (L.3.5b);(L.3.5b)
- Science and Technology. (R.6-12.4); (R.7-12.4)

STEM Skills

Brief Description: Using their five senses, the students will become familiar with the marine habitat where *Mya arenaria*, the soft shell clam lives. A combination of short hands-on activities will have the students focus on large or small areas of a marine habitat depending on their age and abilities. Many of the activities can be completed in 15 minutes to a half hour and can be adapted to any environment or habitat.

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The key point to remember as the Instructor chooses which activities to use is that all age groups can learn about a habitat, by studying it in new ways.

Adaptations for different age level/abilities:

This lesson can be adapted for the age of the students.

Objectives/goals:

After the completion of the activities, the students will:

- observe the common sights of the marine habitat
- recognize some common sounds of the marine habitat
- become familiar with some smells of the marine habitat

Time needed: One to several class periods can be spent with the Habitat lessons. If at all possible two shorter field trips or one longer day at a marine habitat should be scheduled. If a field trip is not possible or the Instructor wishes to set a “marine outdoor” tone before or after a field trip, use Lesson 16 to create the necessary atmosphere.

Background information:

An information sheet for the Instructor has been developed for this series of lessons. The keywords are listed in each Habitat lesson for easy reference.

Keywords and phrases:

Physical habitats- sandy habitats, rocky habitats, muddy habitats, and water column

Biogenic habitats- salt marshes, sea grass beds, kelp beds, shellfish beds

Habitat formed by human activity-invasive plant habitats and fouling communities located on manmade structures

Zones of the Rocky shore are Spray zone, upper intertidal zone, middle intertidal zone, lower intertidal zone, and subtidal zone

habitat, intertidal, sub tidal, substrate, the Gulf of Maine, rockweed bed, tidal pool, dunes, salt pond, muddy bottom, rocky bottom, sandy bottom, ecosystem, ecosystems in the Gulf of Maine, eelgrass bed, kelp forest, quadrat,

Materials Needed:

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- When in the marine habitat, the Instructor needs a way to signal the students to come to a common meeting place. A suggestion would be to have the Instructor raise one hand high in the air. It will take a few moments for all to see this signal, and move to the common place, but once students begin to gather, others will, too. A quieter method is much more conducive to keeping the students in an “appreciate the habitat mood” than a whistle or a yell would be.
- Activity 1 “Sharp Eyes” – no materials needed
- Activity 2 “Habitat 360” - clipboard, paper, and pencil
- Activity 3 “Is this yours?” – Bring to the habitat **or** have each student find in the habitat, a small shell, a small rock or other appropriate object (the objects should be similar); A paper bag for holding the shells or rocks
- Activity 4 “ Touch Down” – no materials needed
- Activity 5 “Color Search” - paint chips/strips or small cards colored with crayons or colored pencils; small sandwich bags
- Activity 6 “Scavenger Hunt” – a list of items that can be found in a marine habitat

The Procedure:

Introduction The Instructor will explain that one of the best ways to learn about a new place is to connect with it in different ways. The Instructor will help the students experience and explore the marine habitat by using a series of short activities (10-20 minutes each) that will help them to be “alert” to their surroundings.

Key Questions

The Instructor will do the activities that allow students to become more “aware” of their surroundings prior to working on the content matter that involves the Key Questions.

Section I

What are some common sights of the marine habitat?
What are some common sounds of the marine habitat?
Describe what can be touched/felt at a marine habitat.
Describe what is smelled at a marine habitat.

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Describe the marine habitat(s). Describe the marine habitat(s) that you visited.

Section II

The questions for Section II will be answered over several lesson exercises. The questions will be referred to in that exercise.

Where does the clam live?

Where does the clam get food and water?

Where does the clam get shelter?

How does the clam stay safe?

What are some other species that exist in this marine habitat?

Where do they get shelter, food and water?

How do they stay safe?

Section III

What are physical habitats? Explain the difference between rocky, sandy, muddy, and water column habitats?

What are Biogenic habitats? Explain the difference between salt marshes, sea grass beds, kelp beds, shellfish beds, and cold-water corals

How have the plants and animals adapted to living where they live?

How do clams and some of the other species found in this habitat get shelter, food and water?

What would humans need to do in order to survive here?

What does it mean to participate in a “sampling” of a marine habitat? How can this information be used?

How will the plants and animals be affected by the change of seasons in this habitat?

What happens to the sea water level over a period of time?

How could we record changing sea water levels?

How does the water level affect the plants and animals that live here?

How do temperature, salinity, wave action, wind, sun/light, and substrate affect the organisms that live in the marine habitat?

How do the plants and animals interact in the same habitat?

How can we help to protect the plants and animals in this habitat? Why should we want the plants and animals to survive?

• Main Activity

Activity 1 – “Sharp Eyes”* Explain that you want them to notice everything around them using their best visual skills and be able to recall what they see. You plan to prepare them for this role, by showing them how to have “Sharp Eyes.” In this activity, the Instructor will partner the students together and have them face each

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other. If the number of students is not even, one student can partner with the Instructor.

The Instructor will say, “Face your partner and take a close look at each other. Look so closely at each other that if anything were to change you would be able to notice it. Now, turn around change one thing about your appearance. Do not turn back to face each other until each has made a change. (Allow time for this to happen) Now turn back to face each other and see if your partner can find out what you have changed. If they cannot, it is ok to give them a clue, for example, you could say “The change is below my knees.” Once the Instructor feels their “eyes” are go to the next activity.

(If the group is very small, have one person at a time stand in front of the group, have the whole group turn around while the person makes a change, have the group turn and guess. Make sure to control the guessing so that everyone gets a chance to use their “Sharp Eyes.” The Instructor could demonstrate the procedure and then let each one come up in front of the group to do the activity. For younger children, the Instructor could help them think up things to do such as, unbutton one button, roll up a shirtsleeve, put hair behind one ear, untie a shoe lace, move a ring from one hand to the other, roll up a pant leg, cross one leg over the other, fold the arms, put hands behind the back or clasp them in front)

Once the students have completed Activity 1 have them use their sharp eyesight in the habitat for Activity 2.

Activity 2 - “Habitat 360” – Give the students clipboards, paper and pencils, and have them go to the habitat and sit or stand in a spot. Have them sketch what they see facing in one direction for about 5 minutes (if they are reluctant to draw, have them list what they see). Have them turn $\frac{1}{4}$ turn and sketch (list) again for 5 minutes. Have them turn $\frac{1}{4}$ turn and sketch (list) again. Continue until they have come “full circle” and have a panoramic view or list of what they have observed in the habitat. Do not be concerned if students sketch one object. This exercise is meant to have them look at the habitat with new eyes. They may be taken with one object and want to sketch that in detail or they may want to get down as much as they can. Allow the students to choose their own way to express themselves during this exercise. Collect the clipboards if you plan other activities.

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If time is available continue to Activity 3

Activity 3 – “Is this yours?” – Have the students seated or standing in a circle and give them each a shell (or rock). Ask them to get to know the shell so well that they could identify it later. Collect the shells into a paper bag or anything readily available that will hide the objects from view for a few moments. Join the circle and pass a shell to your right with the following instruction, “If this shell is yours keep it, if it is not, pass it on to your neighbor.” Keep passing out the shells until everyone has one. Ask each student to share what characteristic of the shell used for identification. Share how they felt when they found their shell again. Allow them to keep their shell or rock (as long as they are not in a park, or other place where rules prohibit collection)

If time is available continue to Activity 4

Activity 4 – “Touch Down”- Before they leave the circle, explain that in “Touch Down”, they need to choose a location to sit or stand. They do not need to be in the exact place they were before, but they need to hear your normal speaking voice. Once they have picked a spot, have them close their eyes to find out what they can feel and taste while in the habitat. Depending on the age of the group, the Instructor can lead the students through using their sense of touch by asking them what they feel on their face, in their hair, on their hands, arms and legs, or tongue, such as the wind, salt spray, sun, mist, or something else. Have them open their eyes and let them respond orally about what they feel and taste.

Have them close their eyes again, staying as quiet as they can and listen to the habitat. Have them try to count “five fingers worth” of the sounds that they hear in the habitat. Allow them to share what they heard. (For example, the wind, surf on sand, waves on rocks, bird calls, voices, boats)

Allow them to “touch” five things in the marine habitat, such as the sand, grass, rocks, water, shells, mud. They may need to move about to do this. Signal them to come back when an appropriate time has elapsed. Once they are back, have them respond orally about how the habitat felt when they touched it (rough, cold, warm, smooth, slippery . . .)

If time is available, do Activity 5

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Activity 5 – “Color Search” - Challenge the students to find out all the colors and shades of a color that they can find in the habitat. Give them a color chip, strip, or card from a paint store, or simply the name of a color and send them on their way to find as many objects and shades of that color. Small items depicting the color can be placed in the sandwich bag; larger items can be pointed out to you.

Activity 6 – “Scavenger Hunt”- **This exercise is better for a beach or less rocky/slippery marine habitat.** Challenge the students to find all of the items that you ask them to find (you can use the scavenger hunt list included with this lesson or make your own list). Tell them that if they find something alive, they do not need to collect it; they just need to be able to describe it and tell you about it.

Conclusion

After the completion of these warm up activities, the students can continue to explore the habitat in Lesson 14 with a focus on the key questions in Section 2. The Instructor can lead them in this exploration. (A review of the background information provided in the worksheet prior to the field trip will be helpful)

Depending on the age of the students, another day at the field location could be scheduled.

Assessment/Follow Up/Extension Activity:

In a lesson soon after the field trip, but back in the classroom, the Instructor can use the questions for Section 1 that are located at the front of this lesson as a basis for classroom or small group discussion to review what students experienced while visiting the habitat. The students can use the sketches or lists they made during Activity 1 to try to create a more complete picture of the habitat. The students who like to draw can do final drawings/sketches/paintings of the habitat. The students who made lists can write a short narrative, poem, or song about the habitat. The students who remembered what the seaweed looked like in Activity 6, could draw it. The students who remembered what the smells were like in could describe the smells or write about the smells. Encourage the writers, poets, songwriters, and artists to think about what they saw, felt, heard, tasted, and touched when they create their projects.