



OCEAN GRAZERS

Concepts

Students will learn about sea turtle life cycles and discuss conservation issues.

HCPS III Benchmarks

SC 3.4.1

PE 3.1.3

Duration

1 hour and (2) 15-mins periods

Source Material

PRISM

Project Aquatic Wild
(Hawaii Supplement)

Vocabulary

Limiting factor

Optional P.E. Extension - Turtle Hurdles

Summary

Sea turtle life history patterns, emphasis on sea turtle limiting factors, and other conservation issues will be discussed with the class.

Students will put this information together and play an outdoor game, Turtle Hurdles.

Objectives

- Students will learn of conservation issues and human-induced problems to turtle survival
- Students will have fun, use their thinking skills, and add to their na honu knowledge.

Materials

Turtle Hurdles:

Enough predator name tags for 1/2 the class (string, paper)

Two - 100' long ropes/thick strings (length of the course)

Two - 50' long ropes/thick strings (width of the course)

*** Or four orange cones could be used to mark the boundaries instead ****

Two - 10' long ropes/thick strings/ hula hoops (must make a circle)

One plastic/paper bag or envelope per student

Two rolls of pennies

Two bags of dried beans

Making Connections

Students will take the vocabulary and structure/function activities from the past Lesson 9 (Na Honu – Hawaiian Sea Turtles) and put it into action in a sea turtle life history game, Turtle Hurdles. In addition, they will also start to learn about conservation efforts that have been made to protect sea turtles and their nesting beaches.

Teacher Prep for Activity

The turtle hurdles activity will take some time to set-up and also to explain the rules to the students. Make sure students are prepared before they head out to the field to play. Aside from beans and field-lining (or roping off the boundary lines), name tags will be needed to distinguish between honu and their limiting factors. This activity was gleaned from the Project Aquatic Wild (Hawaii Supplement) and the write up (and diagrams) can also be found at on the PRISM website - Hawaii's Sandy Shores curriculum for 2nd-graders.



Background

No additional background information – see Lesson 7 (Na Honu).

Vocabulary

Limiting Factor – Anything that threatens the life of an animal. For example, some limiting factors of sea turtles include predators (e.g. *ulua*, sharks, sand crabs, seafowl, humans), marine debris, beach erosion and development.

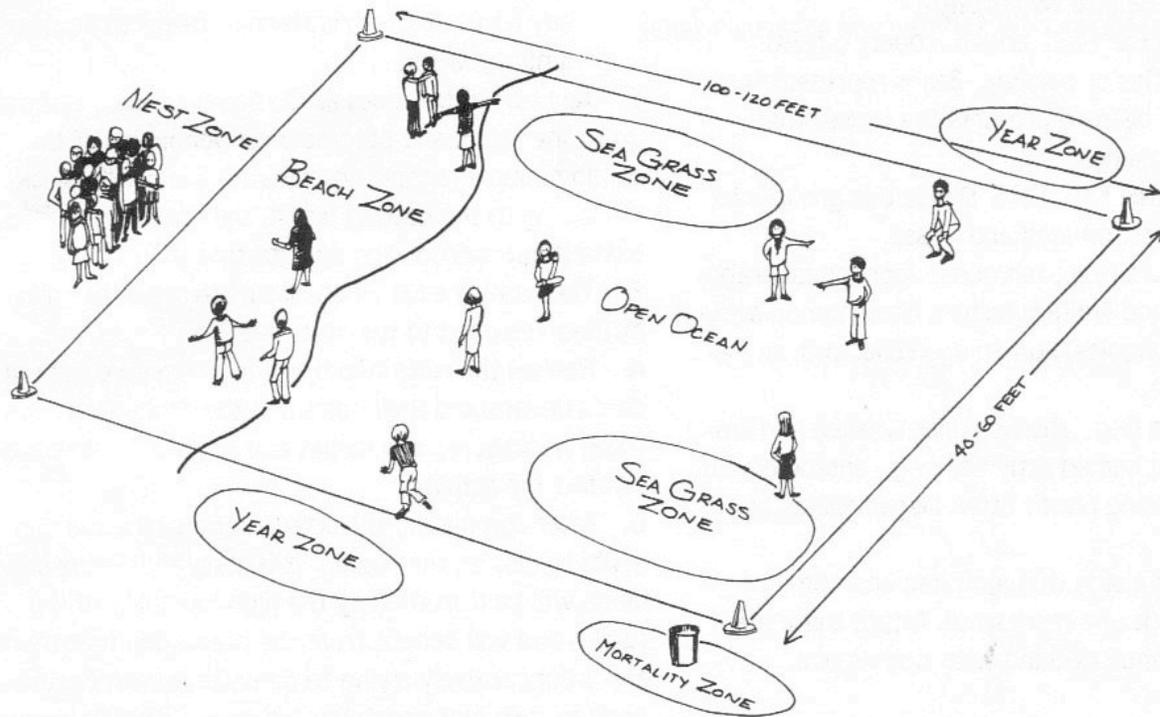
Procedure

Activity 1. Turtle Hurdles Prep Period (15 mins)

1. Go over the Turtle Hurdles directions with the class (*see* Activity 2 – step 7 below).
2. Draw a diagram on the board to show an overview of what the “field” will look like.
3. Answer questions and spur a discussion about turtle survival structures and conservation issues (limiting factors):
 - What structures do turtles have that help protect themselves from limiting factors?
 - What do green sea turtles eat? Where can they find this food resource?
 - What can you do individually to protect turtles?
 - What are some of the obstacles they face before they “win” (i.e. reproduce)?

Activity 2. Turtle Hurdles Game (1 hour)

1. Ask for volunteers – half the number of students in the class would be appropriate.
2. Ask the remaining students to count of by fours: 1 = humans, 2 = sea birds, 3 = sand crabs, 4 = tiger sharks.
3. Give each student a sign that indicates which predator they represent and a plastic bag with 50 dried beans.
4. Move the class outside to the designated course area .
5. Ask volunteers to help setup the activity as shown in the diagram provided below:



6. Walk the class through the activity and explain where each zone is and what the rules are.
7. Read through or verbally explain the following steps which explain the rules of the game:
 - A) Turtles must hatch, cross the beach and spend 10 years in the open ocean. The time in the ocean is simulated by turtles running between the year zones. They pick up one penny at a year zone and then run to the other year zone to pick up another penny. Each penny represents two years of successful ocean survival. After collecting five pennies, turtles return to the nesting area to reproduce.
 - B) Turtle try to avoid limiting factors and predators. If tagged by a limiting factor, a turtle stops, counts out ten beans and places those ten beans in the limiting factor's bag.
 - C) The ocean's sea grass areas are turtle safety zones where limiting factors cannot tag them. The teacher may set a time limit for how long a turtle may rest in a sea grass zone.
 - D) Limiting factors must obey the following rules:
 - They cannot tag the same turtle twice in a row.
 - They cannot tag turtles that are counting out beans to another limiting factor.
 - They must stay at least four steps away from any turtle that is transferring beans to another limiting factor.
 - E) Any turtle that losses all 50 beans is dead. It must go to the beach and become a condominium. If the condominiums (sitting side by side) eventually block the access to the nesting beach, the remaining turtles die without reproducing and starting the next cycle.
 - F) The activity ends when all turtles are either dead or have returned to the nesting area.
8. Review the rules a second time, if necessary, to make sure the students understand their roles and the procedures.



9. Assign either a turtle or limiting factor role to each student and begin the activity.

After completing the activity, encourage the students to discuss the results. It is likely that some students will be disturbed by the high mortality of the turtles and will benefit from the realization that there are groups actively trying to diminish human contributions to the high mortality. It is also important to emphasize that natural limiting factors are built into the scheme of things. If all the sea turtles survived there may be an overabundance of these creatures. Many animals produce more young than will survive, serving as food for other species as part of nature's dynamic balance.

Activity 3. Turtle Hurdles Discussion (15 mins)

This can be done immediately after Turtle Hurdles when the class is back in the classroom (or during the next science period):

1. Briefly review the life cycle of sea turtles.
2. Summarize the importance of the high numbers of turtles that result from the reproduction.
3. Identify and discuss the factors that limit survival.
4. Since sea turtles are threatened with extinction, the limiting factors affecting their survival seem to be out of balance.
5. What specific recommendations would the students suggest to increase the successful reproduction and survival of sea turtles (*This could be given as a homework assignment – ask each student to think about and write two recommendations that can be shared with the class the following day*).

Assessments

Full participation and grasp of the motivation for Turtle Hurdles (i.e. natural and human-induced limiting factors that are negatively affect honu populations) will also be evident after the game has been played and a class discussion is conducted inside.

Resources

PRISM Hawaii's Sandy Shores (2nd-grade curriculum)

- <http://www.uhh.hawaii.edu/affiliates/prism/documents/SeaTurtleLessons.pdf>

Project Aquatic Wild (Hawaii Supplement)

- www.projectwild.org

Extension Activities

None.

Art/Math/Literature Connections

None.