



Turtle Hurdles Project WILD Aquatic k-12 Guide

Summary:

Modern societies are threatening the existence of sea turtles. The following simulation will help students understand the threatening factors to sea turtle populations and will lead to a discussion of how to minimize these factors.

Background Information:

Sea turtles are one of the largest living reptiles; they are survivors of the dinosaur age and are found in temperate and tropical waters. Six species are found in the U.S. waters or nest on U.S. beaches: Loggerhead, Kemp's Ridley, Olive Ridley, Hawksbill, Green, and Leatherback, all of which are threatened or endangered.

Nesting/Hatching:

Nesting season on the Gulf Coast is May through October. Females leave the water only during this nesting season to come to shore to excavate a pit for eggs. Using their flippers they remove the upper layers of sand. Their rear flippers dig the final egg chamber in the moist sand. Females lay from 50-160 white ping pong sized eggs per nest. They will often make scrapings in the sand to create "fake" nests to fool predators before returning to the ocean. If the eggs survive predation by raccoons, ghost crabs, fox, dogs, and humans, the eggs will hatch at night, nearly all together, in 50-70 days. The hatchlings will take several days to reach the safety within the protective stands of floating seaweed. The turtles will stay hidden here for up to ten years before returning to the same beach to lay their eggs.

Problems:

Human activities are impacting sea turtle survival. Prime sea turtle nesting sites are also prime real estate. Nesting beachfront is lost to development and these beaches are disturbed by maintenance and recreation. Sea turtles are also experiencing problems at sea getting caught in fishing nets or ingesting human garbage that plugs their intestinal tracts. Both adult sea turtles and hatchlings are disturbed by artificial light from streetlights, houses, flashlights, and cameras and they become disorientated heading inland instead of going to the ocean. Young hatchlings will head to campfires on the beach and be killed.

Grade Level: 5-8

Goal: To recognize the stresses that sea turtles face to survive and to discuss ways to alleviate these stresses.

Key Concepts:

- life cycle
- limiting factors
- population
- threatened
- endangered
- extinction

Objectives:

- 1.) Act out the life cycle of a sea turtle.
- 2.) Identify stresses that threaten the survival of sea turtles.
- 3.) Brainstorm ways humans can alleviate some of these stresses

Lesson Time: 45 min.

Subject Areas to infuse:

Science, Environmental Education

Standards:

Science

A.4.4

C.4.1

C.4.4

Environmental Education

B.8.3

D.8.1

Solutions:

- Minimize beachfront lighting during nesting season.
- Leave turtle tracks undisturbed and report them to the U.S. Fish and Wildlife Service
- Close blinds and drapes in ocean front homes at night.
- Never leave campfires unattended and put them completely out when you leave.
- Properly dispose of garbage and don't use helium balloons.

Materials:

- 40-60 feet of rope or string
- two jump ropes or hula hoops
- one paper or plastic bag per student
- identity cards for each predator or limiting factor (students can draw)
- wooden clothes pins
- poker chips
- dried beans
- large poster of sea turtles
- Project WILD workbook

Set Up:

1.) Put the activity area together as shown in Project WILD Aquatic Guide, K-12, page 162.

2.) Divide the class into two groups

Group One- Turtles: Each turtle counts 50 beans and puts them in their bag (nest). Each bag of beans represents a hatch from a single nest.

Group Two- Limiting Factors: Each student in this group will make a sign and clothespin it on to show what limiting factor they represent. On land-predators and human activities (ask students to think of them-egg collectors, shoreline development, dune buggies.) In-Sea-predators (sharks, killer whales, fishing gear, plastic litter, human hunters)

3.) Walk through activity while explaining rules:

- Turtles must hatch, cross the beach, and spend 10 years in open sea. Time is indicated by turtles running between the year zones and picking up one poker chip at each zone; each chip represents two years of successful ocean survival. After collecting 5 chips, turtles may go to the nesting area to lay their eggs.
- Turtles try to avoid being tagged by a limiting factor. If tagged, the turtle must stop and place 10 of their beans into limiting factor's bag.

Vocabulary:

Life cycle: The cycle an organism goes through from the reproduction cycle to death and decomposition.

Limiting factors: factors that limit the growth, abundance, or distribution of a species.

Threatened species: a wild species that is experiencing a decline in numbers.

Endangered species: a species with so few individual survivors that the species could become extinct.

Prey: organism that is captured and serves as a source of food for another organism.

Predators: Organism that captures and feeds on another species

- The safety zone is the ocean's sea grass; students may count to 10 slowly to rest there.

Limiting Factor's Rules

- They cannot tag same turtle twice in a row
- They cannot tag turtles counting out beans
- They must stay four steps away from turtles transferring beans to another limiting factor.
- Turtles losing 50 beans are dead; they go to beach and become a condominium. If condominiums block access to the nesting beach, then the remaining turtles die because they can't reproduce.

4.) Discussion:

1. Why do you think turtles are labeled threatened or endangered?
2. If humans reduced some of their limiting factors what do you think would happen to the turtle population?
3. Do you think turtles need any limiting factors?
4. How do you think we could actually reduce the impact humans have on sea turtles?

Assessment:

Draw and label the major stages of a sea turtle's life cycle.

Write at least 4 limiting factors that prevent sea turtles from reaching adulthood.

Write a law that would help protect sea turtles and tell who would enforce it.