



## *Nest Protection*

*Created by the NC Aquarium at Fort Fisher Education Section*

### Essential Question:

What are the threats to sea turtles eggs on the beach and how can we help?

### Lesson Overview:

Students will learn how scientists protect sea turtle nests by brainstorming/discussing the threats to nests and then building devices (covers and signs) to protect the nests.

### Learning Objectives:

Students will be able to:

- Identify dangers to sea turtle eggs laid on the beaches.
- Understand how predators try to get to the sea turtle eggs and how to prevent the predators from reaching the eggs.
- Build a model nest cover and create an informative sign about sea turtles.

### North Carolina Standards:

#### Second Grade:

##### *Social Studies*

- **2.G.2** Understand the effects of humans interacting with their environment.
  - **2.G.2.2** Explain how people positively and negatively affect the environment.

#### Third Grade:

##### *Art*

- **3.V.2.3** Create art from realistic sources of inspiration.
- **3.V.3.2** Use a variety of media with refined skills.
- **3.V.3.3** Create art using the processes of drawing, painting, weaving, printing, stitchery, collage, mixed media, sculpture, ceramics, and current technology.

#### Fourth Grade:

##### *Art*

- **4.V.3.3** Create art using the processes of drawing, painting, weaving, printing, stitchery, collage, mixed media, sculpture, ceramics, and current technology.
- **4.CX.2.2** Apply skills and concepts learned in other disciplines, such as math, science, language arts, social studies, and other arts, in the visual arts.

##### *Science*

- **4.L.1** Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats



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- 4.L.1.1 Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.
- 4.L.1.2 Explain how animals meet their needs by using behaviors in response to information received from the environment.

### Fifth Grade:

#### *Art*

- 5.V.2.2 Use ideas and imagery from the global environment as sources for creating art
- 5.V.3.2 Use appropriate media for the creation of original art.
- 5.V.3.3 Create art using the processes of drawing, painting, weaving, printing, stitchery, collage, mixed media, sculpture, ceramics, and current technology.

#### *Social Studies*

- 5.G.1 Understand how human activity has and continues to shape the United States.
  - 5.G.1.2 Explain the positive and negative effects of human activity on the physical environment of the United States, past and present.

### Engineering Connection:

- EG K-2 D 1 Use the engineering design process of Ask-Imagine-Plan-Create-Improve
  - EG K-2 D 1.1 Design product to solve a stated problem.
- EG K-2 P 1 Use a systematic approach to solve several different types of problems.
  - EG K-2 P 1.1 Identify problems that need to be solved.
- EG K-2 P 2 Use critical thinking to suggest solutions to problems.
  - EG K-2 P 2.3 Solve a problem that requires a picture to be drawn.
- EG 3-5 D 1 Use the engineering design process of Ask-Imagine-Plan-Create-Improve
  - EG 3-5 D 1.2 Design product to solve a stated problem.
- EG 3-5 D 1.3 Contrast multiple designs for a specific challenge
- EG 3-5 P 1 Use a systematic approach to solve several different types of problems.
  - EG 3-5 P 1.2 Identify several problems that need to be solved in daily life.
  - EG 3-5 P 1.4 Construct a physical model for a problem solution

### **Time Frame:**

Preparation: 15 minutes

Activity: Varies

### **Materials:**

- If you are doing the activity as an art and engineering lesson, you should have a variety of building materials for the students such as: toothpicks, yarn and thread, rubber bands, glue, popsicle sticks, window mesh squares, etc.
  - Alternative: Create 3 or 4 model nest covers out of materials and have students list the pros and cons for each of the different models.
- Construction paper and markers



### Supplemental Background Information for Teachers:

Sea turtles lay their nests on beaches, many of which are used by people. It is bad for the nest if it is walked or driven on while the eggs are maturing. We also need to protect the nest from predators. Different beaches may have different types of predators that would try to dig up and eat the eggs. The way that we protect against these predators depends on how they would go about getting to the eggs. On Pleasure Island, near the aquarium, the sea turtle groups protect the nests by covering them with a metal cage to keep out predators while allowing the baby turtles to escape if they hatch without anyone around. Then they put up stakes with caution tape to block off the nest. Typically a sign is also posted warning people about the turtle nest and the consequences of messing with it. This process can vary from state to state.

### Preparation:

Gather materials for the nest protection models or build the models for the students to compare.

### Procedure:

1. If students are not familiar with how sea turtle nests are laid and what they look like on the beach, you can do one of the other lessons (Nest Observation and Relocation) or fill them in on that background information.
2. During the two months between being laid and hatching, the sea turtle eggs are vulnerable to predators and other dangers. Have students brainstorm a list of things that might be dangerous to the eggs. Their list should include things like: raccoons, ghost crabs, foxes, dogs, humans, high tide, storms, beach erosion, etc.
3. Ask leading questions to get your class to figure out what to do to protect the nest: Can the eggs protect themselves? How does the mother turtle try to protect them? How do the different predators try to get to the eggs? What can people do to help protect the eggs?
4. There are a variety of ways that scientists protect the nests. Relocating a nest that is in a bad spot for erosion or storms is one way to protect the eggs. They also build devices to protect the eggs from predators and put up signs so that people stay away.
5. Have students list the requirements for our nest covers (another alternative is to let them build and then critique their own designs based on the requirements). They need to be lightweight so that the scientists can bring them to the nests wherever they are located. They also need to be sturdy enough to prevent foxes and raccoons from digging up the eggs and they need sides that go underground to protect from ghost crabs burrowing in. The baby sea turtles will eventually need to get out, so the nest cover also needs to have holes in the top. How will the nest cover stay where it is supposed to? Make sure that there is some way to anchor it in the sand.
6. Give students access to different building materials and have them build their own nest cover that is no more than 6 inches square. An alternative is to have students



assess a few nest covers that the teacher has pre-made and see how well they meet the requirements.

7. Humans are another danger to the nests. If lots of people walk over them, their weight can crush the eggs. Have each student write and decorate a sign that tells people to stay away from the area because a sea turtle nest is located there. Requirements for the sign are: picture of a sea turtle, tell people there is a nest, tell people that sea turtles are protected under federal and state law, and two facts about sea turtles.

### Final Activities:

Look at the included pictures of nest covers that we are using here in North Carolina. Does your nest cover look like the one the scientists use?