



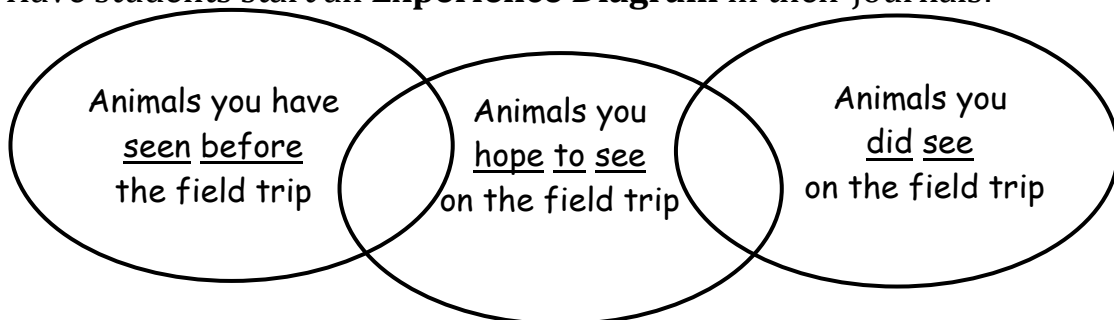
## SEA TURTLE READING ASSIGNMENT

To do before the field trip in class

1. **Students will read NOAA Kid's Times: Green Sea Turtle.** The reading is available in this guide and online at [oceanconnectors.org/resources](http://oceanconnectors.org/resources).

The reading contains new vocabulary, so it is best if teachers read the material in advance and prepare to work through it with the children. A glossary of terms that may be unfamiliar to students is contained at the end of the reading. It may be helpful to review these terms together in advance and to write a summary of the most important details.

2. **Students respond to questions inside their journals** using complete sentences.
3. Please review the answers together in class.
4. This lesson covers 4<sup>th</sup> grade Common Core State Standards in ELA/Literacy, and Next Generation Science Standard 4-LS1-1.
5. **Critical Thinking Extension: Have students pair up and discuss the following questions with a classmate.**
  - If the temperature of the egg determines whether a sea turtle hatchling is male or female, how might climate change effect this?
  - How might other climate change impacts effect sea turtles (such as sea level rise and ocean acidification)?
  - What can be done to solve these issues and protect sea turtles?
6. Have students start an **Experience Diagram** in their journals:



## SEA TURTLE READING ASSIGNMENT

*Answer in your journal with complete sentences.*

1. How did the green sea turtle get its name?
2. Describe the green sea turtle nesting process.
3. How does temperature effect sea turtle eggs?
4. Why are sea turtles in trouble? List 3 reasons.
5. How can fishermen use gear that allows them to catch fish, but not sea turtles?
6. Think back to your Ocean Connectors presentation: How does using a reusable shopping bag help sea turtles?
7. Do you think sea turtles should be protected by law in every country? Give 2 reasons why or why not.
8. How can we improve our understanding of sea turtle migrations so that countries can work together to protect them?
9. Explain how the following external structures help with sea turtle survival: shell, flippers, beak.
10. Sea turtles return each year to nest on the same beach where they were born. How do you think they are able to navigate back to the same place?

### TRY THIS

Circle the needs sea turtles have in common with people from the following list:

**Air**

**Clean water**

**Bathing**

**School**

**iPod**

**Computer**

**Skateboard**

**Shelter**

**Clothing**

**Sunlight**

**Sports**

**Swimming lessons**

## SEA TURTLE READING ASSIGNMENT

### Answer Key

1. How did the green sea turtle get its name?

*The green sea turtle gets its name from the green-colored fat tissue inside its body, a result of the chlorophyll in their diet of mostly seagrass and algae.*

2. Describe the green sea turtle nesting process.

*Female sea turtles emerge from the water at night, climb up on the beach and search for a suitable nesting site. They dig a broad pit with their front flippers and an egg chamber with their rear flippers. They then deposit an average of 110-115 eggs and cover the nest by sweeping sand over the area with their flippers. The turtle then returns to the ocean. The eggs hatch after about 60 days and the hatchlings make their way into the ocean.*

3. How does temperature effect sea turtle eggs?

*The temperature of the eggs during incubation determines the sex of the hatchlings. Lower sand temperatures will produce male sea turtles, while higher sand temperatures will produce female sea turtles.*

4. Why are sea turtles in trouble? List 3 reasons.

*Sea turtles are in trouble due to hunting, capture in fishing gear, ingestion of plastic, pollution, climate change, and coastal development in nesting areas.*

5. How can fishermen use gear that allows them to catch fish, but not sea turtles?

*To reduce the danger of capturing sea turtles, fishermen can use fishing gear that is designed to allow turtles to escape from the nets, such as a Turtle Excluder Device (TED).*

6. Think back to your Ocean Connectors presentation: How does using a reusable shopping bag help sea turtles?

*A reusable shopping bag helps sea turtles by reducing plastic bag use. Plastic bags are harmful because they wash into the ocean and sea turtles mistake them for prey (jellyfish) and eat them.*

7. Do you think sea turtles should be protected by law in every country? Give 2 reasons why or why not.

*Sea turtles should be protected by law in every country because they are a migratory species so their survival depends on protection from many different communities. They also require protection by law because they nest in the terrestrial environment near to many human activities.*

8. How can we improve our understanding of sea turtle migrations so that countries can work together to protect them?

*By attaching small transmitters to sea turtles, scientists can follow turtles around the globe via satellite. Data from these tracking devices provides details about migration patterns, navigation, foraging areas, and even the speed and depths at which sea turtles swim, which can help us learn new information and develop new ways to protect them.*

9. Explain how the following external structures help with sea turtle survival: shell, flippers, beak.

*Shell – provides protection from predators. Flippers – help sea turtles swim, steer, and make nests. Beak – specially designed to cut through their favorite foods.*

10. Sea turtles return each year to nest on the same beach where they were born. How do you think they are able to navigate back to the same place?

*Sea turtles are able to migrate thousands of miles by following the Earth's electromagnetic fields.*



# The Kid's Times: Green Sea Turtle



Douglas Shea

**Sea turtles** are graceful saltwater reptiles, well adapted to life in their marine world. With streamlined bodies and flipper-like limbs, they are graceful swimmers able to navigate across the oceans. When they are active, sea turtles must swim to the ocean surface to breathe every few minutes. When they are resting, they can remain underwater for much longer periods of time.

### **How did the green turtle get its name?**

The green sea turtle gets its name from the green-colored fat tissue under its shell. The fat has a green color because the adult turtle's diet consists of seagrass and algae. The Hawaiian name for the green turtle is Honu.

### **What do they look like?**

Green sea turtles actually do not look very green from the outside. Their carapace can be shades of black, gray, olive green, yellow or brown with a radiant pattern, stripes or irregular spots of black and white. Their

belly is creamy white or yellow. However, they sometimes do look greenish because of algal growth that covers part of the carapace.

The green sea turtles are the largest of the hard-shelled sea turtles, but have a comparatively small head. While hatchlings are just 2 inches long, adults can grow to more than 3 feet long and weigh from 300-350 pounds.

### **Where do they live?**

Green sea turtles roam the Atlantic, Pacific, and Indian oceans, staying primarily in tropical or sub-tropical waters. Some examples include the east and west coasts of Florida, the Caribbean, Costa Rica, and off the Pacific coast of Mexico. There is also a population in Hawaii that is thought to be genetically isolated, meaning they do not breed with other populations. Those turtles remain in the vicinity of the Hawaiian Islands their entire lives. Other populations of green turtles are known for their long distance migrations between feeding and nesting grounds.

### **How long do they live?**

Scientists believe that they are very long lived and may live to 100 years in age.

### **What do they eat?**

Adult and juvenile green sea turtles are unique among sea turtles in that they are herbivorous. They primarily eat seagrasses and algae.

**When do females lay their eggs and when will they hatch?**

Female green sea turtles reach sexual maturity when they are 25-50 years old and then begin returning to their natal beaches every 2-4 years to nest. Mating begins in March, and females nest primarily between May and September. The peak of the nesting season occurs in June and July. The females nest at night every 12-14 days, laying 5 clutches, on average during one nesting season.



Douglas Shea

Female green sea turtles emerge from the water, climb up on the beach and search for a suitable nesting site. They dig a broad pit with their front flippers and an egg chamber with their rear flippers. They then deposit an average of 110-115 eggs and cover the nest by sweeping sand over a broad area with their front flippers.

The eggs incubate for approximately 60 days before hatching, depending on the temperature of the sand. The temperature of the eggs during incubation also determines the gender of the hatchlings. Lower temperatures will produce more males, while higher temperatures will produce more females. When they are fully developed, the hatchlings work together to dig to the surface and then emerge at night and crawl down the

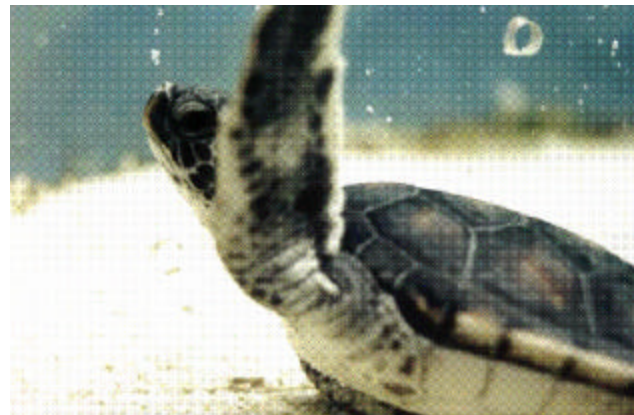
beach to the ocean. On a dark beach they are attracted to the light reflected off the ocean. Artificial beachfront lighting can cause turtles to become disoriented and prevent them from finding their way to the ocean.

**Who are their predators?**

Small turtles are much more susceptible to predators than adults. Seabirds, crabs and raccoons feed on green sea turtles when they first hatch out of their nest on the beach, and fish and seabirds are a threat to hatchlings in the water. Only sharks are large enough to prey upon adult sea turtles. Their long flippers are especially vulnerable. Man is also a predator of the green turtle.

**How many are there?**

One of the ways that researchers monitor sea turtle populations is to count the number of nests that are laid by adult females on important nesting beaches. Based on nesting beach surveys, green turtle populations appear to be stable or increasing at some of the key rookeries in the Atlantic, but with the exception of Hawaii are declining in the Pacific.



Douglas Shea (dshea@sunvalley.net)

**Why are they in trouble?**

European explorers discovered the green sea turtles in Central America in the 1500's and



began killing them and taking the eggs and animals back to Europe for their meat, leather, oil, and shells. They hunted many of the breeding populations to near-extinction.

Threats to green turtles in the water include capture in fishing gear such as shrimp trawls, gillnets and fishing lines; pollution and trash; and collisions with boats. Human development threatens many of the most important green turtle nesting beaches. Coastal construction, beach armoring, beachfront lighting, beach driving, and beach cleaning are significant threats to nesting females and their hatchlings

#### **What is fibropapillomatosis (FP)?**

Fibropapillomatosis is a disease that was first described in green sea turtles in Hawaii in the 1930s. Today it affects around 50% of the green turtles in Hawaii and is also found at high levels in other green turtle populations, such as Florida. FP causes tumors to grow on the eyes, mouth, neck or flippers. These tumors are not deadly until they begin to block the sight, breathing, or feeding activities of the turtle. The cause of FP is still unknown, but it appears to occur more commonly in areas that are highly impacted by human activities.



Ursula & Peter Bennet

#### **What is being done to help greens?**

Green sea turtles were listed as endangered and threatened under the Endangered Species Act (ESA) in 1978. The species is listed as threatened worldwide, with the Florida and east Pacific breeding populations listed as endangered. They are also protected by the state law of many coastal states.

In the U.S., the National Marine Fisheries Service is the federal agency charged with protecting sea turtles in the marine environment, while the U.S. Fish and Wildlife Service has jurisdiction over sea turtles on their nesting beaches. The agencies have both enacted regulations to protect turtles at sea and on the nesting beaches. Green sea turtles are also listed under Appendix I of the Convention on International Trade of Endangered Species (CITES), which forbids the trade of any turtle products on the international market. In the U.S., it is illegal to import or export turtle products, and it is illegal to kill, capture, or harass sea turtles. To reduce the danger of being caught in fishing gear, all shrimp trawlers in U.S. waters are required to pull Turtle Excluder Devices (TED's). These allow turtles to escape from shrimp nets if they are caught.

#### **What can you do to help sea turtles?**

It is possible for anyone to help support sea turtle conservation. You can help participate in beach cleanups or attend a public sea turtle walk. You can do a presentation on turtles for a class to raise awareness, adopt a turtle, or follow a sea turtle telemetry project. You can help just by remembering not to release balloons or throw trash into the ocean. You can help spread the word to your family and friends that sea turtles are an important part of our environment and should be protected.

**Glossary:**

Algal growth: Algae growing on a surface, such as the carapace of a turtle

Carapace: The top shell of the turtle

Clutch: A group of turtle eggs

Herbivore: An animal that eats almost entirely plants

Incubate: To warm with body heat to bring out development and hatching of young

Natal beach: The beach where a turtle is born

Omnivore: An animals that eats both plants and animals

Rookery: Nesting beach; Can also mean an area, such as "southeast U.S. rookery"

