

Title

PART 1 Lesson: Intro to Sea Turtles

PART 1 Activity: Getting to Know You

Grade level

3-5

Time

45-60 minutes

Student Target

SC.3.N.1.1 Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.3.L.15.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.

SC.3.P.8.3 Compare materials and objects according to properties such as size, shape, color, texture, and hardness.

SC.4.L.17.4 Recognize ways plants and animals, including humans, can impact the environment.

SC.4.N.1.1 Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

Materials

Teacher:

- Activity Page: 1
- Activity Pages: 2-11
- Vocab Sheet

Note: Cut Activity Pages 12-21 in half horizontally. Fold each in half lengthwise, so each card has a picture on the front and info on the back. Laminate for multiple uses.

Students:

Activity Pages: 12-21

PART 1 LESSON: Intro to Sea Turtles

Ask the students if they know what type of animal a sea turtle is? (Mammal, fish, reptile, amphibian, etc.)

Try to get the students to think what makes a reptile a reptile. Reptiles have scales for a body covering, use lungs to breathe air, are ectothermic (cold-blooded), lay eggs and are vertebrates. See if they can think of any other animals that are reptiles.

- Snakes
- Alligators and crocodiles
- Lizards
- Other types of turtles

Reptiles can live in all types of environments or habitats. Explain the difference between the two. Environment is the summation of all living and non-living things within a large area. A habitat would be a more specific subset of that, where the organism's basic needs are met. For example, the ocean is an environment but a coral reef is a habitat. On the coral reef, sea turtles may find food, shelter and space. Prompt the students to think of examples of each. Prompting examples of environment vs. habitat: beach vs. shoreline, forest vs. forest floor, jungle vs. treetop canopy.

Ask the students what their habitat would be.

Since a habitat is a place where a plant or animal lives, they can say "my house". To put it in perspective, their house would be their habitat and their environment would be their neighborhood.

Ask the students if they've ever seen a sea turtle before or know what they look like.

Sea turtles have a special anatomy that allows them to live in the ocean and makes them look very different from land and fresh water turtles. These are called adaptations to their environment (Activity page 1). Pose these questions:

- **Lungs to breathe air** or gills to breathe under water?
- Claws and feet for digging or **flippers (not called "fins") for swimming?**
- **Hard** or soft shell?
 - Sea turtles have a hard shell that allows them to protect against predators like sharks. The exception is the leatherback, which is named for its soft leathery shell. Their habitat is the deep ocean, thousands of feet down, where many sea turtle predators do not live.
- Ability to pull flippers and head in shell or **not?**
 - Sea turtles would not be as hydrodynamic if they had open pockets to pull their appendages into. It would be like us trying to swim with garbage bags attached to our body.
- A fun stumper: Do sea turtles **cry** or not?

- Mother sea turtles are often seen “crying” when nesting. They don’t cry because they’re sad to leave their babies. Female sea turtles are often seen creating tears because this is an adaptation to rid themselves of excess salt from the ocean water. They do it constantly in the sea, we just can’t tell. As humans, we get rid of salt in myriad ways: sweat, tears and urine.
- Lay eggs or have live babies? Reiterate that most reptiles lay eggs. See if the students can think of any other types of animals that lay eggs. If you have time, explain to the students that reptiles lay many eggs and many nests as a tradeoff for not taking care of their young. It’s their insurance policy that at least a few will survive.
 - Sea turtles lay eggs in a nest they dig on the beach. Once her eggs have been deposited into the nest, the female sea turtle give the hatchlings no parental care. They are on their own and must incubate and grow in their eggs for about two months before they hatch out all together.

Ask the students to think of some other animal adaptations.

Prompting examples: birds/wings, fish/gills, polar bears/white fur, anteaters/long probing mouthpart.

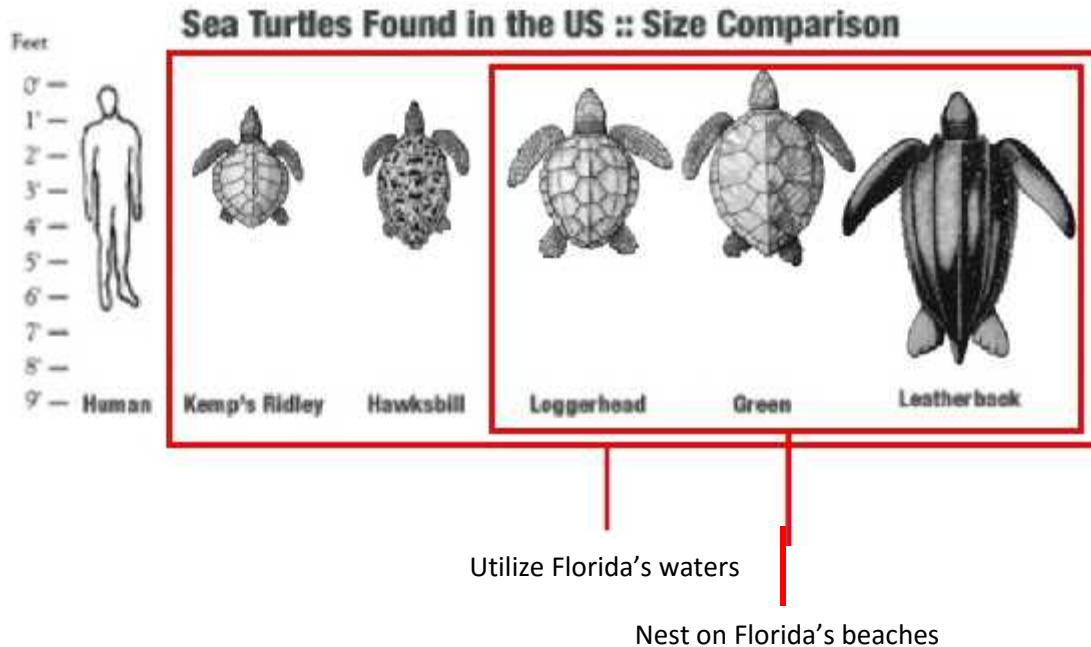
Now see if the students can think of any adaptations we have as humans.

Prompting examples: Two legs to help us walk upright, omnivore teeth (both sharp and crushing to eat both meat and plants), the ability to sweat to keep cool, body hair to keep us warm, dexterous fingers to allow us to hold tools and perform tasks.

Ask the students if we would be well-adapted to living in the ocean. Why?

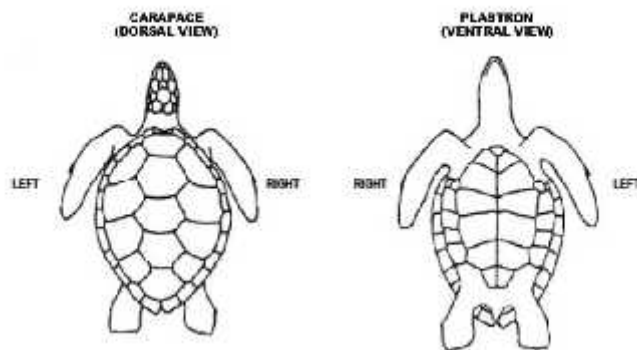
Explain to the students that there are 7 species of sea turtles in the world. Explain that a species is a way to define a “type”. For example, you have black bears and polar bears. They are both bears but different species. Another example would be eagles and flamingoes. They’re both birds but different species. See if the students can come up with other examples.

In Florida, we see 5 species of sea turtles around our waters, but only three nest on our beaches:



Explain to the students that sea turtles differ greatly in size and also appearance.

Sea turtle shells have a top (carapace) and bottom (plastron). The plates on their shell are called "scutes" and each species has a different pattern to help us tell them apart.



They also have special individual characteristics or adaptations that allow them to thrive in their habitat. For example, the leatherback has specialized notches in their jaws that allow them to catch slippery jellyfish. Hawksbills have a pointed "beak" that allows them to pry sponges from crevices in the coral reef and eat them.

Show students photos (Activity Pages 2-11) of each of the 5 species and go over characteristics. Get them to try and figure out why certain characteristics match with the turtles.

PART 1 Activity: Getting to Know You

Activity pages: 12-21

Pass out the intro cards so each student has one. There are 20 cards that must be utilized so pair up students if you have more than 20 in your class. If you have less than 20 students, the teacher can participate with one or more cards. Each of the five sea turtles is represented by 4 cards: species, food item, habitat and weight. Clues on each card will lead students to find their respective turtle group.

If one student has the food item “jellyfish”, get them to go around asking other students if 1. They are a sea turtle, 2. They like to eat jellyfish.

On the other hand, if they are themselves a sea turtle, have them go around and ask what facts are on their card. Ex) Leatherback sea turtle: Are you food, habitat or weight? Are you a jellyfish?

You will notice there are no species names on the cards. This is so the students can figure it out for themselves. Divide the board into 5 and write the names of each turtle in each section. Once the students find their groups, have them stay under their respective section. If they struggle, put up the photos you showed them earlier in each section.

Turtle: Loggerhead
Food: Conch
Habitat: Nearshore
Weight: 250

Turtle: Leatherback
Food: Jellyfish
Habitat: Deep sea
Weight: 2,000

Turtle: Kemp's ridley
Food: Crabs
Habitat: Muddy shallows
Weight: 100

Turtle: Green
Food: Seagrass
Habitat: Seagrass beds
Weight: 350

Turtle: Hawksbill
Food: Sponge
Habitat: Coral reef
Weight: 150

Once finished, swap each groups' card with another's until they've all been each turtle. You can make this a race if you want to keep it exciting and fast-paced. The first group to the right section of the board with all the card holders wins a point. The group with the most points gets a prize or a star on the board.

Once complete, prompt a discussion with some questions about each species:

Leatherback

What food do they eat and what adaptations allow them to catch their food easier? Notches in their jaw allow them to catch slippery jellies.

What is one problem that leatherbacks face and perhaps one reason they're endangered? Plastic bag and balloon consumption/confusion for jellyfish. If humans recycled their plastics, and don't release balloons into the sky, sea turtles have a much better chance of surviving.

What adaptation do leatherbacks have to dive deep, which other sea turtles do not? Leatherbacks have a leathery shell, which allows them to dive thousands of feet under water. **Explain to the students that the deeper you go in the water, the more weight or pressure there is. Relate it to flying in a plane or going up in an elevator when the pressure is less and your ears pop. If the leatherback had a hard shell, it would crack but the flexible, leathery shell allows it to expand (get bigger) and contract (shrink).**

Green Sea Turtle

What adaptations do green turtles have in regards to eating? Serrations on their jaws to tear sea grass. They look like teeth but really aren't. Herbivores is another answer that would work. From here, you can test the other groups and ask if their sea turtles are herbivores. The answer will be no. **Ask the students what the other turtles would be considered since they eat animals, not plants?** Carnivores. Most sea turtles are truly considered omnivores, though because they will sometimes opportunistically eat algae or other vegetation too.

In what habitat do green sea turtles look for food? Sea grass beds.

Green turtles almost went extinct because of hunting many years ago. What is "extinct"? **Name one type of animal that is already extinct.** Dinosaurs. **Use this answer to probe the students about the meaning of endangered.** Endangered is a status given to certain animals when their populations are at risk for going extinct in the future. All species of sea turtles are endangered throughout the entire world because of human causes like not recycling plastics, bad fishing practices and boat interactions.

Loggerhead Sea Turtle

What adaptation do loggerheads have in regards to eating? A strong bite allows them to eat hard animals like conchs. They have one of the strongest bites in the animal kingdom.

What type of adaptations do conchs have to protect them from predators? Hard shell, though this does little against the force of a sea turtle bite.

Hawksbill

What adaptation do hawksbills have in regards to eating? A pointed beak, which gives them their name allows them to pick sponge off the reef.

Hawksbills were nearly hunted to extinction because their shell was used for decoration. What other species did we say was hunted near extinction as well? Green sea turtles.

Kemp's ridley

What habitat do Kemp's ridleys use? Shallow, muddy bottoms.

What is the hard, outer shell of a crab called? Exoskeleton.

Extra questions:

All species of sea turtles migrate. Ask the students if they know what that word means.

What are some reasons sea turtles might migrate? The term migrate relates to the physical movement by animals from one area to another. Sea turtles migrate for myriad reasons, including: looking for food, to reach nesting habitats, in search of mates, to reach more temperate waters, etc.

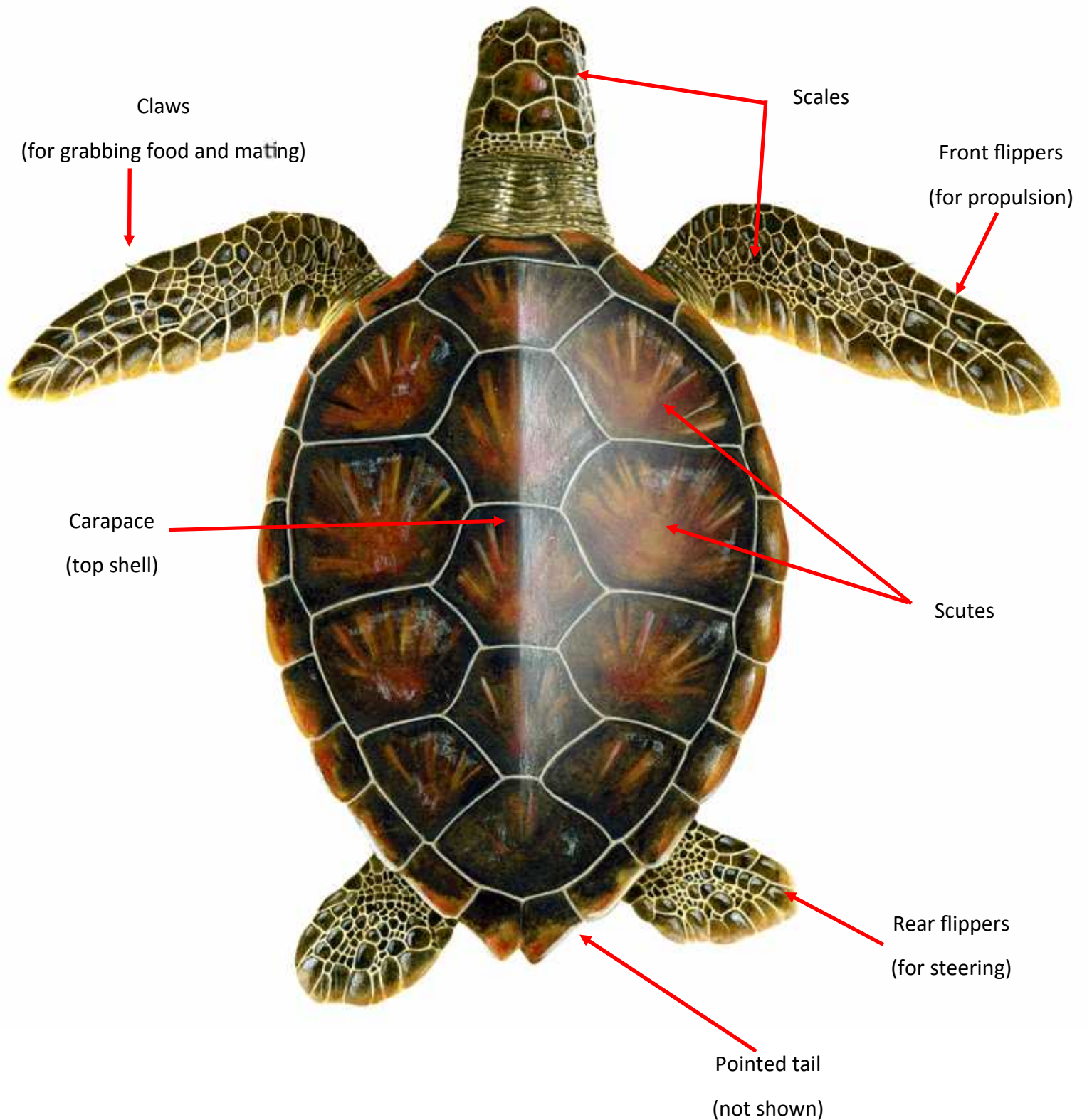
Migration happens the most when seasons change. Why? Ask the students what happens when seasons change. It gets cooler or hotter depending on the time of year.

Ask the students if they think turtles in the ocean are affected by seasonal weather. Yes. Water temperatures can change greatly in shallower areas. Some sea turtles can get cold-stunned if it becomes too cold, too fast.

What adaptation do they have that make cold water a problem? Being ectothermic means that their bodies get cold if the water is cold. **How do they get warm?** They migrate! Sea turtles in Massachusetts migrate further south in the winter to get warm and even further south in the summer to nest. They can also bask at the surface for short times but must be wary of predators.

Sea Turtles also migrate seasonally because of nesting. Ask the students if they know when sea turtles migrate to Florida and come up on the beach to nest. Summer (March-October)

Sea Turtle Anatomy





Loggerhead Sea Turtle

- Most common sea turtle in Florida
- Third largest sea turtle in the world
- Large, oversized head to house extra jaw muscles for crushing hard food items such as crab and conch.
- Roundish body with carapace usually covered in epibiota.



Green Sea Turtle

- Named for the color their body fat turns when they eat their favorite food: sea grass
- Second largest sea turtle in the world
- Much smaller head compared to loggerheads because of their diet. (They don't need extra muscle to eat seagrass)
- Very streamlined body and hardly any epibiota ever found on them.
 - Green turtles are meticulous about cleaning. They will visit reefs or cleaning stations to either rub off the barnacles and other epibiota or have small fish do it for them.
- Hunted near extinction decades ago for consumption.



Leatherback Sea Turtle

- Named for its leathery shell and lack of scutes
- Leathery shell allows the turtle to dive thousands of feet deep
 - Because of the water pressure at that depth, the shell must be able to expand and contract. A hard shell would crack under the pressure (Ask the students if their ears have ever popped in an elevator, airplane or going up a mountain. This is atmospheric pressure).
- Diet consists of nothing but jellies but they don't react to the stings because of their leathery exterior.
- Largest sea turtle in the world (Up to 9 feet and 2,000 lbs!)
- Specialized notches in their jaws allow them to catch slippery jellies.
- Rarely see around the coast unless nesting because their habitat is the deep ocean.



Kemp's Ridley Sea Turtle

- Round, gray shell
- Smallest of all the sea turtles (~100 lbs)
- Nests along the Gulf of Mexico
- Sometimes nest in “arribadas”, where thousands of turtles come up at the same time and lay nests simultaneously on the same beach.
- Usually “crawl” along the bottom of the ocean floor looking for crustaceans to eat.



Hawksbill Sea Turtle

- Named for its “hawk-like” beak that allows it to pick sponge out of crevices in the coral reef.
- Have overlapping scutes and the edge of their carapace is jagged, not rounded like other turtles.
- Were hunted nearly to extinction for their beautiful shell which was used to make jewelry, combs, and other items.



Turtle

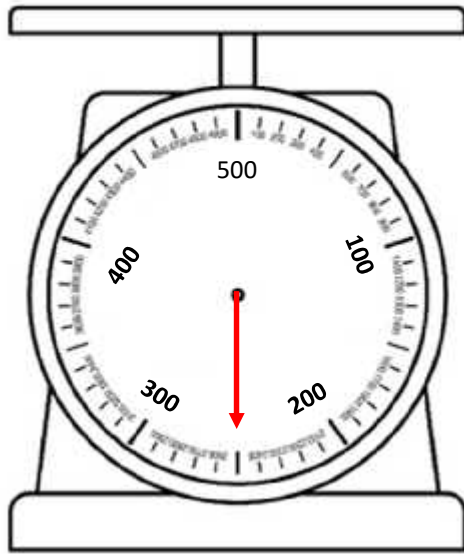
- I have strong jaws to eat hard-shelled animals like conchs.
- You can often find me in the nearshore coastal habitats of Florida.
- I weigh 250 pounds, or as much as a baby elephant!
- I am the _____ sea turtle.



Food

- These animals have a hard shell that protects them from predators.
- Old shells are often used for decoration.
- Sea turtles with really strong jaws like the _____ can bite through the shell.

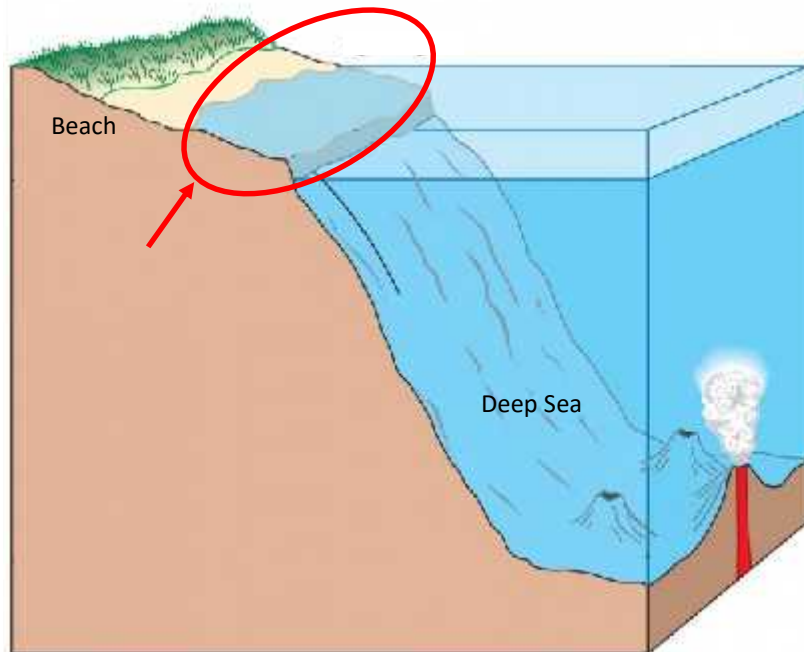
Weight



- This weight equals 250 pounds
- We write “pounds” as “lbs.”
- 250 lbs. is the same weight as a baby elephant or a _____ sea turtle.



Habitat

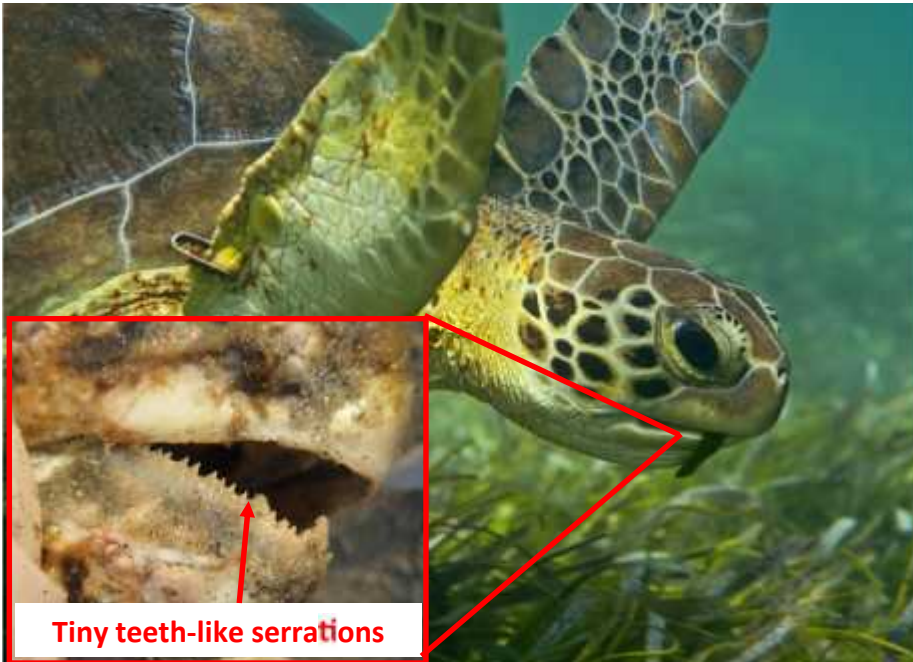


- This part of the ocean is known as the nearshore coastal habitat.
- The nearshore coastal habitat includes where the ocean meets the sand to where the waves stop.
- Many plants and animals use this habitat, including the _____ sea turtle.



Turtle

- I have a small head and tiny teeth-like structures on my beak to eat seagrass because I'm an herbivore.
- You can often find me in sea grass beds.
- I weigh 350 pounds as an adult, or as much as a black bear.
- I am the _____ sea turtle.

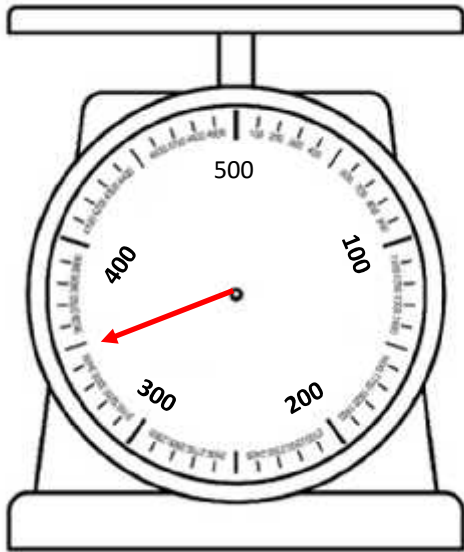


Tiny teeth-like serrations

Food

- I have tiny serrations or teeth-like structures that help me tear seagrass.
- I eat so much seagrass that it turns my fat green!
- The _____ sea turtle is the only herbivore, eating mostly seagrass and algae.

Weight



- This weight equals 350 pounds
- We write “pounds” as “lbs.”
- 350 lbs. is the same weight as a black bear or a _____ sea turtle.



Habitat

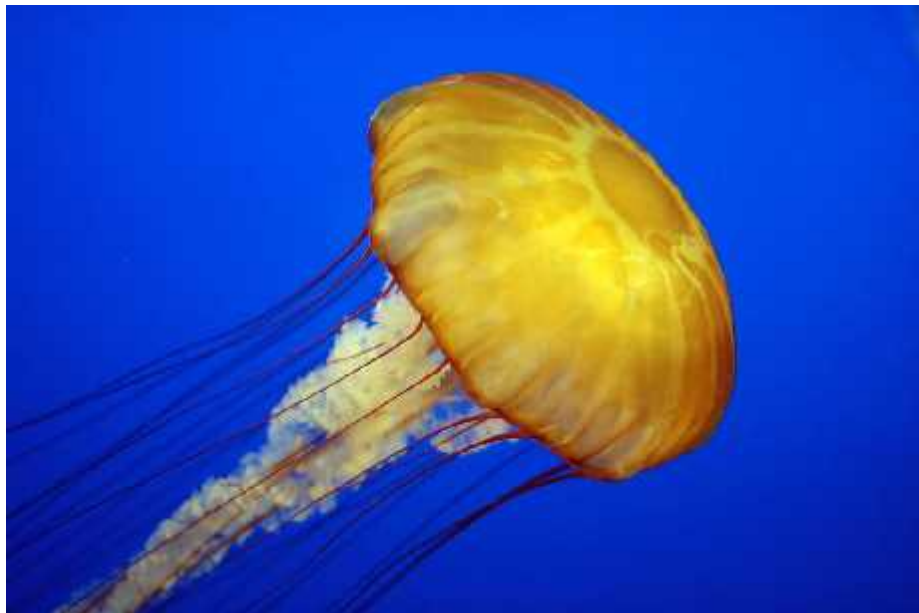


- This part of the ocean is known as a seagrass bed.
- Humans also like to hang out here when boating because it’s shallow enough to swim safely.
- This habitat is where the _____ sea turtle looks for food.



Turtle

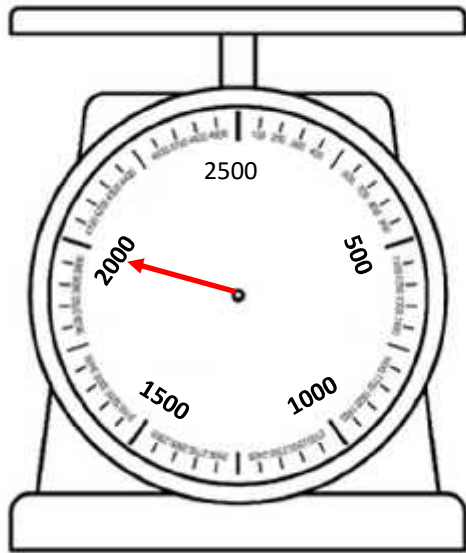
- I have notches in my jaw that help me catch my favorite food: jellyfish.
- I look for food in the deep sea.
- I weigh up to 2,000 pounds as an adult, or as much as a small car.
- I am the _____ sea turtle.



Food

- Jellyfish are part of a group of animals that sting, including coral and anemones.
- Plastic bags and balloons look a lot like jellyfish and sea turtles can eat them not knowing the difference.
- Jellyfish have little nutrition so _____ sea turtles must eat a lot of them every day.

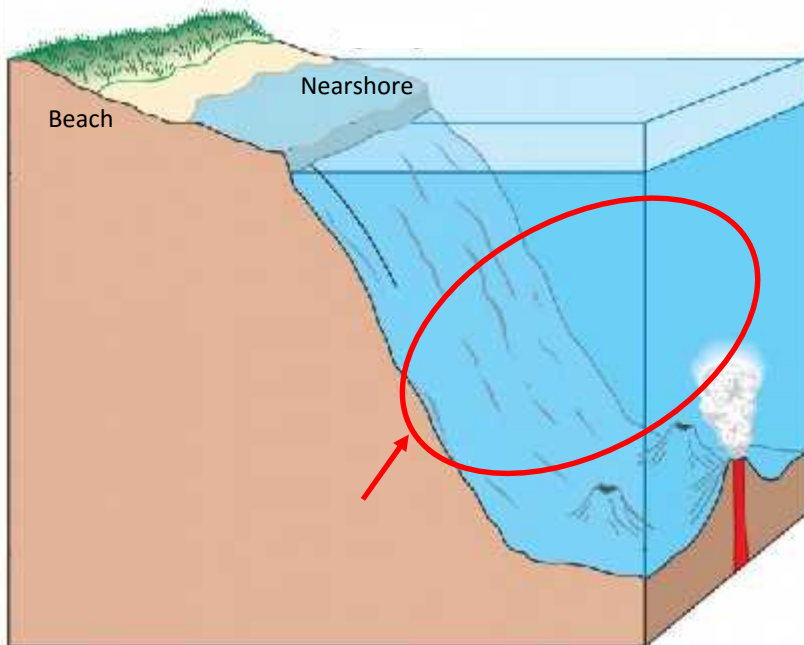
Weight



- This weight equals 2,000 pounds, or almost one ton.
- We write “pounds” as “lbs.”
- 2,000 lbs. is the same weight as a small car or a _____ sea turtle.



Habitat



- This part of the ocean is known as the deep sea.
- This habitat is thousands of feet down, as far as a submarine can dive!
- Sea turtles with hard shells cannot survive down this far but that’s not a problem for the _____ sea turtle.



Turtle

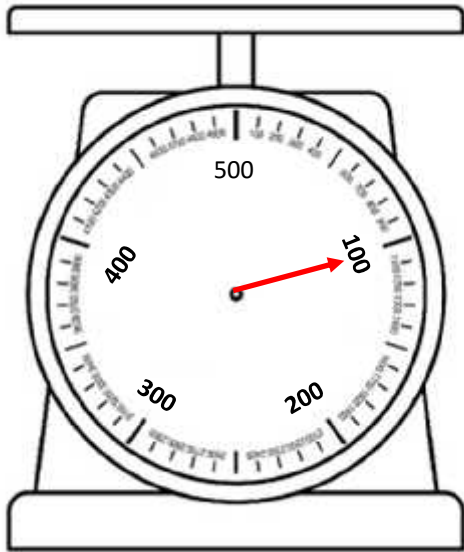
- You will find me scanning the sand for crabs to eat.
- You can often find me in muddy, shallow ocean bottoms.
- I weigh 100 pounds as an adult, or as much as a large dog.
- I am the _____ sea turtle.



Food

- Crabs have a hard “exoskeleton”
- “Exo” means “outside” so exoskeleton means “outer skeleton” or shell.
- Sea turtles like the _____ have no trouble eating crabs because they can bite through the exoskeletons.

Weight



- This weight equals 100 pounds
- We write “pounds” as “lbs.”
- 100 lbs. is the same weight as a large dog or a _____ sea turtle.



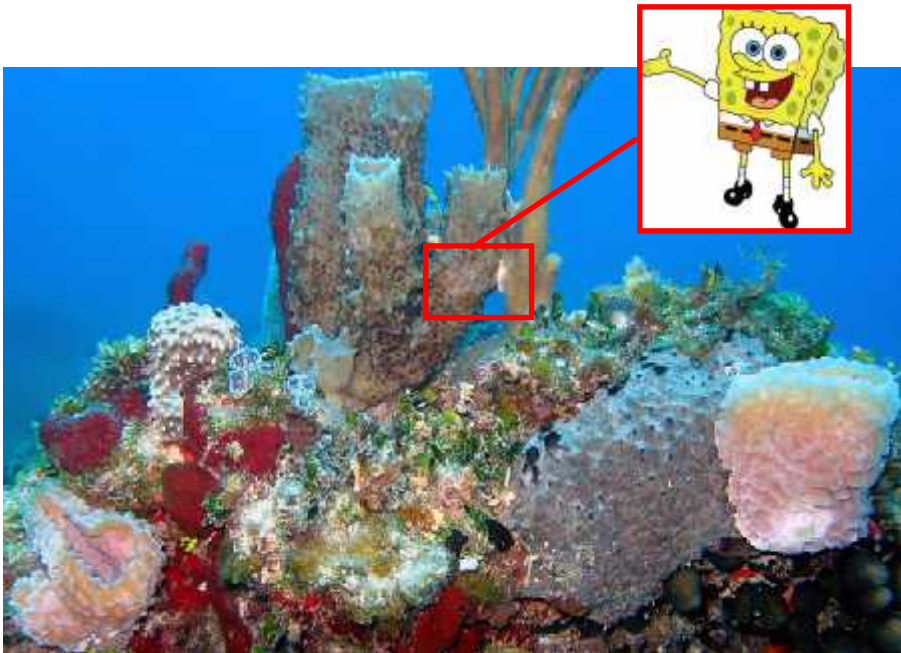
Habitat

- This part of the ocean is shallow and muddy.
- This habitat is pretty shallow, not like the deep ocean.
- Sea turtles like the _____ can often be seen “crawling” along this habitat looking for crabs.

Turtle



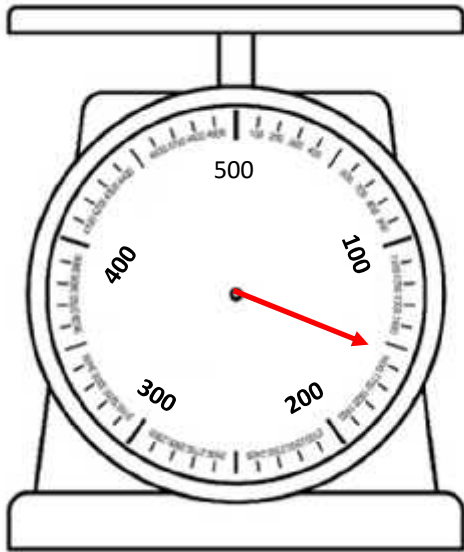
- I have a small head with a pointy “beak”, which allows me to pick sponge out of coral reefs.
- You can often find me near coral reefs looking for food.
- I weigh 150 pounds as an adult, or as much as newborn horse.
- I am the _____ sea turtle.



Food

- Sponges are simple animals that live in coral reefs.
- Sponges will eat tiny animals that float around the ocean called plankton.
- The _____ sea turtle have special mouths to pick sponge out of coral reefs.

Weight



- This weight equals 150 pounds
- We write “pounds” as “lbs.”
- 150 lbs. is the same weight as a newborn horse or a _____ sea turtle.



Habitat



- This part of the ocean is known as a coral reef.
- This habitat is home to thousands of plants and animals.
- Sea turtles like the _____ are often seen in this habitat looking for food and having their shells cleaned by small fish.