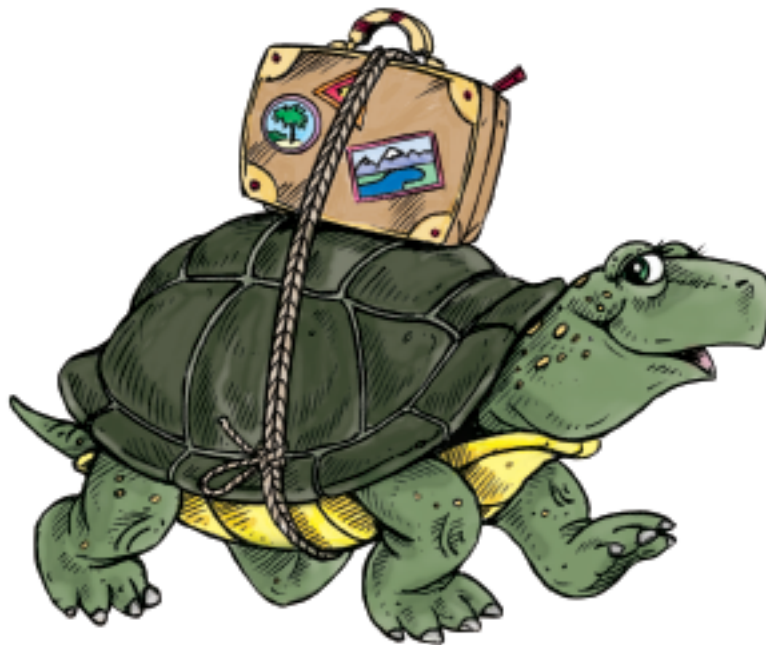


Turtle Travels

See life from their point of view.

Educational Supplements

Activities K-3



This exhibit was produced by the Environmental Exhibit Collaborative with generous support from Jane's Trust, Cabot Family Charitable Trust and the Institute of Museum and Library Services.





Table of Contents

Introduction

General Turtle Activities & Information

(Turtle Travels Scavenger Hunt & Turtle Lullaby)

Turtle Anatomy & Adaptations

(Amazing Arches, Amazing Adaptations, & Taking a Look at Shells)

The Pet Trade

(The Turtle Trade)

Sea Turtles

(Sea Turtle Trek)

Wildlife Crossings

(Turtle Crossings)

Scientific Turtle Tracking

(Turtle Hunt)

Turtle Habitat

(Have to Have a Habitat)

Stories & Crafts

(Story Time and Puppets)



Introduction

This Turtle Travels exhibit activity guide invites educators to share the many wonders of the turtle's world with children and their caregivers. Turtles have been walking and swimming on planet Earth for millions of years. They are well adapted to their natural environments and yet many species are struggling to survive.

The Turtle Travels exhibit investigates the intriguing adaptations of turtles while also addressing some of the dangers that they face in today's ever changing world. Habitat loss, the pet trade, and roads are causing aquatic and land turtle populations to decline at dramatic rates. Sea turtles face threats from fishing nets, poachers, and artificial lighting along nesting beaches. The activities in this guide aim to instill a sense of wonder in children, while also moving them to become turtle stewards. Amidst a world with so many turtle perils, it is important for our younger generations to harbor this sense of stewardship.

The guide is organized by theme and corresponds to the various exhibit components. For each theme, there is at least one activity provided. In addition, each topic has background information to better equip educators who are facilitating the presentations. The turtle activities are geared for children, grades K-5.

Foundation support for the Turtle Travels education guide generously provided by:

Davis Family Foundation
Morton-Kelly Charitable Trust
Aristotle Fund
The Roy A. Hunt Foundation

Turtle Travels
See life from their point of view.

EEC!
Environmental Exhibit Collaborative



Turtle Travels Scavenger Hunt

Objective:

To use observation skills to find objects in the Turtle Travels exhibit.

Materials:

Copies of the scavenger hunt

Pencils/Crayons

Turtle stamp with ink pad or turtle stickers

- 1) Explain to your group that the Turtle Travels exhibit is filled with a lot of fun activities and also informs us of some of the challenges turtles face in their daily lives. As an introduction to the exhibit, your group will become detectives and look for nine different objects. When they have finished, they will be rewarded with a prize.
- 2) Distribute the scavenger hunts to your group. For older groups, challenge them to remember one fun fact about each of the scavenger hunt items and have them report back to you at the end of the activity.
- 3) After the hunt is complete, award your group with turtle stamps on their hands or a turtle sticker to take home. Can they tell you one thing that they learned while on their travels through the exhibit?
- 4) Encourage your group to explore the exhibit on a deeper level and return to some of the areas they visited during the scavenger hunt. Another option is the facilitation of a round of the board game with your group.



Turtle Travels Scavenger Hunt, *continued*

Turtle cushion



Swimming Sea Turtle



Raccoon



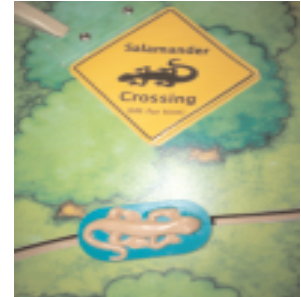
Garbage Can



Turtle Story



Salamander



House



Turtle Shell



Tortoise





Turtle Lullaby

Objective:

To observe live turtles and foster a sense of stewardship and wonder.

Materials:

Lullaby lyrics

- 1) Gather your group around the live turtle tank. Invite them to watch the turtles and share their observations.

- 2) As your group observes, ask some prompting questions:
 - "What do you see on the bodies of these turtles that help them to protect themselves?
(Shell)
 - "Do you see a hard shell on the top of the turtle, the bottom, or both?
(Both - the plastron and carapace)
 - "What do you think turtles like to eat?
(Food preferences vary from species to species)*
Doing a feeding for visitors is especially exciting.
 - "Turtles do not have teeth. What do you see on the turtles' heads that might be helpful in catching food? (Strong beak)
 - "How long do the turtles stay underwater before needing to take a breath?
Let's count the minutes!
(Turtles can stay underwater a long time. In the winter months, many of them hibernate underwater)
 - "What do the turtles have on their feet that might be helpful in digging a nest for eggs?
(Claws)
 - "What other animals have feet that look like the turtles' back feet? (Ducks, beavers, etc.)
 - "How do webbed feet help the turtles?" (Swimming)
 - "What do you like about these turtles?
 - "Have you ever seen a turtle outside? What was it doing and what did it look like?



Turtle Lullaby, *continued*

- 3) Once your group has had a sufficient amount of time to observe the turtles, ask questions, and learn about turtles' special features, invite them to sing the turtles a quiet lullaby (sung to the tune of Zippity Doo Da):

Sleep little turtles
In your wet world
Dream of fresh berries,
Insects, and worms

Rest your glassy eyes,
Your webbed feet,
And beaks

Sleep tight little turtles
Safe, sound, and sweet



Amazing Arches

Objective:

To understand the construction of a turtle's skeletal system.

Materials:

Picture of an arch

Picture of a turtle skeleton or a real turtle skeleton

- 1) Ask your group to describe an arch. What does it look like? Show your group the picture of the arch. The top middle stone in an arch is called the "keystone." Explain that the bones underneath a turtle's carapace are very similar to an arch.
- 2) Show your group the picture of a turtle's skeleton. Explain that the turtle's shell is attached to the bones underneath. The vertebra at the top and in the middle of the turtle shell bones is like the keystone in an arch. The bones on the side of the vertebra are the rib bones and the bones that connect the top shell (carapace) to the bottom shell (plastron) are the marginal bones.
- 3) Invite your group to make a turtle "arch" with you. Ask two people to stand facing each other with their hands palm to palm (forming an arch). These two people represent the vertebra/keystone. Next, ask a couple of other people to become the ribs of the turtle by extending outward from the vertebra. Lastly, invite a couple of other volunteers to become the marginal bone and crouch down close to the floor. If you have extra people in your group without a job, have them lay down on the floor as the plastron.
- 4) Give your group a round of applause.



Amazing Adaptations

Objective:

To explore the many amazing adaptations of turtles.

Materials:

Shoes with laces

Adaptation animal challenge cards

Shield (or photo of one)

Flipper (or photo of one)

Canoe paddle (or photo of one)

Shovel (or photo of one)

Picture of a scuba diver

Colored paper

Markers

Scissors

Glue

- 1) Ask your group if they know what the word "adaptation" means. An adaptation is something that helps a plant or animal to survive. For example, can your group think of something that helps a porcupine to survive? The quills on a porcupine are an example of an adaptation.
- 2) An adaptation of humans is our ability to move our thumbs around in a circular motion. We have opposable thumbs and they help us to accomplish tasks that other creatures can not. Ask your group to pretend that their thumbs are glued to the palms of their hands. Next, ask them to try to untie their shoelaces. Without moving their thumbs, can they also retie their shoelaces? Without our thumbs, many simple tasks become very challenging!
- 3) Make a set of adaptation animal challenge cards. On one side, write clues for an animal's adaptation. On the other side, display a picture of the animal. For example, one card could read "I am an animal that uses my large ears to hear insects at night. I am the only mammal that flies." Once this clue is read to children, they guess what animal has that adaptation. When the correct animal is named, flip the card over and display the picture of the bat on the other side. Ask the children to name the bat's adaptation (large ears). Other adaptation card subjects include:



Amazing Adaptations, *continued*

"I am an animal that has very strong front teeth that allow me to chew through trees. I live in ponds. (Beaver)

"I am an animal that has super sharp teeth. I am at the top of the food chain in the ocean. (Shark)

"I am an animal that has a very long neck that allows me to eat the leaves in trees. (Giraffe)

"I am an animal that is very fast-in fact, I am the fastest animal on land! I live in Africa. (Cheetah)

"I am an animal that produces a smelly stink when danger is near. When I lift my tail, watch out! (Skunk)

"I am an animal that has a brown coat of fur in the summer and a white coat of fur in the winter so I am camouflaged year-round. (Snowshoe hare)

4) Next, challenge your group to think of adaptations for a turtle. What are some features that help a turtle to survive? Pull out a shield (or a picture of one) and ask your group how a shield helps a person. Ask your group what a turtle has on its body that is like a shield. A turtle's shell is hard and strong and offers protection from most dangers. Unfortunately though, turtle shells are vulnerable to cars on the road.

Next, show your group the flipper. How do flippers help a person? Ask your group if they can think of something on a pond turtle's body that performs like a flipper. Pond turtles have webbed feet so that they can swim easily through the water.

Show your group the canoe paddle and ask them how paddles help people. What is the paddle most like on a sea turtle's body? Sea turtle flippers are shaped so that they are most effective in helping a turtle to swim through the ocean.

Show your group the shovel. What do people use these tools for? Is there anything on a turtle's body that helps it to dig? Turtles have claws on their feet and flippers. Female turtles use their claws to aid in nest digging. Male sea turtles use the claws on their front flippers to grasp females in the ocean during mating.

Show your group a picture of a scuba diver. Air tanks allow people to stay underwater a long time. Green sea turtles can stay underwater without breathing for two hours at a time when resting. This is due to their ability to store oxygen in their muscles and blood.

5) Invite your group to create their own animal with its own special adaptations. Provide colored paper, markers, glue, and scissors and let their imaginations run free!



Taking a Look at Shells

Objective:

To observe the similarities and differences in turtles' "coats of armor."

Materials:

Turtle shells (real, replicas, plastic models, or photographs) for a pond turtle, sea turtle, and tortoise

- 1) A turtle's armor-like shell protects it from predators. Unfortunately, the turtle's instinct of retreating inside its shell does not help protect it from the three major threats to turtle populations: habitat loss, the pet trade, and roads. Even though turtles were alive millions of years ago with the dinosaurs, they are in trouble in today's world. Not all turtles can pull their entire body into their shells. Sea turtles and snapping turtles are not adapted for this quick escape. They tend to use their strong beaks as a primary defense mechanism. Again, beaks do not protect turtles from all the dangers in today's world. Sea turtles and their eggs are collected for food in many parts of the world.
- 2) The bones in a turtle shell make up the exoskeleton. Turtles also have endoskeletons (internal bones) inside their bodies. A turtle has four main parts of its shell:
 1. Carapace: The top part of the shell. The carapace of most turtles is made of 50 bones, covered by 26 scutes.
 2. Scute: Tough keratin (same material as our fingernails and hair) that covers the surface of a turtle's bones.
 3. Plastron: The bottom part of the shell. Most turtles have 11 bones and 12 scutes in their plastrons.
 4. Bridge: Side of the shell that connects the carapace and plastron.
- 3) Show your group a real turtle shell if you have one. If not, use a replica, model, or photograph. Show a shell for a pond turtle, sea turtle, and tortoise. Ask your group if they notice any differences between the three different turtles. Challenge them to tell you the habitat of each turtle. What clues are they using to make their decisions? Pond turtles have fairly flat shells. They also have four webbed feet for swimming. Sea turtles have fairly flat shells, but they have four flippers instead of feet. Tortoises have very tall domed shells and long legs to enable walking over rough terrain.



Taking a Look at Shells, *continued*

- 4) Using a space that has a soft and comfortable ground, play a game of "Turtle Says" with your group. This game is an adaptation of the popular "Simon Says." When the leader says to walk like a tortoise, the game participants arch their backs, extend their arms and legs, and walk on all fours. When the leader says to swim like a pond turtle, the game participants spread out their fingers and toes to make webbed feet, flatten their backs to make a lower shell, and swim like a turtle. When the leader says to swim like a sea turtle, the group participants scrunch their fingers and toes together to make flippers, flatten their backs to make a streamlined shell, and swim like a sea turtle. The leader can also use commands for the carapace and plastron. For example, "Turtle says to point to your carapace" or "turtle says to point to your plastron."



The Turtle Trade

Objective:

To explore the reasons why turtles are better left in the wild.

Materials:

A mock turtle pond

Small plastic turtles or turtle pictures

Paper of different sizes

Writing instruments

Markers, crayons, or paints

- 1) Create a space that resembles a pond. Put plastic turtles or turtle pictures in the pond before your group arrives. Create a second pond space, but do not put any turtles in that area.
- 2) Invite your group to visit the turtle pond. What do they see? How do they feel seeing these turtles? Next, invite your group to the pond without turtles. Why aren't there any turtles in the second pond? Brainstorm some possibilities with your students. Maybe it is winter and the turtles are hibernating or perhaps the pond is polluted and toxic chemicals killed the turtles.
- 3) Ask your group which pond they like better. Tell them that unfortunately, there are places in the world that have empty turtle ponds because turtles are taken to be sold as pets and food. No home is as good of a home for turtles as their wild habitat. When turtles are taken into captivity, they often become stressed and sick because they do not have the food, water, shelter, and space that they are accustomed to having.
- 4) Invite your group to either make a poster or write a letter expressing their feelings about having turtles taken from their habitat to be sold as food or a pet. If they wish, they can send these creations to their local lawmaker or display them in their homes or schools.



Sea Turtle Trek

Objective:

To explore the hazards that face sea turtles as they journey through the oceans.

Materials:

Hula hoops or other "feeding" zones

Flashlight

Journey event cards

Interrupted Journey by Kathryn Lasky

- 1) Watch the sea turtle cam for a moment with your group. Explain that sea turtles are born on beaches and lay eggs on beaches, but are otherwise out at sea swimming, feeding, or resting.
- 2) Brainstorm with your group the possible journeys of a sea turtle. What dangers do they face? Interrupted Journey is a nice resource when talking about sea turtle hazards and how people are responding to their call for help.
- 3) Use a large space in your museum community (indoors or outdoors) as an "ocean." Set out several hula hoops in the ocean and designate them as feeding zones.
- 4) Start your students at one side of the activity space and designate this area the nesting beach. Allow all of your students to hatch as baby turtles (hatchlings) and make their way to the ocean for their first swim. Shine the flashlight over the ocean as the "moonlight." Hatchlings are attracted to the brightest light when they first emerge from the egg. In non-developed areas, the moonlight over the ocean is the brightest area.
- 5) Instruct your students to swim around the ocean and stop periodically for food in the feeding areas. After a short amount of time, inform your students that 20-50 years have passed and they have grown into adult (and sexually mature) turtles. This means that they all need to return to the nesting area. The males stay in the ocean to mate with the females, then the females go to the beach to lay eggs at night. After they finish with their nests, they return to the ocean and swim away.
- 6) After going through this cycle once with your group, instruct them to all return to the nesting beach. This round, add realism into the game. Once your group has lined up on the nesting beach, place the nesting scenario cards face down in front of them. Have each child read her/his card aloud. After reading these cards, how many hatchlings remain? Allow these remaining turtles to swim into the sea to a feeding area. Once in their feeding areas (for a period of "years"), place cards at their feet for them to read aloud. How many turtles remain now? Allow the remaining turtles to return to the nesting area as adult turtles and again, place cards at their feet to read aloud. How many turtles remain? Following are some of the dangers with further explanation:



Sea Turtle Trek, *continued*

- "Although not a frequent occurrence, jaguars have been known to prey on adult sea turtles on beaches. Sea turtles nest at night when jaguars are active.
- "Although illegal in many areas, poachers still capture and kill adult sea turtles. These turtles are used for their meat, often in turtle soup. The neck and flippers of sea turtles are sometimes used to make purses and shoes. Hawksbill sea turtles have beautiful shells that are made into barrettes and buttons. Sea turtle eggs are widely collected for use in turtle soup.
- "Baby sea turtles ("hatchlings") are preyed upon as soon as they emerge from the nest by birds, crabs, and raccoons. Some of them are also led astray by lights from towns.
- "When on beaches, baby sea turtles are attracted to the brightest area around, which throughout history has been the moonlight over the ocean. With more and more global development near nesting areas, turtles are drawn to artificial lights and can not find their way back to the ocean.
- "Many sea turtles get caught in fishing nets and drown. Shrimpers in some parts of the world are now required by law to attach turtle excluder devices (TEDs) to their shrimp nets. These openings in the nets allow turtles to escape if they should get caught. Not all countries require this turtle life saving device, so many turtles still perish in nets.
- "When sea turtles are small, they are preyed upon by many species of fish. Sharks are a primary predator of young and adult sea turtles.
- "After sea turtles have lived for 20 or 30 years, they are sexually mature and the females are old enough to lay eggs. Mating occurs in the ocean near nesting beaches.
- 7) Repeat this process several times and add all of the children into the mix at the beginning of each round.
- 8) Discuss dangers to turtle survival with your group. Why does your group think sea turtles lay so many eggs (often 100 at a time). Why don't they lay just a few eggs in their nests? Explain to them that in a nest of 100 eggs, only 1 or 2 are likely to make it into adulthood due to all the dangers they face. How many "turtles" made it to adulthood in your game? How did your group feel when they died in their "turtle life?"
- 9) Ask your group if they can think of some ways to help sea turtles. One organization that does a lot for sea turtles is the Caribbean Conservation Corps. At their website (www.cccturtle.org), children can track sea turtles, learn more about each species, and even "adopt" a sea turtle.



Turtle Crossings

Objective:

To explore the reasons why turtles cross roads and discover what scientists are doing to help them to cross safely.

Materials:

Turtle Crossing by Rick Chrustowski

Toothpicks

Construction paper

Shoe boxes

- 1) Ask your group if they have ever seen a turtle. Where was it and what was it doing? Ask your group if they have ever seen a turtle on or next to a road. What was it doing? Explain that female turtles sometimes cross roads in pursuit of an appropriate nesting area for laying their eggs. Sometimes these turtles make it across the road safely, but many are hit by cars.
- 2) Read *Turtle Crossing* to your group. At the end of the story, ask your group if they now know what to do if they find a turtle on the road. The first thing they should do is find an adult who can help with traffic control. The next step is to lift the turtle carefully with two hands around the shell and away from the head. Most turtles are very docile and can be safely moved without too much effort, but snapping turtles are more aggressive. One method of moving a snapping turtle off the road is to put one hand between its tail and back left foot and the other hand between its tail and back right foot. Lift the turtle from the back in this way and "wheelbarrow" it across the road. With its back end lifted, it will walk forward with its front legs and will not be able to reach your hands with its long neck and powerful beak.
- 3) Explain to your group that scientists are creating "wildlife crossings" for turtles and other animals. Invite your group to explore the wildlife crossing area of the Turtle Travels exhibit to discover how different species are being helped across the road by scientists. Next, invite your group to make their own wildlife crossing for a turtle.
- 4) Distribute a shoe box to each member of the group and instruct them to decorate the inside of the shoebox with a turtle habitat and a road that the turtle must cross. Make turtle crossing signs like the ones in *Turtle Crossing* with toothpicks (sign posts) and yellow and black construction paper. Suggest to your group that they put these turtle dioramas in their homes as a reminder of how people can help turtles.



Turtle "Hunt"

Objective:

To understand how radio telemetry works and why it is important.

Materials:

Something that makes noise (bear bells or rice shakers work well)

- 1) Explain to your group that radio telemetry is a scientific technique that allows scientists to track animal movements and habitat use by attaching a tag or other device onto an animal. It is a technique used on big animals like moose and on small creatures like butterflies.
- 2) Have your group mimic the actions of scientists and the animal of your choosing in a radio telemetry game. Give the noise-maker to the "animal" and blindfold your scientists. Oftentimes, scientists can not see the animal that has the radio collar or tag, but can hear the sound that the device emits through the radio signals. The animal's job is to move around and make noise with the noise maker. The scientists' job is to try to find the animal. Set physical boundaries if the game becomes too challenging for your scientists. Make sure that the play area is free of objects that the scientists could trip over.
- 3) When the animal is found, choose a new animal and group of scientists to play a second round.



Journey Event Cards for Turtle Trek Activity

*Note: Print multiple cards for each scenario

Hatchling Cards:

You made it to the ocean!

You were eaten by a crab.

A bird ate you for lunch.

You were collected by a person to be used in turtle soup.

A raccoon ate you for dinner.

You were confused by city lights, crawled towards the city, and a car hit you.

Feeding Turtle Cards:

A fish ate you for dinner.

You were caught in a fishing net and drowned.

You were caught to be made into leather shoes.

You made it to your 30th birthday! Head for your nesting area to lay eggs!

Nesting Turtle Cards:

After laying your eggs, a poacher captured you to make turtle soup.

A jaguar ate you for dinner.

You laid your eggs successfully. Head back to the ocean!

You were caught to be made into a barrette.



Have to Have a Habitat

Objective:

To discover the habitat needs of turtles.

Materials:

Copies of the "habitat" song to distribute

Paper

Crayons/markers

- 1) Ask your group what living things need to survive in their homes. What do people need to survive?
- 2) Offer hints to your group by pretending to drink and eat. All living things need food and water to survive. Next, make a house symbol to explain that all living things need shelter/a home to survive. Lastly, arrange your group in a circle and have them take five giant steps in toward the middle so that everyone is scrunched together. Ask your group, "What don't we have enough of right now?" Space! All living things need enough space to survive, too.
- 3) Ask your group if they have ever seen a turtle's home. Where do they look for food? What is their water source? Where do they go for shelter? How much space do they have in their various habitats? The space that a pond turtle uses is different from the space a sea turtle uses.
- 4) Some turtles are being forced to find new homes because their homes are being developed.
- 5) Ask your group if they know what the word "habitat" means. A habitat is a home. Introduce your group to the habitat song by Bill Oliver. To listen to the tune, visit <http://www.songs-for-teaching.com/jeffschroeder/habitat.htm>
- 6) While singing the habitat song with your group, invite them to draw pictures of turtle habitats. Remind them to include food, water, shelter, and space for their turtle friends.



Have to Have a Habitat Song

Habitat by Bill Oliver

Chorus:

Habitat, Habitat, Have to Have a Habitat
Habitat, Habitat, Have to Have a Habitat
Habitat, Habitat, Have to Have a Habitat
You have to have a Habitat to carry on!

The ocean is a habitat, a very special habitat
It's where the deepest water's at
It's where the biggest mammal's at
It's where our future food is at
It keeps the atmosphere intact
The ocean is a habitat we depend on! (Chorus)

The forest is a habitat, a very special habitat
It's where the tallest trees are at
It's where a bear can scratch her back
(ch-ch-ch-ch-ch-ch)
It keeps the ground from rolling back
Renews the oxygen, in fact
The forest is a habitat we depend on! (Chorus)

The river is a habitat, a very special habitat
It's where the freshest water's at
For people, fish, and muskrat
But when people dump their trash
Rivers take the biggest rap
The river is a habitat we depend on! (Chorus)

People are different than foxes and rabbits
Affect the whole world with their bad habits
Better to love it while we still have it
Or rat ta-tat-tat, our habitat's gone! (Chorus)

Go to the following website to hear the tune to this song:
<http://www.songsforteaching.com/jeffschroeder/habitat.htm>



Story Time and Puppets

Objective:

To read *One Tiny Turtle* and make a sea turtle puppet.

Materials:

One Tiny Turtle by Nicola Davies

Paper bags

Construction paper

Scissors

Glue

Bottle cap

Leather

Markers/crayons

Ping pong ball

- 1) Arrange your group in front of the sea turtle cam and invite them to watch the footage for a few minutes.
- 2) Explain that the turtle in the video is a loggerhead sea turtle. The loggerhead is one of the largest types of turtles in the world. It eats a varied diet of crabs, fish, sea urchins, shrimp, sponges, jellyfish, and mollusks.
- 3) Show your group *One Tiny Turtle* and explain that this is a story about a loggerhead sea turtle.
- 4) As you read, use the bottle cap to show the size of a baby loggerhead turtle, the leather to help your group understand what loggerhead hatchlings' shells feel like, and the ping pong ball to show the size of loggerhead eggs (as these topics come up in the story).
- 5) Invite your group to make sea turtle paper bag puppets to remember the story of *One Tiny Turtle*. The instructions follow:



Story Time and Puppets, *continued*

1. Cut a turtle's head, flippers, tail, carapace, and plastron out of construction paper.
2. Using a glue stick, attach the sea turtle flippers to the inside folds of the sides of the paper bag.
3. Glue the tail on the inside of the bottom of the bag.
4. Glue the turtle's head onto the top of the back of the paper bag. Next, fold the head over to the front of the bag and glue it in place.
5. Glue the carapace and plastron (two pieces of the turtle's shell) to the front and back of the turtle.
6. Decorate the turtle with crayons or markers.

