

## Title

PART 2 Lesson: Nesting

PART 2 Activity: Are you my Mother?

## Grade level

3-5

## Time

90 minutes

## Student Target

**SC.3.E.6.1** Demonstrate that radiant energy from the sun can heat objects and when the sun is not present, heat may be lost.

**SC.3.L.17.1** Describe how animals and plants respond to changing seasons.

**SC.3.N.1.4** Recognize the importance of communication among scientists.

**SC.3.N.1.5** Recognize that scientists question, discuss, and check each other's evidence and explanations.

**SC.4.L.17.1** Compare the seasonal changes in Florida plants and animals to those in other regions of the country.

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

**SC.4.P.11.1** Recognize that heat flows from a hot object to a cold object and that heat flow may cause materials to change temperature.

## Materials

Teacher:

- Activity Pages: 2, 4, 6 (from Lesson 1)
- Activity Pages: 1-6
- Activity Page 11
- Vocab Sheet
- Magnets or tape
- 6 buckets or other receptacles
- 3 chairs (this will make it much easier so the kids don't have to bend down and likely lose their "egg")
- 3 spoons (plastic spoons may be too small for the ping pong balls but silverware works well)
- 30 ping pong balls (divided equally amongst the three buckets)
  - If budget constrains this, wadded up pieces of used paper will work too.

Students:

- Activity Page: 7 (enough copies for class)
- Activity Pages: 8-10 (enough copies for class)
- Scissors

- Glue
- Pencils

## **PART 2 Lesson: Nesting**

*Activity Pages: 2, 4, 6 (from Lesson 1)*

***Ask the students if they remember some reasons why sea turtles migrate. Lead them into a discussion about nesting with that answer.***

Sea turtles will migrate thousands of miles from their feeding grounds each summer to nest on our beaches in Florida. Seasonal cues tell them it's time to migrate, at which time they find their way back the same area they themselves were hatched from. That's right, after traveling all over the oceans as hatchlings and juveniles, female sea turtles will nest in the vicinity of the beach they were hatched from and lay eggs of their own.

***Ask the students to remember the three species of sea turtles that nest on our beaches (leatherback, loggerhead and green sea turtles. If possible, write these names on the board and tack up each photo beneath.***

***Ask them to remember any characteristics for each species. Explain to them that sea turtles not only have different physical adaptations, they also have different behavioral adaptations.***

Sea turtles nest during March-October in our part of the world. One female sea turtle can lay an average of 5-7 nests per season. In each nest, there are approximately 100 eggs but this varies depending on species. Show the students the different crawls and hatchlings, differentiating each from one another.

***Ask the students why they think sea turtles lay so many eggs in so many nests?***

To offset the fact that they do not stay to take care of the hatchlings. "No mother" means "higher predation". The more hatchlings they create, the higher the chance one of them makes it. Only about 1 in 5,000 hatchlings make it to adulthood.

***Hatchlings emerge from their nests at night (for the most part). Ask the students why they think that is. Predators, heat.***

***Prompt the kids to think of some troubles the hatchlings might face as they make their way back to the ocean.***

Predators: birds, crabs, raccoons, ants, foxes

Obstacles: beach chairs, holes dug on the beach

Heat/Sun: nests tend to erupt at night but sometimes if it is cool or has rained, the hatchlings get confused and hatch out in the morning or even mid-day. Remember that sea turtles are ectothermic, or cold-blooded. The dark shells of sea turtles will absorb the heat of the sun, which can be detrimental if lasting too long. They have no way to offset the heat they absorb from the sun's energy like we do (sweat), so they must nest at night and as quickly as they can.

Light (this is a very important one): Sea turtles for millions of years have relied on cues or signals that tell them what to do next. The moon and stars reflecting off the water assists them in finding their way back to the ocean as they look for the brightest horizon.

***Ask the students why they might think this is a problem nowadays.***

With cities and seaside businesses projecting so much light into the sky, sea turtles make the mistake and sometimes go the wrong way. Hatchling turtles cannot survive long on the beach so it's important for us to do our part.

***Ask the students if they can think of anything to do to help the hatchlings.***

Turning off lights when not in use makes a big difference. Even for students who don't live right on the coast, this is important because it reduces skyglow. Skyglow is a term for a sky that is unnaturally bright from man-made light pollution. It's the reason we must drive out to a remote area to see most of the stars.

***Explain to the students that there are large mats of seaweed called Sargassum that float along in the ocean.*** These mats can be miles long and follow the Gulf Stream Current. After hatching, they must make their way to the ocean and Gulf Stream Current (The Gulf Stream is like the EAC in Finding Nemo). This can take several days of non-stop swimming to travel this long distance but it's worth it. Hatchlings are pretty small the first few years of life and head to the big mats of sargassum seaweed. ***Ask the students why? Food and shelter from predators.***

## **PART 2 Activity: Are you my Mother?**

Activity Pages: 1-6

Activity Page 7 (enough copies for class)

Activity Pages: 8-10 (enough copies for each student to have all 3)

Activity Page: 11

***Explain to the students that we are going to learn about the nesting behaviors of all three nesting sea turtles in Florida. The reason for this is because each sea turtle species not only looks different and uses different habitats, but they also nest in completely different ways.***

Show the students the different images of hatchlings (Activity Pages 1-3). Have them note the differences between each species. Each species of turtle not only looks different but they crawl differently, too. Using the following descriptions, show the students the images of the crawls (Activity Pages 4-6) and have them mime them with you.

- Loggerheads alternate their flipper strokes, left, then right, then left, leaving comma-like impressions in the sand. This is similar to how we free-style stroke when swimming.
- Greens have a simultaneous stroke, (similar to the breast stroke) left and right together, which leaves hash marks in the sand. They also have a tail poke (small hole) left in the middle of their crawl.
- Leatherback tracks look just like greens but MUCH larger. The rule is usually, if you can't step across it, it's a leatherback.

Give each student a nesting activity sheet (Activity Page 7). The students must cut out each picture and place on the correct sea turtle sheet based on the description. Each student should have 12 cutouts to paste into the sea turtle descriptor squares on the activity sheets (Activity Pages 8-10).

When finished, break the class up into two teams and have them assess each other's findings together. Go over the answers after a few minutes to ensure all answers are correct. As scientists, we must share our data and effectively communicate with each other to be able to make accurate observations. Have students share their findings with each other.

Tack up the image of the ocean horizon (Activity Page 11) somewhere in the classroom that the students can easily access. This can be done before class so the students don't notice it right away and must work to find it later or done so they readily see it.

**Explain to the students that they are each going to pretend to be a sea turtle mother coming up to the beach to lay her eggs.**

Split the class into three groups (loggerheads, greens and leatherbacks) and have each group line up so three lines of kids are standing side by side. In front of each line leader, place a bucket filled with 10 ping pong balls.

On the other side of the room (or however far they can carry an egg on a spoon), place another empty bucket on a chair. This will act as the nest. To reinforce which species they are, tape the images of the three turtle species (L1 Activity Pages 2, 4, 6) to the buckets.

Each line leader will get a spoon. Explain to the kids that they must act like sea turtle moms and drop their eggs into the nest across the room. One by one, each line will have their line leader carry the “egg” on the spoon to the nest. They can touch the eggs with their hands when placing on the spoon but they can’t walk with it and hold it. **Explain that they must go slow, just like a mother turtle.** She moves slowly when crawling up to nest because she is so big and not very good at walking on land.

When they are done, they must come back and give the spoon to the next student in their line.

Once completely done, the last person will come back and stand under where the picture of the ocean horizon has been tacked up to simulate the mother turtle using this as a beacon. **Remind them they must go to the bright ocean horizon to find their way back to the water.**





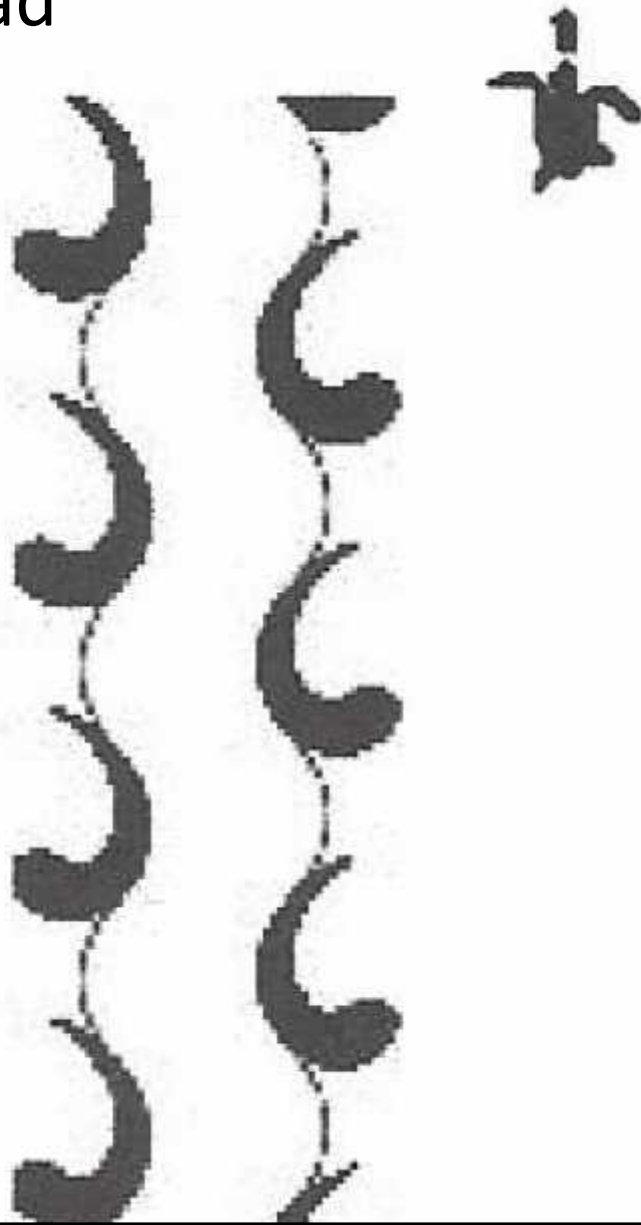
Green



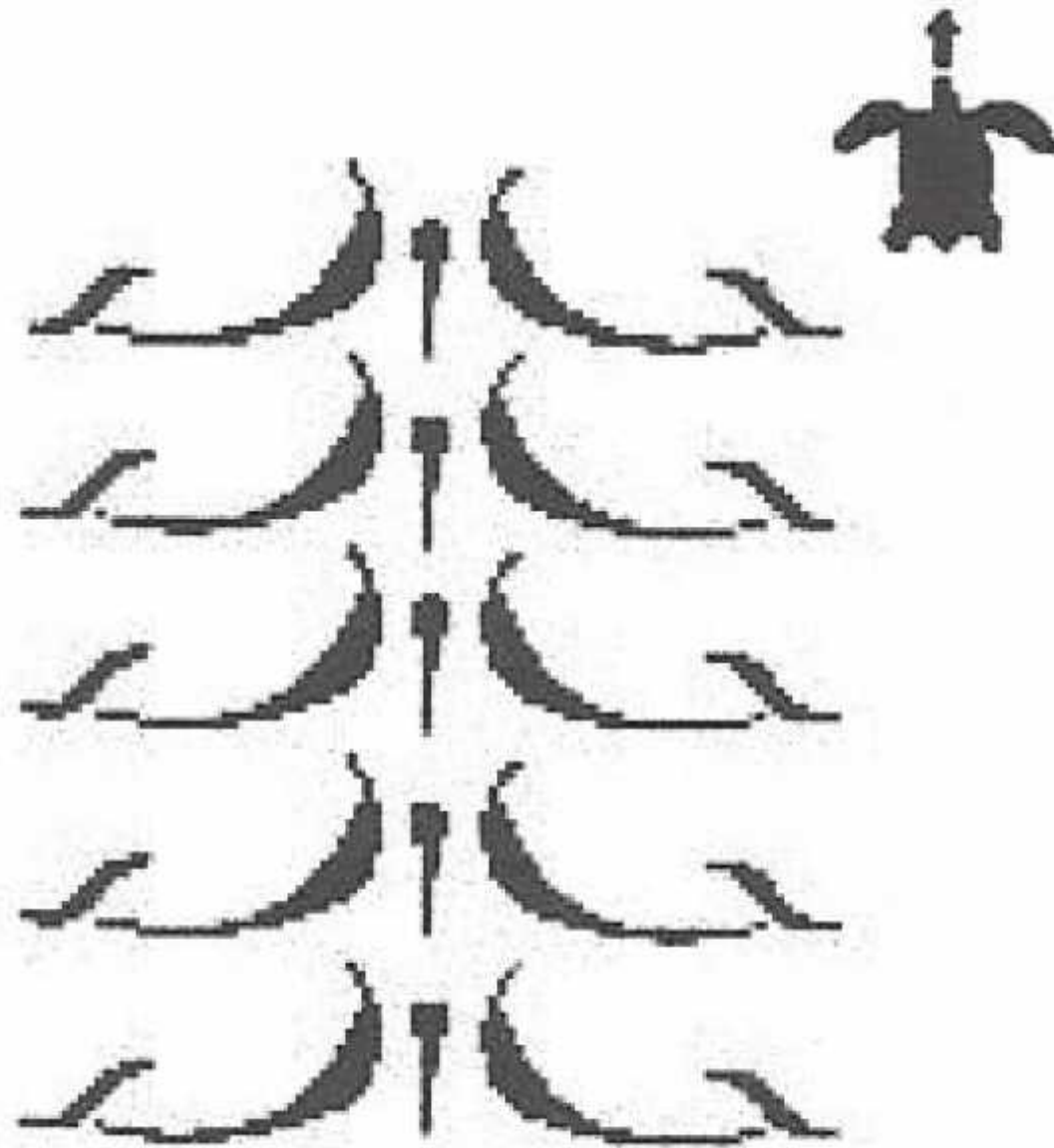


Leatherback

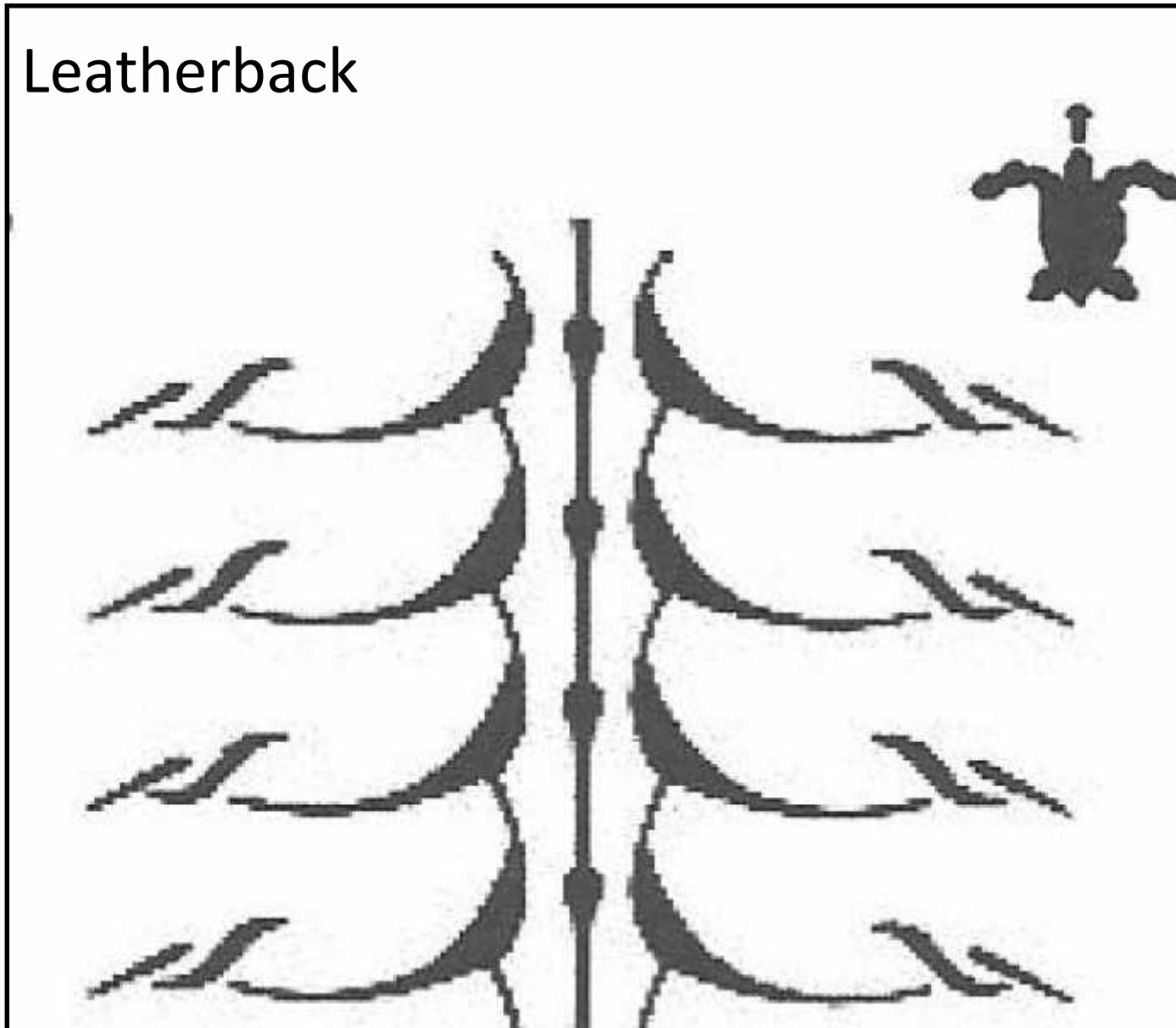
# Loggerhead



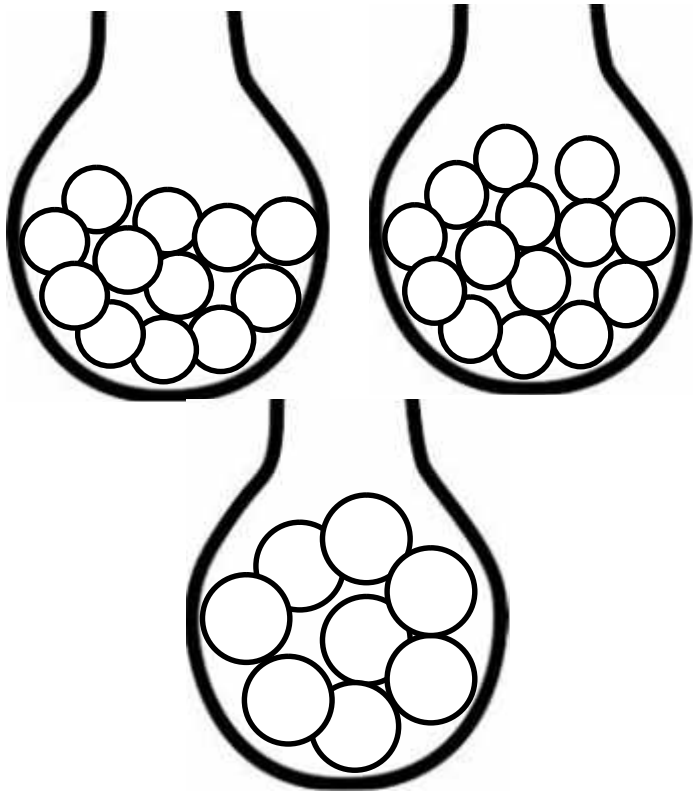
Green



# Leatherback



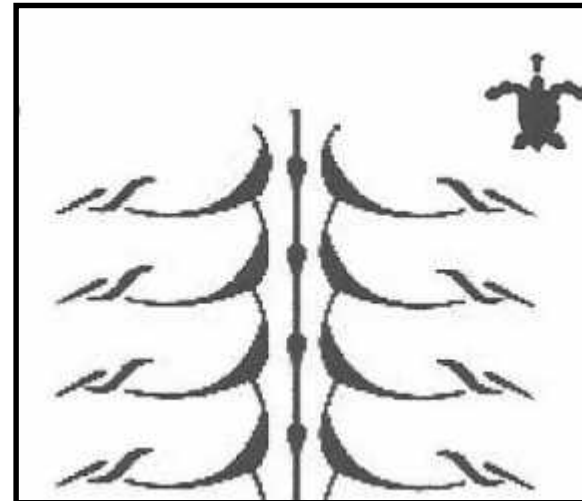
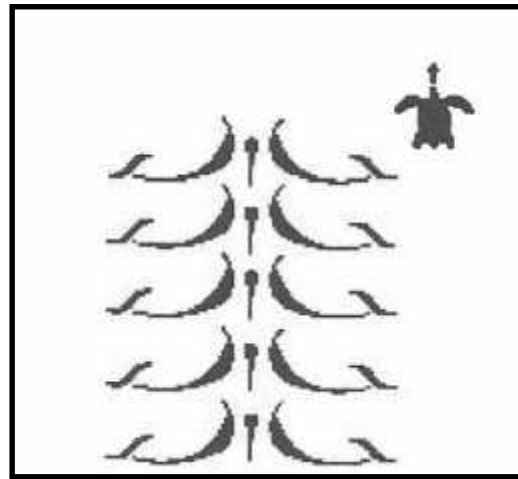
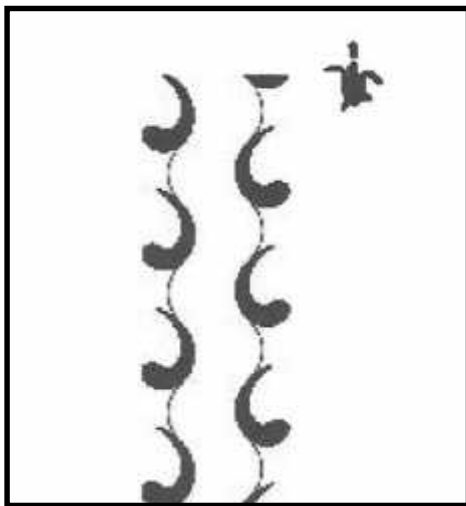
Nest with eggs



Hatchings of each type of Florida sea turtle



Crawls of the three different sea turtles



Nesting Order

- 1
- 2
- 3

Name: \_\_\_\_\_

## Loggerhead Sea Turtle

Loggerhead sea turtles are the second species to come up and nest during the year.

Paste  
number  
here

Loggerhead sea turtle crawls look like a comma and their flippers move one at a time, alternating.

Paste crawl here

Loggerhead sea turtles lay about 120 eggs per nest

Paste nest with  
eggs here.

$\times 10 = 120$

Loggerhead hatchlings are all dark brown except for the edge scutes, which are lighter than the rest of the carapace.

Paste here

Name: \_\_\_\_\_

## Green Sea Turtle

Green sea turtles are the third species to come up and nest during the year.

Paste  
number  
here

Green sea turtles use both flippers at the same time and drag their tail in the middle of the crawl. Each tail mark ends in a small hole where their tail pokes in the sand.

Paste crawl here

Green sea turtles lay about 140 eggs per nest

Paste nest with  
eggs here.

$X 10 = 140$

Green hatchlings are all black except for a white outline on their carapace, flippers and all-white belly.

Paste here

## Leatherback Sea Turtle

Leatherback sea turtles are the first species to come up and nest during the year.

Paste  
number  
here

Leatherback sea turtles use both flippers at the same time and drag their tail in the middle of the crawl. Each tail mark ends in a small hole where their tail pokes in the sand. They look like a green crawl but much bigger!

Paste crawl here

Leatherback sea turtles lay about 80 eggs per nest

Paste nest with  
eggs here.

$\times 10 = 80$

Leatherback sea turtles don't have scutes and their hatchlings are all black with white stripes going down their leathery carapace.

Paste here



