

Human Impact Lab: Sea Turtle Senses

Loggerhead Marineline Center

Loggerhead Marineline Center is an ocean conservation organization and sea turtle hospital located adjacent to one of the most important sea turtle nesting beaches in the world. The Center features an on-site campus hospital, research laboratory, educational exhibits and aquariums, and also operates the Juno Beach Pier, which hosts world-class angling and sightseeing. The Center's conservation team works with 76 local and international organizations across six continents to form partnerships and share conservation initiatives and best practices that are core to its mission of ocean conservation. The Center is expanding and has launched its Waves of Progress capital expansion campaign, designed to accelerate and amplify LMC's conservation and education impact.

Our mission is to promote conservation of ocean ecosystems with a special focus on threatened and endangered sea turtles. Our vision is to be recognized locally and internationally as the leading authority in sea turtle education, research and rehabilitation.



Lesson Objectives

- I can describe the major senses a sea turtle uses to survive
- I can identify similarities and differences between my senses and sea turtle senses
- I can use a compass to navigate using the magnetic poles

Vocabulary

- **Imprint (in sea turtles):** sea turtle hatchlings use the unique magnetic field that exists to recognize their natal beach when they return 25-30 years later.
- **Magnetite Crystals:** an iron oxide mineral that is strongly attracted to magnetic fields.
- **Migrate:** to move from one region or habitat to another according to the seasons.
- **Natal:** relating to the place or time of an organisms birth or hatching.
- **Senses:** the ability by which an animal or person perceives an external stimulus.

Resources

Marinelife.org



Visit Marinelife.org to learn more about Loggerhead Marineline Center!

Returning to your Natal Beach

Once a sea turtle hatchling emerges from its nest, they use their senses and magnetite crystals found in their brain to imprint on their natal beach. Hatchlings then spend the next 2-3 decades growing and migrating all around the world using the magnetite crystals found in their brain. These crystals act as a GPS system & compass for sea turtles to navigate the open ocean. Once sea turtles reach the age of about 25-30 years old, females will return to their natal beaches to lay their own nest! Once a female sea turtle is done nesting, she will continue to migrate all over the world until it is time for her to nest again.

During this activity, you will be able to test your own navigation and compass skills to see if you can return to your 'natal beach'!

Materials:

Compass

Object to mark your starting point

Open space

Directions:

1. Find an open space or field so that you are able to at least take 50 steps in all directions.
 2. Take any object you would like to use to mark your 'natal beach'.
3. Hold your compass flat in your hand and set your compasses to due north – 360 degrees
 - a. The needle on your compass should be pointing north (N) and read 360 degrees
4. While keeping the needle of your compass at due north – 360 degrees – take 50 steps and stop.
 5. Continuing to hold your compass flat in your hand, set your compass to 120 degrees.
 - a. Rotate your body in a circle until your compass needle reaches 120 degrees.
6. While keeping the needle of your compass at 120 degrees, take another 50 steps and stop.
7. Continuing to hold your compass flat in your hand, set your compass to 240 degrees.
 - a. Rotate your body until your compass needle reaches 240 degrees.
8. While keeping the needle of your compass at 240 degrees, take your last 50 steps and stop.
 9. If done correctly, you should have returned to your 'natal beach'!

Steps should be one foot in front of the other with your toes touching the back of the other foot's heel.

Extension:

See if you can use your compass to try this more complex navigation!

1. Mark your starting point
2. Set your compass to 45 degrees and take 35 steps.
3. Set your compass to 180 degrees and take 25 steps.
4. Set your compass to 270 degrees and take 25 steps.
5. If done correctly, you have returned to your 'natal beach'