



# Terrapin Travels

**GRADE LEVEL:** 4 - 8

**TIME:** 40 MIN

## SUMMARY

In this lesson, students will learn about the many challenges the diamondback terrapin faces as it matures. Students will play a life-sized board game that simulates the terrapin life cycle.

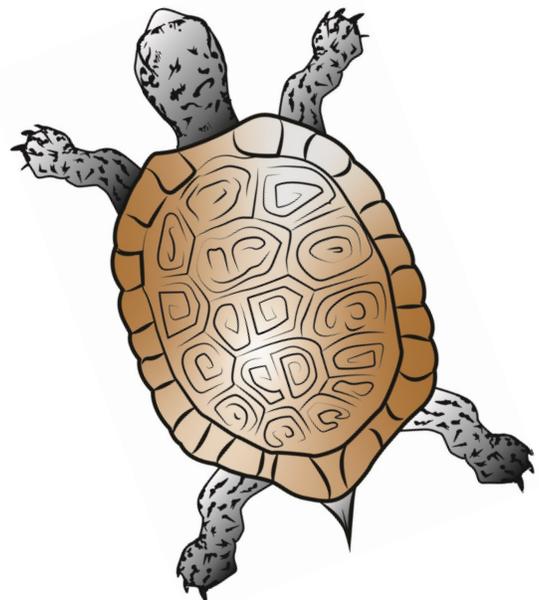
## OBJECTIVES

1. Identify factors that affect the diamondback terrapin's life cycle in positive and negative ways.
2. Explain how the diamondback terrapin is affected by changes in its ecosystem.
3. Make suggestions for ways they can help protect nesting habitat for diamondback terrapins.

## VOCABULARY

- **Bycatch Reduction Device** - This device prevents larger-shelled terrapins from entering crab pots.
- **Cargo** - Goods carried on a ship, aircraft, or motor vehicle.
- **Cargo Ship** - A ship that transports goods and materials from one port to another.
- **Crab Pot** - A underwater trap used to catch crabs.
- **Dredging** - The process of removing sediment from shipping channels.
- **Dredged Material** - The sediment removed from the shipping channels.
- **Draft** - The vertical distance between the water surface and the bottom of the ship.
- **Habitat** - The natural home or environment of an animal, plant, or other organism.
- **Habitat Loss** - When a natural habitat, such as a forest or wetland, is altered so dramatically that it no longer supports the species it originally sustained. Plant and animal populations are destroyed or displaced, leading to a loss of biodiversity.

- **Human Impact** - This refers to the effect of human development on the environment that includes changes to biophysical environments and ecosystems, biodiversity, and natural resources caused directly or indirectly by humans
- **Hurricane** - A storm with a violent wind, in particular a tropical cyclone in the Caribbean.
- **Mitigation** - In environmental work, these are projects or programs intended to offset the known impacts to an existing historic or natural resource.
- **Predation** - The act of hunting and consuming of another animal.
- **Red Tide** - A discoloration of seawater caused by a bloom of toxic red dinoflagellates, known as algae.
- **Restoration** - The act or the process of returning something to its original condition.
- **Shipping Channels** - Areas in the water that are maintained to a depth that can accommodate cargo ships. They are marked by buoys and identified on nautical charts (so captains know where to travel).
- **Tagging** - One of the methods for studying the biology, movements, and migrations of animals. Tagging is used to study the long-range regular and irregular movements of animals and to determine their life span.



## MATERIALS

- 25 game pieces with attached game cards
- 3 sets of large foam dice: placed at cards 1, 8, 9, 13, and 15.
- Flagging: placed at card 6

## BACKGROUND

Because the Port of Baltimore performs maintenance dredging each year (see general introduction), placement sites for dredged material removed from shipping channels are used to contain the sediment. The sediment is often used to restore and support habitat at the placement sites. The restored habitat at these placement sites has attracted a wide array of animals by providing thriving habitats. Many previously threatened species have benefitted from the restored habitat as their populations rebounded through increased environmental protection measures. One such animal is the diamondback terrapin, a type of aquatic turtle found in the Chesapeake Bay.

The diamondback terrapin is faced with many challenges as it matures to adulthood. Review with students factors affecting the terrapin population. It takes a terrapin about 7 years to sexually mature before they have the ability to reproduce, this results in a slow growing population. They have numerous predators such as fox, raccoon, birds, snakes, and humans. They encounter obstacles such as crab pots, pets, vehicles, habitat loss due to shoreline development or erosion, and over harvesting (historically, the terrapin fishery closed in 2007).

## ACTIVITY

### 1. Engage/Elicit (10 min):

Explain to students that they will be playing a life sized life cycle game where they will learn about diamondback terrapins and their survival to adulthood. First go over the following background information:

Explain that diamondback terrapins need habitat to survive, and appropriate habitat can be found on Poplar, an island restored using dredged material in the Chesapeake Bay.

Explain why and how the Port of Baltimore restored habitat at Poplar Island that is attracting terrapins to nest. Some of these terrapins hatched on Poplar Island are involved in a head start program where

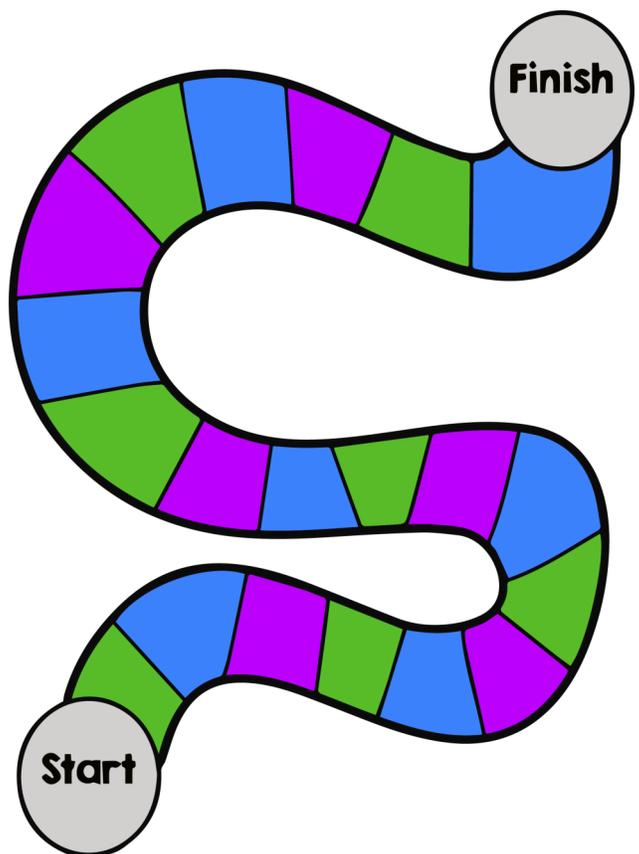
students help raise them in classrooms for a school year, making the terrapin stronger and more capable of surviving when they are returned to the island the following summer.

Researchers on Poplar Island are studying the survival of head started terrapins.

Up to 1000 diamondback terrapins hatch every on Poplar Island year. There are less mammal predators on Poplar Island, so survivorship is higher than typical habitat locations. They use the newly created wetland habitat as nesting grounds in the summer.

### 2. Explore (15 min):

Tell the students to line up at the first block of the gameboard. Read the card, roll the die and move ahead that many spaces. Ask the students to "act out" what the card says to do. Make sure to follow the directions on cards exactly. (Jump up and down, duck and cover, etc.) If time allows, they may play the game more than once, leaving about 15 minutes left at the end for conclusion and explanation. Supervise game play, answer questions, etc.



3. **Explain (5 min):**

Ask the students to sit down once they have completed the game. By a show of hands ask how many students survived as terrapins? How many did not? How many were able to lay eggs? Ask how hard it was to survive as a terrapin.

4. **Evaluate/Wrap-Up (10 min):**

Explain that there are many obstacles that terrapins face for survival and ask the students to share some examples of both positive and negative things that happened to them. Ask the students to share the number of times they survived and the number of times they died. If they died, what was the cause of death (predation, accident, weather, etc.)? For those who survived, did you find fish, lay eggs, did your young survive? Ask students what they thought of the game. Is becoming an adult terrapin hard or easy? What role does habitat at places like Poplar Island play in the ability for the terrapin to survive? Ask them if they think the headstart program makes a difference for the terrapin survival? If so, how? Ask them if they think it makes a difference to create and protect nesting grounds and habitat: food water, shelter, and space.

**DIVE DEEPER**

Ask students who survived and have a red dot on their "food" clothes pin (picked up during the game). Tell students that they didn't do anything wrong. A terrapin scientist captured you and gave you a passive integrated transponder (PIT tag). If terrapins with PIT tags are recaptured throughout their life, to find out if they hatched on Poplar Island, and if they were part of the head start program. Understand the population and life cycle of terrapins? Will it help us to assess whether projects such as the restoration of Poplar Island is a success?