

Build-A-Horseshoe Crab

Horseshoe crabs are one of the most fascinating creatures in the Delaware Bay. This activity will guide you through the basics anatomy of a horseshoe crab, and you will even make your own!

Horseshoe Crabs in the Delaware Bay

Did you know that the world's largest population of spawning horseshoe crabs can be found in the Delaware Bay? Spawning is the process of adult horseshoe crabs gathering on the shoreline to lay and fertilize eggs. Each year,



a female horseshoe crab can lay from 80,000 to 100,000 eggs! One of the key reasons horseshoe crabs come here to spawn is because Delaware's bay beaches have the perfect combination of salinity (saltiness of the water), temperature, texture of sand, and are protected from the harsh waves and wind of the ocean.

Fun Fact Quiz

1. How long have horseshoe crabs been around?
 - a. 330 million years
 - b. 55 million years
 - c. 445 million years
 - d. 20 million years
2. Which animal is most closely related to a horseshoe crab?
 - a. An elephant
 - b. A spider
 - c. A fox
 - d. A crab
3. How many eyes does a horseshoe crab have?
 - a. 4
 - b. 2
 - c. 8
 - d. 10

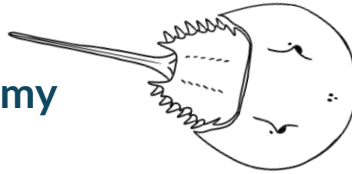


4. What color is horseshoe crab blood?
 - a. Blue
 - b. Green
 - c. Pink
 - d. Purple
5. What affects the time of day that horseshoe crabs come onto the beach to lay eggs?
 - a. Wind
 - b. The moon and tides
 - c. Sand
 - d. Temperature
6. What bird is famous for its long migration from South America to the Arctic, stopping along the way to eat horseshoe crabs?
 - a. Pelican
 - b. Red Knot
 - c. Penguin
 - d. Eagle

Answers:

1. C: Fossils of horseshoe crabs have been found from 445 million years ago!
2. B: Despite their name, horseshoe crabs are more closely related to spiders than to crabs!
3. D: Horseshoe crabs have 10 eyes. Check out the next page to learn even more about how they can see the world around them.
4. A: Horseshoe crab blood is blue! Human blood is red because it is iron based. Horseshoe crabs have blue blood because it is copper based.
5. B: Horseshoe crabs will come up to the beach at high tides, especially during full and new moons.
6. B: Red knots are famous for stopping at the Delaware Bay to eat horseshoe crab eggs during their spring migration to the Arctic.

Horseshoe Crab Anatomy

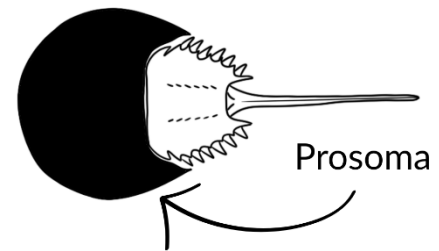


Shell

- Horseshoe crabs can be divided into three main segments

- Prosoma

- The largest section of a horseshoe crab's shell is rounded like a horseshoe, giving the species its name!
- Most of a horseshoe crab's many eyes are on its prosoma!
- On the underside of the prosoma are its many legs and other important organs.



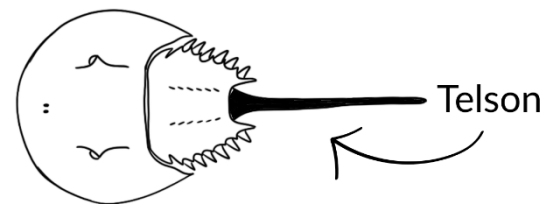
- Opisthosoma

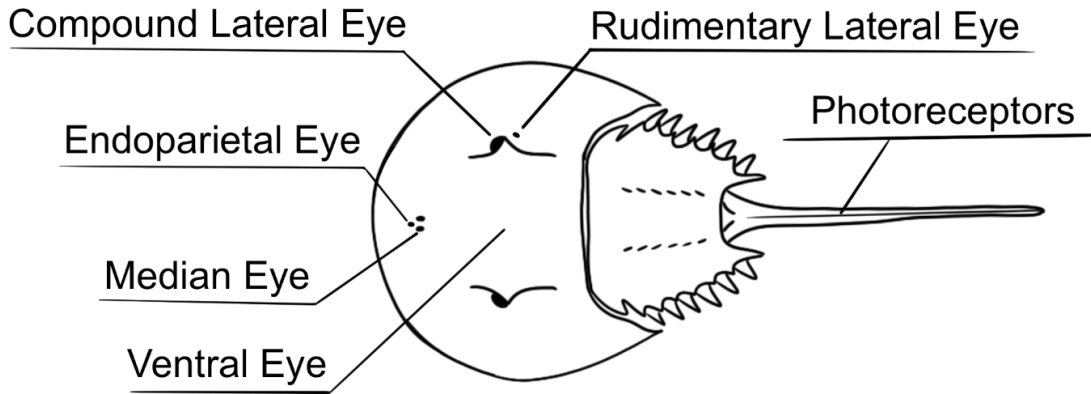
- The middle section of the shell is the opisthosoma, also called the abdomen.
- This part of the shell has moving spines to help horseshoe crabs sense around them.
- The underside of this section has many muscles and gills.



- Telson

- The third section is the tail of the crab, also known as the telson.
- The telson plays an important role in sensing the world around them.
- They also use their tail to flip themselves over if they are upside down so that their gills stay wet so that they can still breathe.
- Their tails are not poisonous, do not sting, and are delicately attached to their bodies. DO NOT pick up a horseshoe crab by their tail.





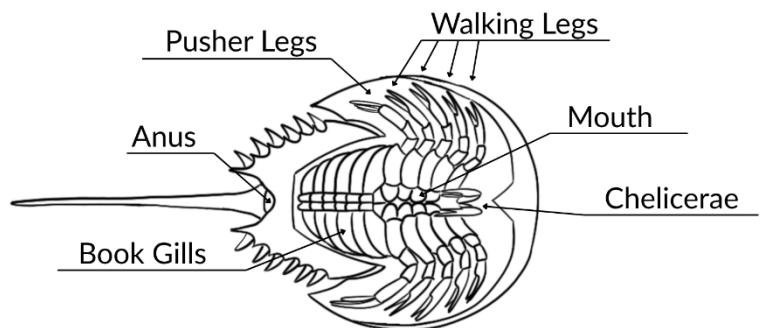
Eyes

Did you know horseshoe crabs have 10 eyes?

- They have two compound eyes on their prosoma. These eyes are made up of hundreds of lenses and let them see images.
- Eight of the eyes are light-sensing eyes; two median eyes, one endoparietal eye, two rudimentary lateral eyes, two ventral eyes on the underside, and many photoreceptors counted as one eye along the telson.

Legs and Mouth

- Horseshoe crabs have 8 **walking legs**. They also have two **pusher legs**, located after the last set of walking legs.
- Like spiders, horseshoe crabs have two appendages near the front of their mouth known as **chelicerae**. These help to grab food and put it into their mouth.
 - Their mouths are located at the base of their legs, and have spiny parts called **gnathobases** that grind their food.

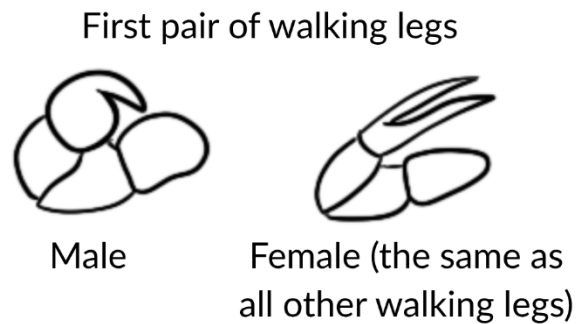


Breathing

- Horseshoe crabs have book gills, which are flap-like appendages that help horseshoe crabs breathe and can help them to swim.
- When horseshoe crabs' book gills move, they look like pages of a book!

Male vs. Female

- Males have a more pronounced curve at the front of their prosoma.
- Females are much larger than males once fully grown.
- The first pair of walking legs of males are a modified shape to help them grasp onto the shell of the females.



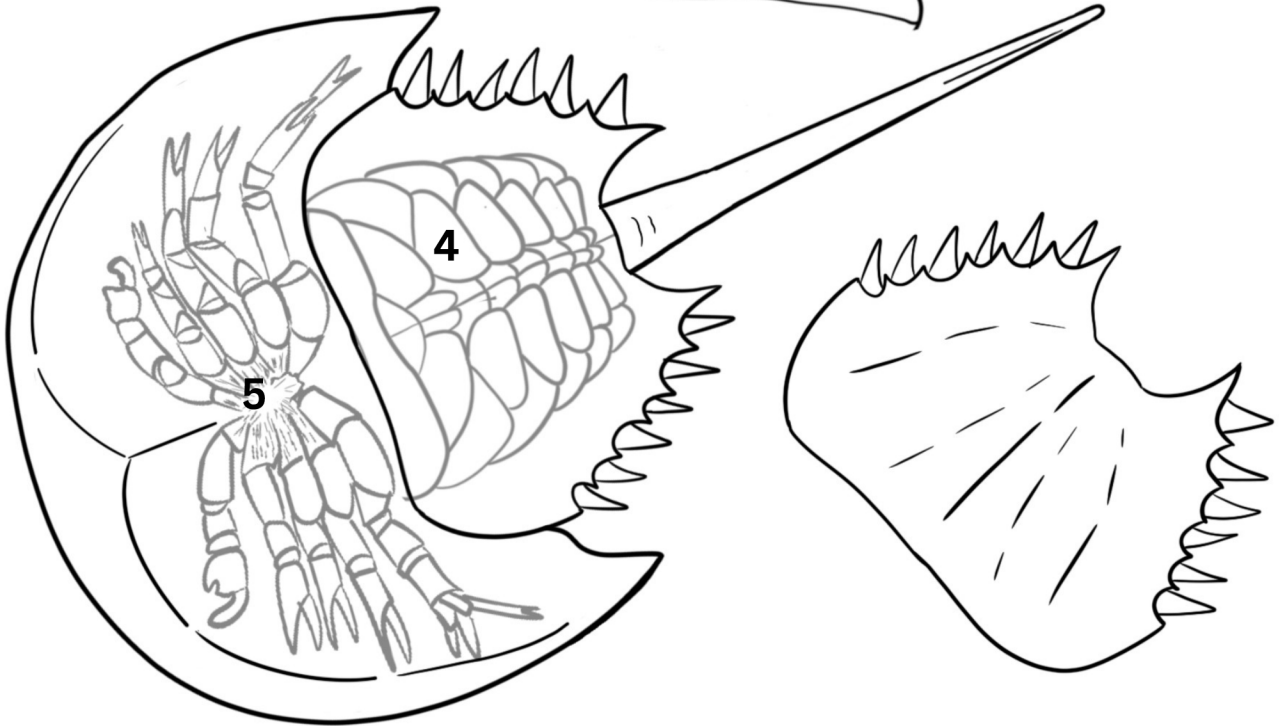
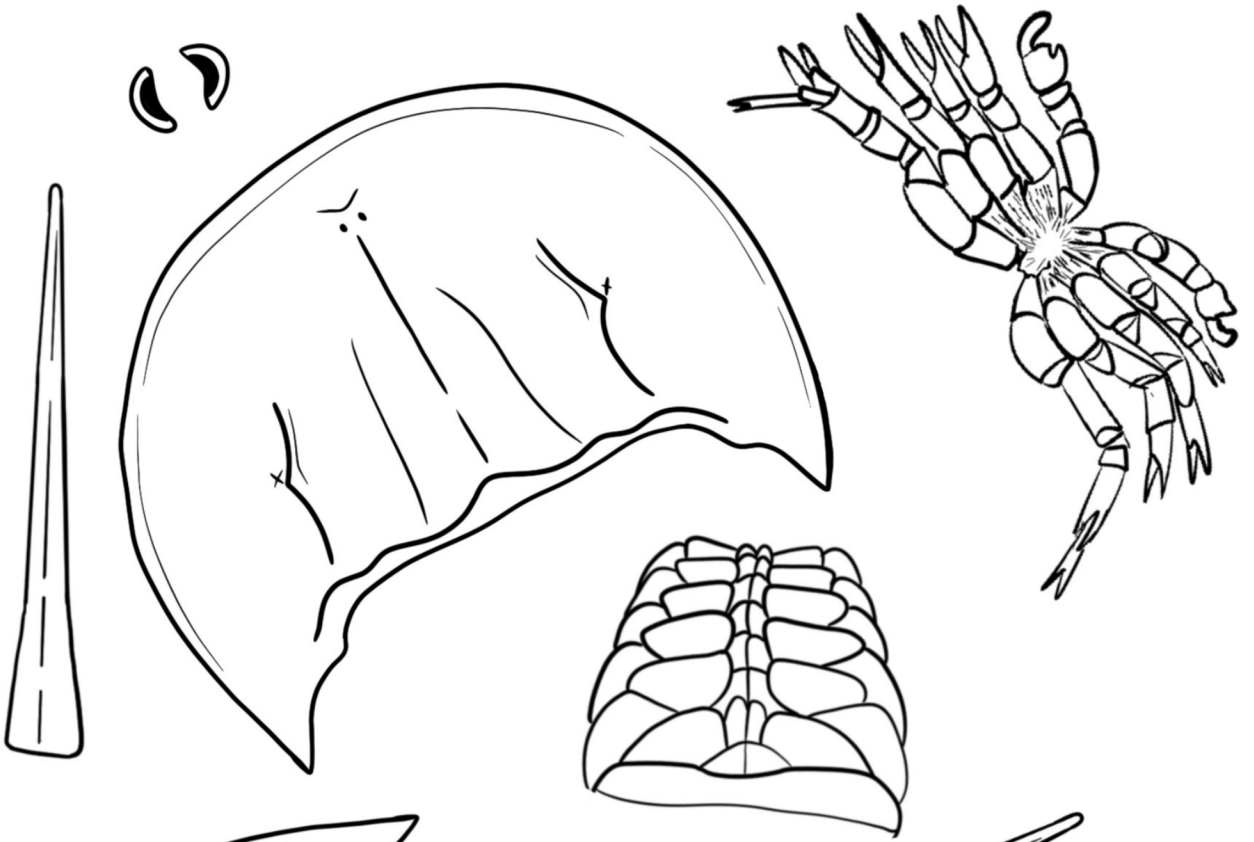
Blue Blood

- Horseshoe crab blood is blue!
- Horseshoe crab blood has great clotting properties and is very good at keeping horseshoe crabs healthy.
- A test known as Limulus Amebocyte Lysate (LAL) is made from horseshoe crab blood.
 - The LAL test is used to make sure all medicine and medicinal tools such as vaccines are free from bacterial endotoxins.
 - If you've ever had a surgery, shot, stitches, prosthetic, or even wear contact lenses, you can say thank you to horseshoe crabs for keeping you safe!

Build a Horseshoe Crab Activity

1. Color the pieces of the horseshoe crab
2. Cut horseshoe crab pieces out from the paper
3. Glue the pieces together in order, starting with #1, so that the numbers are touching. (ex. The blank side of the tails with the #1 should be glued together, so that the color/horseshoe crab details are on the outside)
4. For the #4 and #5 pieces, they will be glued to the colored part of the horseshoe crab, in their numbered areas (see example picture)
5. After all numbered pieces are glued together, glue the eyes to the Xs on the top part of the head (see example picture)





5

3

4

1

1

2

3

2