

## TEST YOUR KNOWLEDGE

1. What is an estuary?
  - a. A coastal habitat that is only found in Long Island Sound.
  - b. An area where salt water and fresh water meet in a body of water.
  - c. All the oceans of the world.
  - d. A type of plant found in brackish water.
2. What makes the coastal grasslands different from the salt marsh?
  - a. The coastal grasslands are always covered by the water and the salt marsh never has water in it.
  - b. The coastal grasslands have a dense layer of peat to anchor them into the sand.
  - c. The coastal grasslands are home to birds, but not fish and crabs because it is not usually covered by water.
  - d. None of the above.
3. Which of these habitats means, “between the tides?”
  - a. Sandy beach
  - b. Coastal grasslands
  - c. Rocky intertidal zone
  - d. Salt marsh
4. Which of these is NOT a way that animals use the sandy beach?
  - a. Horseshoe crabs lay their eggs in the sand.
  - b. Birds eat the small invertebrates living in the sand.
  - c. Animals use the layers of sand differently because some layers are wet and some are dry.
  - d. Small invertebrates live in the upper dry sand layer where there are a lot of nutrients.
5. Which of these is the correct pairing of a type of adaptation with an example of that adaptation?
  - a. Migration is a behavioral adaptation because it is triggered by the changing of season.
  - b. Hibernation is a physical adaptation because the animal slows its body down.
  - c. Webbed feet are a behavioral adaptation because they help an animal swim faster.
  - d. All of these are correct.
6. Why is the mud snail’s shell an important adaptation in the rocky shore?
  - a. The shell camouflages with the dark background so it can hide from prey and surprise them.
  - b. The shell camouflages with the dark background to hide from predators.
  - c. The snail grows food on its shell that it can eat when it has no food to eat.
  - d. The shell collects water during high tide so they can close their shell during low tide.
7. What adaptation do fish have to help them get oxygen in the water?
  - a. Flabellum
  - b. Gills
  - c. Lungs
  - d. Mouth

8. Which of the following correctly describes how the crabs have adapted differently to live in either the rocky intertidal zone or the salt marsh?
- Fiddler crabs play dead from all the birds that try to eat them in the salt marsh and chocolate fingered mud crabs have extra-large claws to scare away predators because there are not a lot of places to hide in the rocky intertidal zone.
  - Fiddler crabs can only live on the blades of grass to get their food and chocolate fingered mud crabs can only break down the dead animals in the rocky intertidal zone.
  - Fiddler crabs in the salt marsh can make burrows under the ground, but in the rocky shore the chocolate fingered mud crabs have to hide under rocks because they can't go underground.
  - Fiddle crabs in the salt marsh can make burrows under the ground to hide, but in the rocky shore the chocolate fingered mud crabs have special legs to help them swim to move when the tide changes.
9. A(n) \_\_\_\_\_ is the combination of all living and non-living things in an area.
- Biotic
  - Abiotic
  - Ecosystem
  - Estuary
10. Which of these is NOT an example of a biotic factor in Long Island Sound?
- The sunlight that is used by producers to make food.
  - A producer that makes food from the sun.
  - A consumer that eats producers.
  - A decomposer that breaks down dead consumers.
11. Which of these is a way that biotic factors rely on or need abiotic factors?
- The salt marsh grass needs animals called mussels to hold the grass roots together.
  - Small crabs use the rocks to hide under during low tide.
  - The rocks hold down the sand so it does not wash away when the tide changes.
  - None of the above.
12. Why is it important for polychaete worms to live in the muddy bottom?
- They stir up the mud, pulling oxygen into the mud.
  - They are food for animals higher up on the food chain.
  - They are able to move around between the layers of mud to find food.
  - All of the above.
13. True or False. Abiotic factors never have a negative effect on the biotic factors of an ecosystem.
14. Which of these is an adaptation that beach grass uses to prevent water loss?
- Ribs on their leaves help them roll up the leaf to prevent water loss.
  - They spit out the salt on their leaves to prevent the salt from drying them out.
  - They have extra wide, thick leaves to hold more water.
  - Their leaves are able to share water from other plants around them.

15. Which of these statements is FALSE about coastal plants?
- Their root systems help to stabilize the ground.
  - They are able to live in areas with less nutrients.
  - Coastal plants never come into contact with the water in Long Island Sound.
  - Coastal plants have to release seeds just like inland plants.
16. Which of these statements is TRUE about marine plants?
- Marine plants have extra-large leaves to help them anchor onto rocks.
  - Marine plants have holdfasts, which act like roots to take in nutrients.
  - Marine plants have salt glands to get rid of the salt in their body.
  - Marine plants have air bladders to keep them at the surface to get sunlight.
17. The tides are controlled by
- The sun
  - The moon
  - The stars
  - Mars
18. True or False. A tidal bulge means that an area of the earth is experiencing low tide.
19. Why are tides important to areas like Long Island Sound?
- The tides bring in nutrients from other areas of Long Island Sound and the Atlantic Ocean.
  - The tides move animals around so predators can hunt smaller animals.
  - The tides help prey animals hide from large predators.
  - All of the above.
20. How do boaters know if an area is safe to drive in during high and low tide?
- They should only drive in areas they are used to because there is no way to know how deep the water will be at high or low tide.
  - Boaters can use a bathymetric chart or an app on their smartphone, which tells them the height of the water at high and low tide.
  - Boaters must have a depth sounder instrument on their boat so they know if the area is safe to drive in.
  - Boaters must use a special kind of anchor to measure the depth of the water as they are driving in a body of water.
21. Why are freshwater rivers important?
- They provide nutrients to bodies of water like Long Island Sound.
  - They provide drinking water to people living around them.
  - The provide habitat to plenty of invertebrates and other animals.
  - All of the above.

22. How can insects be used to determine the health of a river?
- a. Scientists can collect insects and use a guide to determine how tolerant they are to pollution.
  - b. Scientists can measure the oxygen level of the river to make sure there is enough oxygen for insects to survive.
  - c. Scientists can survey the river for the food that insects eat and if there is enough food, the river is healthy.
  - d. Scientists can test the water chemistry inside the insects to make sure their water is healthy.
23. Which of these statements is true about monitoring the health of a river?
- a. Scientists should never monitor the health of rivers.
  - b. Scientists should only measure the insects once because the health of the river will not change.
  - c. Scientists should monitor the river regularly because pollution can get into the river in a lot of different ways.
  - d. Scientists should only measure the insects when adding new buildings directly along the river.