

E³: EXPLORATION, ECOLOGY, & THE ENVIRONMENT

LESSON OVERVIEW

OBJECTIVE

Students will reinforce their knowledge of different types of local habitats through writing activities and arts & crafts.

RECOMMENDED GRADE LEVELS

K-5

DURATION

20- 40 minutes, multi-day

MATERIALS

- Whiteboard & markers
- Brooklyn Bridge Park Wildlife illustrated posters and coloring sheets (provided)
- “*Brooklyn Bridge Park Habitats Venn Diagram*” student worksheet (provided)
- Whiteboard & markers
- Crossword puzzle (provided)
- Craft materials to build shoebox dioramas.

TOPIC BACKGROUND

Brooklyn Bridge Park provides an urban oasis for both people and local wildlife. Sustainability and **ecological restoration** were important design considerations. Features like playgrounds and sports fields are mixed between native wildflower fields, edge woodlands, and **salt marshes**.

The park’s various **ecosystems** provide **habitats** for many local organisms. A habitat is an animal’s home or area where it lives. Habitats must provide food, water, shelter, and a place for raising young.

As people continue to **urbanize** land, many animals have had to either **adapt** or relocate in order to continue meeting their **survival** needs. Restoring native vegetation and green space, along with protecting the health of our waterways will enable native animals to return and thrive in New York City.

Brooklyn Bridge Park has already begun to see the return of many animals once inhabitants to this area, including, opossums, herons, horseshoe crabs, red tailed hawks, and seahorses.

GETTING READY

Activity 1:

Print a copy of the Venn diagram worksheet or wildlife coloring sheets for each student. Set up a computer projector screen to show students the 2 park wildlife posters (or print them out)

Activity 2:

Print a copy of the crossword puzzle for each student.

Activity 3:

Request each student try to bring in a shoebox or small cardboard box. If creating habitat dioramas at school, make sure you have enough craft supplies (crayons, scissors, glue, paper, pipe cleaners, clay, etc) Encourage your students to think outside of the box on ways to use other household materials too such as magazine clippings, cardboard, plastic packaging, foil, string, buttons, cotton balls, etc.

PROCEDURE

ACTIVITY 1: COMPARING LAND & WATER HABITATS

1. Screen project or print the Brooklyn Bridge Park Conservancy wildlife posters for your students to observe and use as reminder for what they saw and learned when visiting the Environmental Education Center. (Note: larger printed posters might be available for you to take during your trip visit. Be sure to ask an educator before leaving!)
2. Have students compare and contrast the two nature scenes. Hand each student a Venn diagram worksheet (provided) to record their observations. **For younger students**, talk as a group about what they see in the pictures, writing down key words and vocabulary on the board as you go along (eg. water, crab, leaves) or play "I SPY" (eg. I spy an animal with a long beak). You can also use the wildlife coloring pages (provided).

ACTIVITY 2: CROSSWORD REVIEW (Gr 2+)

1. Students acquired a lot of new vocabulary during their visit to the Environmental Education Center. As a class assignment or take-home have students complete the crossword puzzle, which provides a review on of a few key topics explored.

ACTIVITY 3: HABITAT DIORAMAS

1. Have students create a habitat scene in a box (shoe boxes work the best). Either allow students to pick an animal of choice and research its proper habitat, or assign students animals or habitats previously discussed and studied in class.



2. We recommend using the park animals and habitats as inspiration! Show students the 5 park habitat images (attached) as a reminder of what some of our local habitats look like. Consider hanging up the images on easel paper and having students rotate around the room listing animals that might like to live in each of these settings. Allow students to use these lists when thinking about the habitat diorama they are creating.
3. When constructing dioramas, give or suggest students to use any craft supplies available, as well as think creatively on how to make use of other recycled materials they have such as magazine clippings,



PROCEDURE CON'T

cut up cardboard, clay, paper towel rolls, foil, old plastic containers, etc.

ALTERNATE ACTIVITY: If this project is too difficult for your students, try thinking of ways to have your students help you turn your classroom or bulletin board into a specific land or water habitat.



TEACHER NOTES:

RECOMMENDED BOOKS

- *Where Do Animals Live?* by Alejandro Algarra & Rocio Bonilla
- *What's Your Habitat?* by Sarah Leidhold
- *Biomes and Habitats - 10 Book Set* by Teacher Created Materials
- *National Geographic Kids Readers: Animal Homes* by Shira Evans
- *A Journey Into an Estuary* by Rebecca L. Johnson

RECOMMENDED WEBSITES

National Geographic: Habitat Needs
<https://www.nationalgeographic.org/activity/habitat-needs/>

Generation Genius: Habitat video & lesson plans
<https://www.generationgenius.com/videolessons/habitats-video-for-kids/>

VOCABULARY

Adapt: A behavior or change made in order to survive.

Adaptation: A feature of an animal that help it survive. Ex: thick fur, webbed feet, long beak.

Arctic: A very cold region around the North Pole.

Breeding: The mating and production of offspring by animals.

Desert: A dry region, predominately covered in sand and little vegetation.

Ecology: the study of the relationships between living things and their surroundings, or environment.

Ecological restoration: The process of assisting in the recovery of an ecosystem that has been degraded, damaged, or destroyed

Ecosystem: A community of living and nonliving things interacting.

Estuary: A area of water where the river meets the sea, causing brackish water (a mix of saltwater and freshwater).

Forest: An ecosystem densely covered by trees and other vegetation.

Freshwater: Naturally occurring water which contains no salt. Ex: rain, snow, glaciers, lakes, rivers and streams.

Grasslands: A region covered mostly by grasses and wildflowers where precipitation is too low to support large trees but high enough not to be a desert.

Green space: An area within an urban environment dedicated to nature.

Habitat: The area or environment where an organism or ecological community normally survives. A habitat provides an animal food, water, and shelter.

Predator: An animal that hunts, catches and eats other animals.

Prey: An animal being hunted, caught, and eaten by another animal.

River: Freshwater that flows across the surface of the land, normally winding its way to the sea.

Salt marsh: A costal grassland ecosystem regular flooded by salt (or brackish) water.

Salinity: The saltiness or dissolved salt content of a body of water.

Survival: To remain alive or continue to exist.

Ocean: A large body of saltwater.

Urban: an area, like a city, where many people live and work close together.

Wetlands: An area of land where the ground is often saturated, or filled with water.

Woodlands: A tree dominate habitat, also know as a forest.

STANDARDS

NYS NEXT GEN ELA

- Speaking and Listening
- Reading Informational Text
- Foundational Skills
- Language

NYS NEXT GEN MATH

- Counting and Cardinality
- Measurement and Data
- Quantities

NYS NEXT GEN SCIENCE

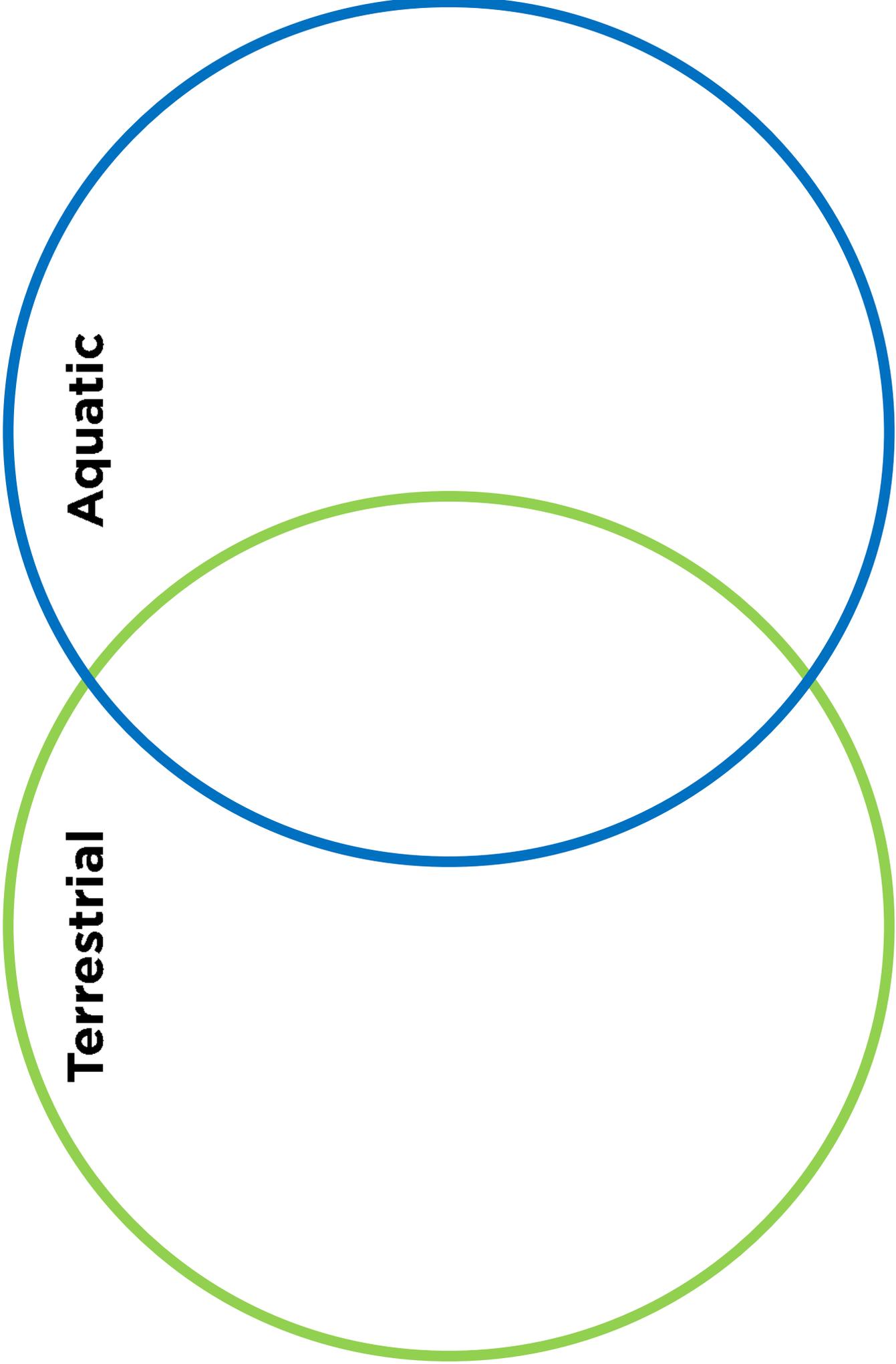
- K-3. Interdependent Relationships in Ecosystems:
1. Structure, Function, and Information Processing

NYC SCIENCE SCOPE & SEQUENCE

- K. Our Environment
1. Structures & Behaviors in Living Things
 2. Plant & Animal Interactions
 3. Interdependence

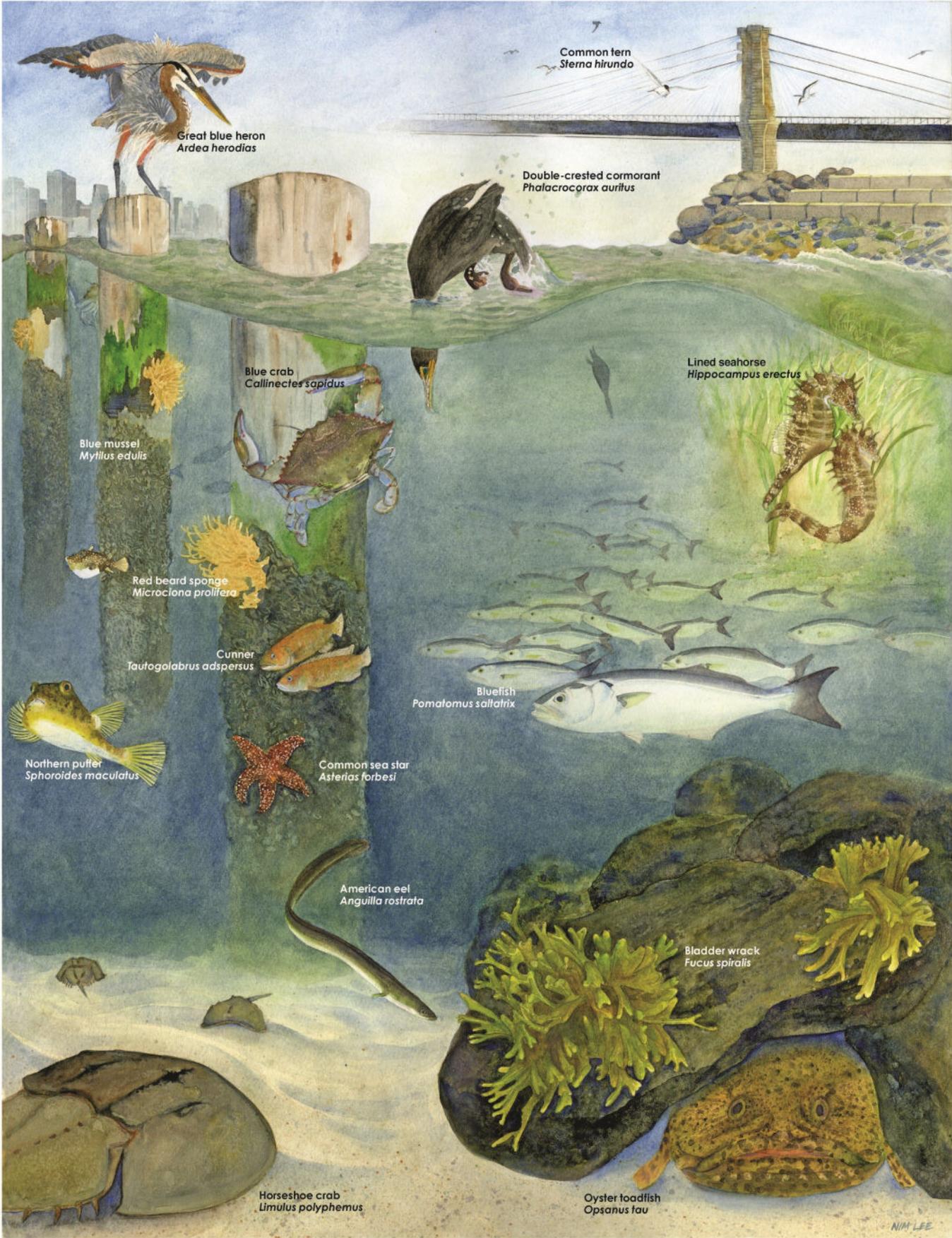


Brooklyn Bridge Park Habitats



Name: _____

ESTUARINE ANIMALS OF BROOKLYN BRIDGE PARK



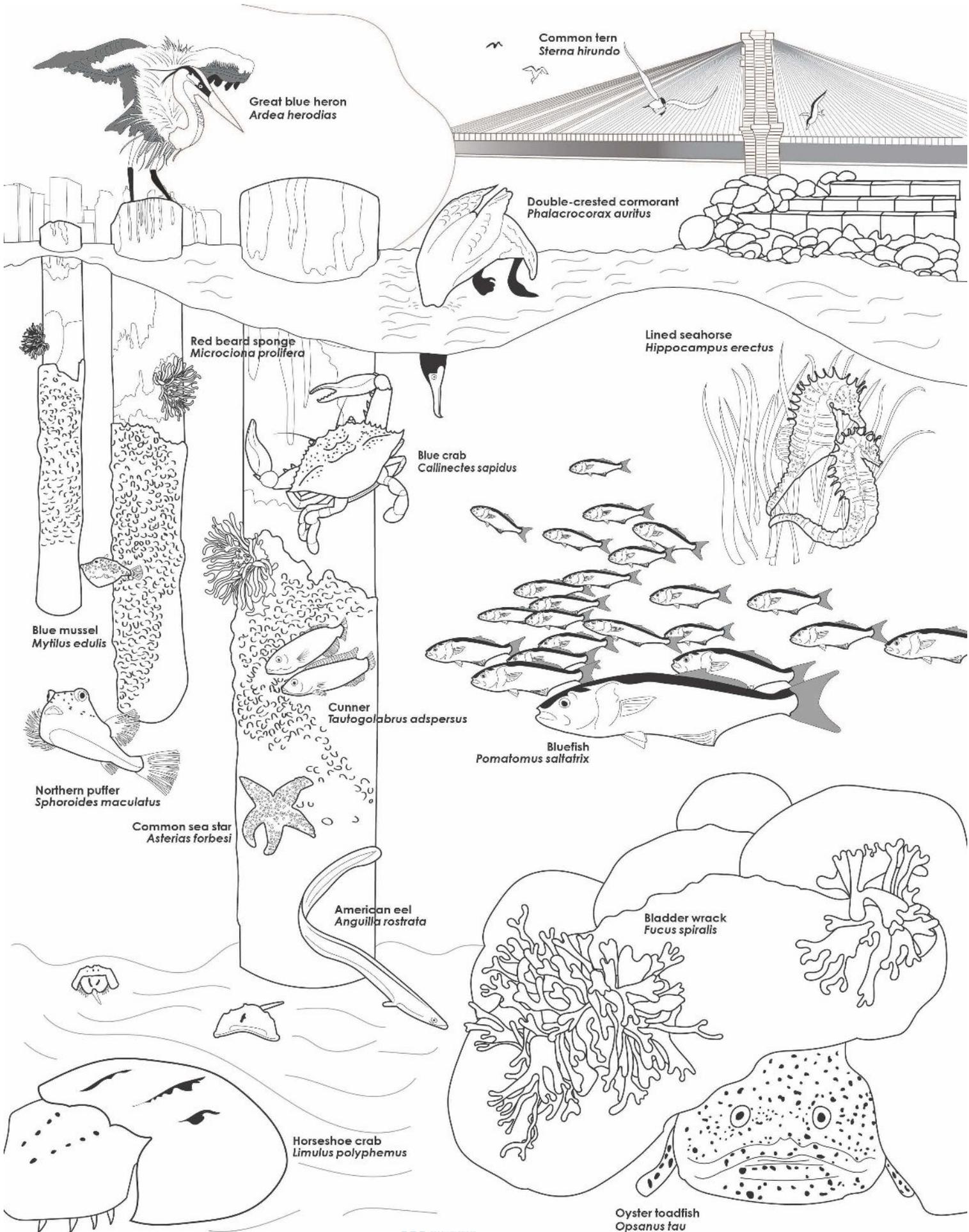
The East River is home to many forms of marine life. This estuary, a tidal strait connecting Upper New York Bay to Long Island Sound, is rich in nutrients and supports life large and small — from fish and invertebrates to plankton and algae. Here are a few of the charming creatures that you may meet when you visit Brooklyn Bridge Park.

LAND ANIMALS OF BROOKLYN BRIDGE PARK



The terrestrial habitats of Brooklyn Bridge Park are home to a variety of flora and fauna. Green spaces and native vegetation planted along the waterfront support a thriving ecosystem, containing everything from insects and flowers to birds and mammals. Here are a few of the plants and animals you may meet on a visit to Brooklyn Bridge Park.





Great blue heron
Ardea herodias

Common tern
Sterna hirundo

Double-crested cormorant
Phalacrocorax auritus

Red beard sponge
Microciona prolifera

Lined seahorse
Hippocampus erectus

Blue crab
Callinectes sapidus

Blue mussel
Mytilus edulis

Cunner
Tautoglabrus adspersus

Bluefish
Pomatomus saltatrix

Northern puffer
Sphoroides maculatus

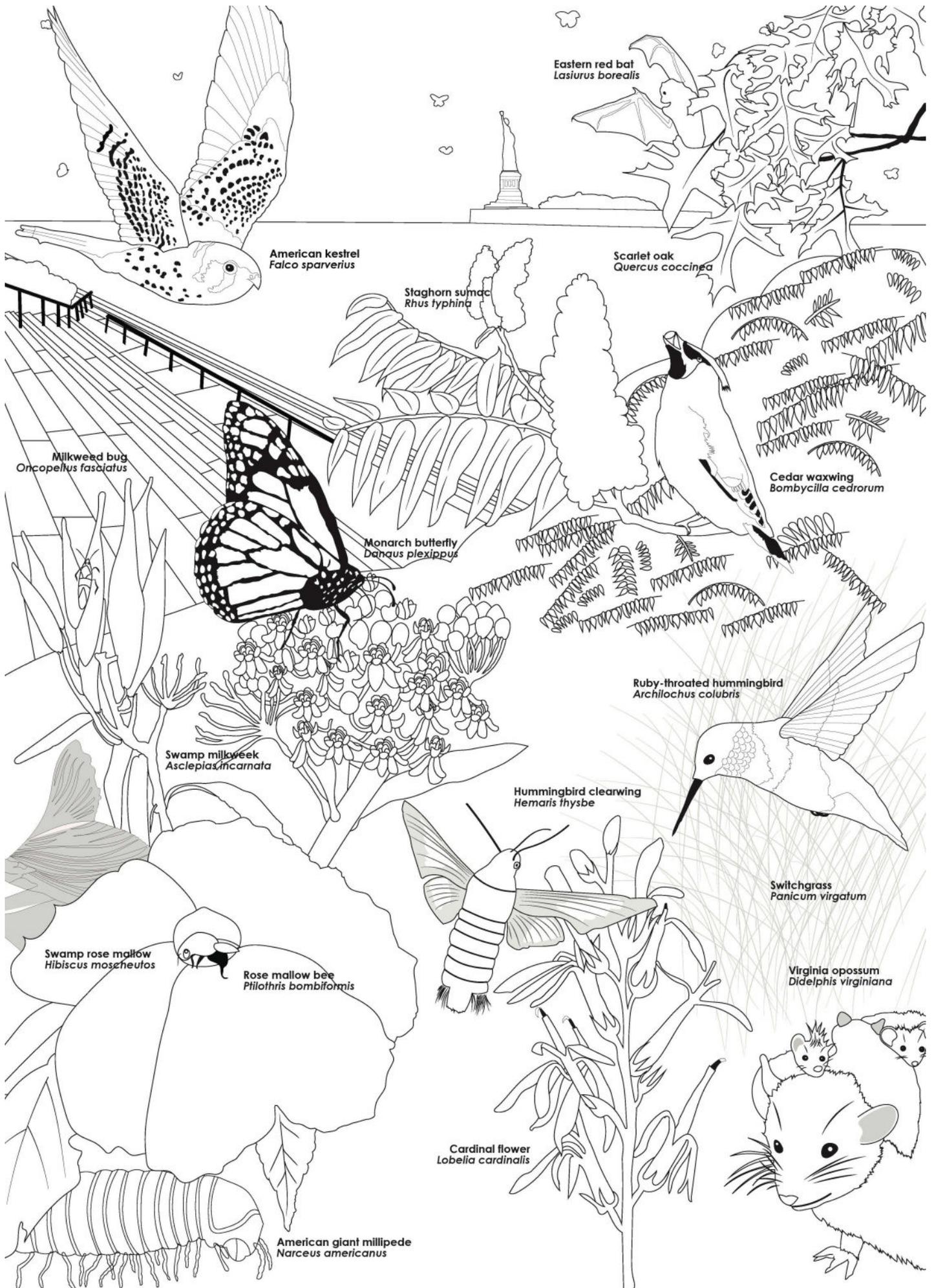
Common sea star
Asterias forbesi

American eel
Anguilla rostrata

Bladder wrack
Fucus spiralis

Horseshoe crab
Limulus polyphemus

Oyster toadfish
Opsanus tau



Eastern red bat
Lasiurus borealis

American kestrel
Falco sparverius

Scarlet oak
Quercus coccinea

Staghorn sumac
Rhus typhina

Milkweed bug
Oncopeltus fasciatus

Cedar waxwing
Bombycilla cedrorum

Monarch butterfly
Danaus plexippus

Ruby-throated hummingbird
Archilochus colubris

Swamp milkweed
Asclepias incarnata

Hummingbird clearwing
Hemaris thysbe

Switchgrass
Panicum virgatum

Swamp rose mallow
Hibiscus moscheutos

Rose mallow bee
Ptilothris bombiformis

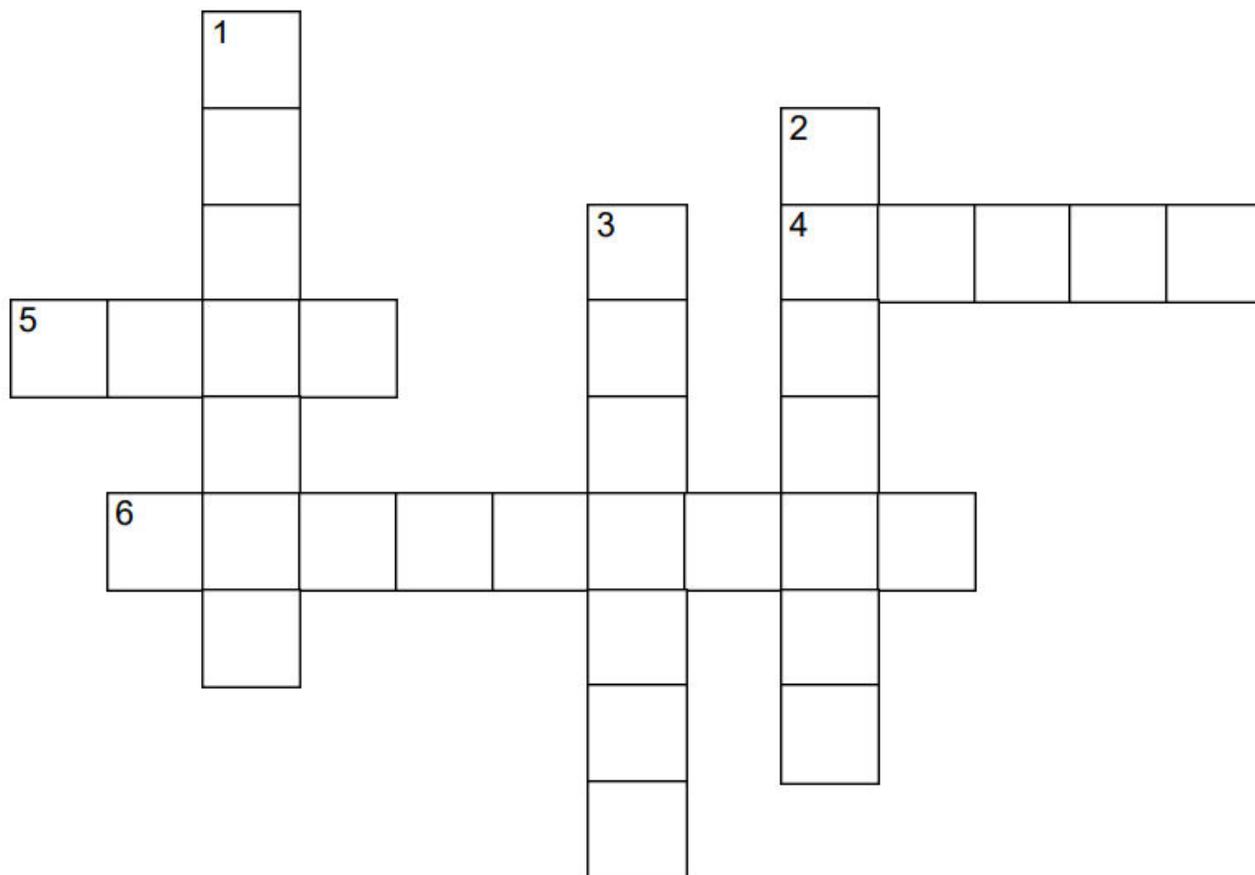
Virginia opossum
Didelphis virginiana

Cardinal flower
Lobelia cardinalis

American giant millipede
Narceus americanus

NAME: _____

Brooklyn Bridge Park Crossword Puzzle



DOWN

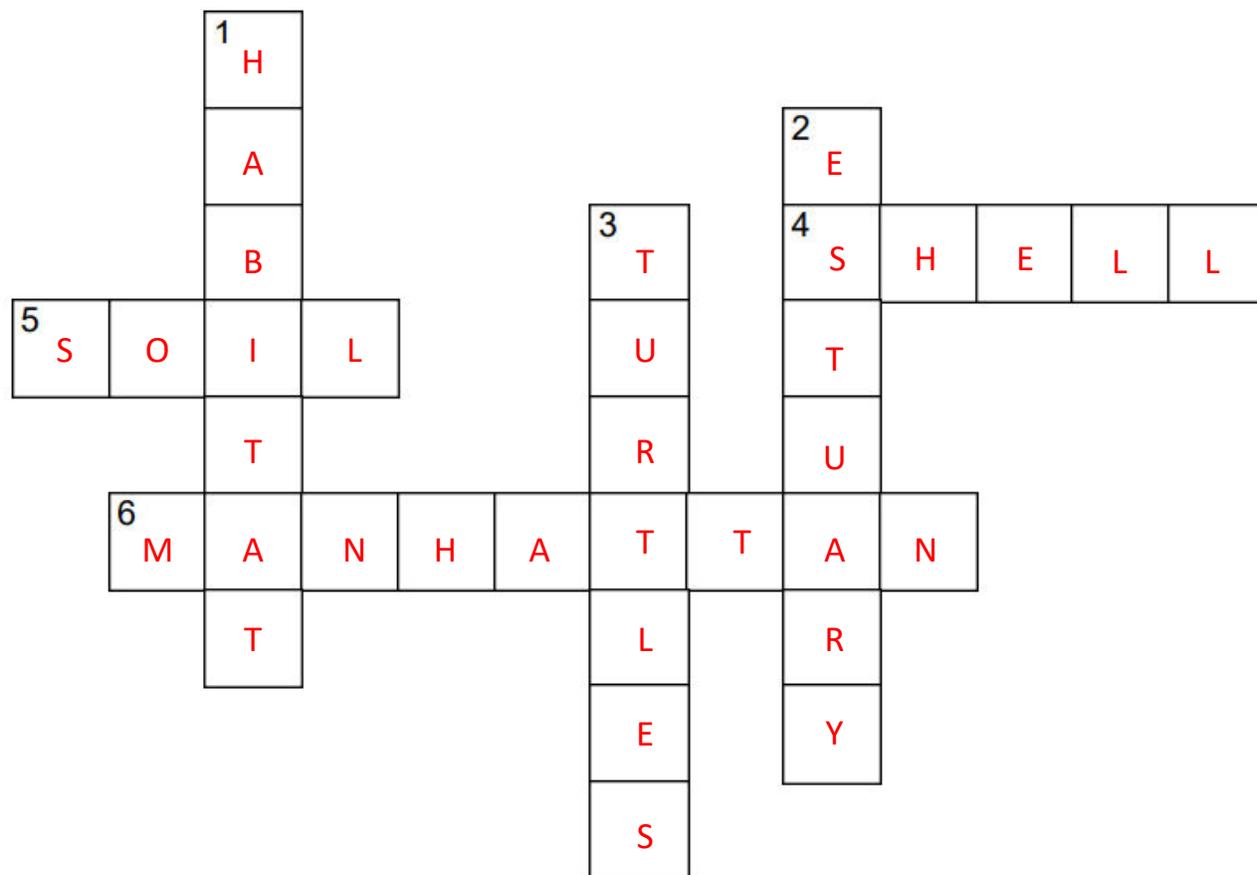
- 1) A area an animal lives that provides them food, water, and shelter.
- 2) The East River is this type of habitat .
- 3) Some of these reptiles are terrestrial, others prefer water habitats like ponds or the ocean.

ACROSS

- 4) A snail has this important form of protection.
- 5) Millipedes and worms like to hide in the _____.
- 6) Brooklyn Bridge Park Environmental Center is located under the _____ Bridge.

ANSWER KEY

Brooklyn Bridge Park Crossword Puzzle



DOWN

- 1) A area an animal lives that provides them food, water, and shelter.
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ACROSS

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FRESHWATER PONDS



Pier 1



WILDFLOWER FIELDS



Pier 6



EAST RIVER ESTUARY





EDGE WOODLANDS



Pier 1



SALT MARSH



JOHN STREET