

ROVE THE COVE

LESSON OVERVIEW

OBJECTIVE

Students will understand the difference between living, nonliving, and manmade objects.

RECOMMENDED GRADE LEVELS

K-4

DURATION

20 minutes

MATERIALS

- Student worksheet (provided)
- Whiteboard or large easel paper
- Scissors
- Glue
- Blank paper or a page in students' notebooks

TOPIC BACKGROUND

There are many living and nonliving things found in nature. A scientist calls living things **biotic** and nonliving things **abiotic**. Living things include all plants, animals, fungi and even bacteria. All living things grow, eat, move, breathe, and reproduce.

Nonliving objects can either be naturally occurring or **man-made**. If a nonliving object is man-made it has been created by a human or machine such as a chair, computer, or brick. Man-made objects are often made from things found in nature, for example, a desk can be made of wood which comes from a tree.

Some nonliving objects are natural. This means they are a part of nature and include things such as rocks, dirt,

sun, water, wind, and even fossil fuels like oil.

During your field trip to Brooklyn Bridge Park, students will be exploring and learning about the ecology and history of the East River estuary and intertidal zone. An **estuary** is a special name given to a body of **brackish** water. Brackish water is a mix of saltwater and freshwater. The brackish water creates a very unique environment for a lot of different living organisms.

The **intertidal zone** is an area of the shoreline which gets covered in water at high tide. In the intertidal zone, a mix of living and nonliving things can be found, including crabs, snails, rocks, sand, shells, bricks, algae, and driftwood.

GETTING READY

1. Print one copy of the living/nonliving image worksheet (provided) for each student.
2. Prepare easel paper or whiteboard for word cloud brainstorm activity.
3. Gather scissors, glue, and pencils for students to use to create their living vs. nonliving T-chart.

STANDARDS

COMMON CORE ENGLISH LANGUAGE ARTS STANDARDS

- Literacy in Historical/Social Studies
- Reading Informational Text
- Speaking and Listening
- Literacy in Technical Subjects
- Literacy in Science
- College & Career Readiness
- Writing Standards

NYC K-8 SCIENCE & SOCIAL STUDIES SCOPE & SEQUENCE

- Our Community Geography
- New York City Over Time
- Animals, Plants in their Environments
- The Nature of Science
- Exploring Ecosystems
- Diversity of Life
- Interdependence
- Humans in Their Environments
- Needs and Tradeoffs
- Earth Materials
- Properties of Water

NEXT GENERATION SCIENCE STANDARDS

K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

1. Structure, Function, & Information Processing
2. Interdependent Relationships in Ecosystems
3. Interdependent Relationships in Ecosystems
4. Structure, Function, & Information Processing

PROCEDURE

Introduction to Living Things

1. To go over the characteristics and definition of living things, do a think, pair, share activity with students.
2. First have students independently think of what it means something to be living. Then, pair up and create a word cloud or list of ideas together. Regroup the class to share and create a tally of the most frequently used words among the whole class. Consider generating your own class definition of a living thing!

*Alternatively, the teacher may choose to modify based on age and abilities. A teacher-led word cloud might be better for younger students. Or an individualized assignment for older students.

1. By the end of this activity, students should learn or recall that living things:
 - Are made up of cells
 - Grow and develop
 - Require and use energy (obtained by consuming food & water)
 - Breathe
 - Reproduce
 - Often move

Living versus Nonliving Sort

1. Tell students there are many living and nonliving things found in nature. A scientist describes something living as being **biotic** and something nonliving is referred to as **abiotic**. Explain to students that during their upcoming visit to Brooklyn Bridge Park, they will be exploring the shoreline and searching for biotic and abiotic objects.
2. To become familiar with the terms biotic/abiotic and begin thinking about what things living and nonliving things might be found in the Park, have students complete a sorting activity using the images provided.
3. Begin by having students draw a T chart in their notebooks or on a piece of paper, labeling one side living(biotic) and the other side nonliving (abiotic).
4. Provide one sheet of images to each student. Have them cut

PROCEDURE CON'T

each out individually, then place under the appropriate column of the chart.

5. If desired, after students complete their living/nonliving sort have them sort again, this time creating a third group: **man-made objects**. Man-made objects are nonliving, and are not naturally occurring. Unlike water, rocks, and wind, man-made objects are not a part of nature, but rather created by a human.
6. Once students have completed all sorting activities correctly, have students glue down their pieces under the appropriate columns and labels.

RECOMMENDED BOOKS

- *Living or Nonliving?* by Kelli Hicks (Gr. K - 2)
- *What's Alive?* by Kathleen Weidner Zoehfeld (Gr. K- 4)
- *A Journey Into an Estuary (Biomes of N. America)* by Rebecca L. Johnson (Gr. 3 +)
- *Hudson River: An Adventure from the Mountains to the Sea* by Peter Lourie (Gr. 2 +)

RECOMMENDED WEBSITES

Living and Nonliving Things (video for kids)
www.youtube.com/watch?v=5nOmKuHKM8A

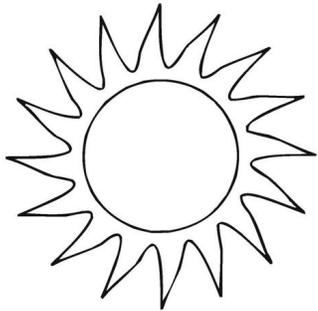
Living versus Nonliving (video for kids)
www.youtube.com/watch?v=BEz7RPvQCAI

About the Intertidal Zone
www.enchantedlearning.com/biomes/intertidal/intertidal.shtml

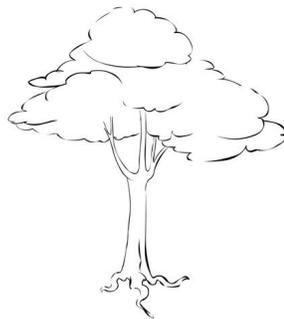
Estuary Education
www8.nos.noaa.gov/estuaries101

Abiotic and Biotic Factors (video for kids)
https://www.youtube.com/watch?v=E1pp_7-yTN4

TEACHER NOTES:



SUN



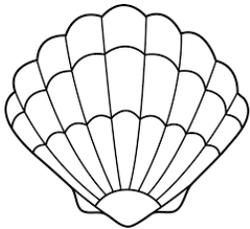
TREE



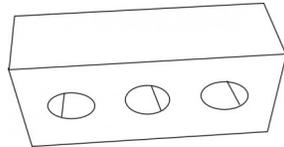
ROCK



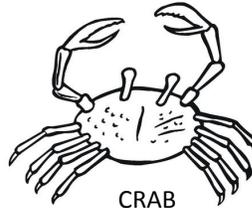
FLOWER



SHELL



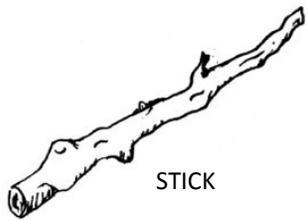
BRICK



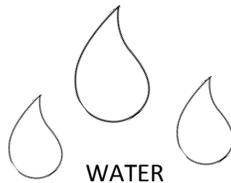
CRAB



HUMAN



STICK



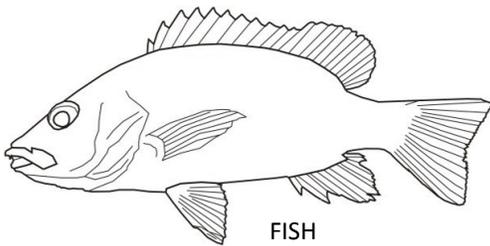
WATER



PLASTIC BOTTLE



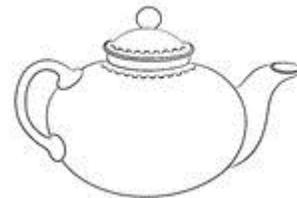
GRASS



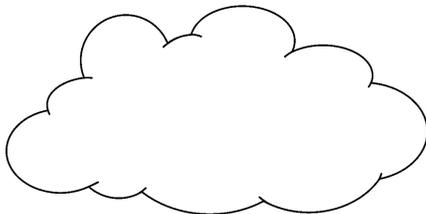
FISH



OIL



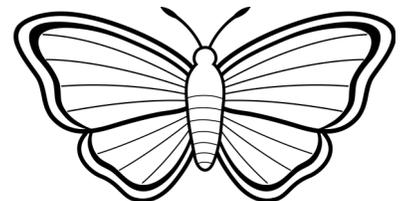
POTTERY



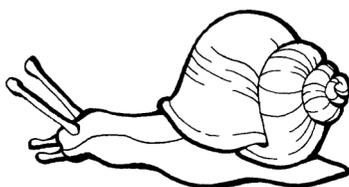
CLOUD



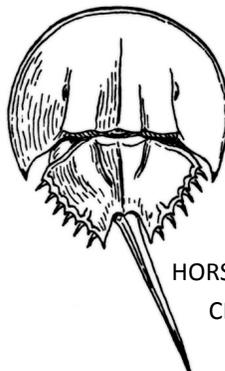
ALGAE



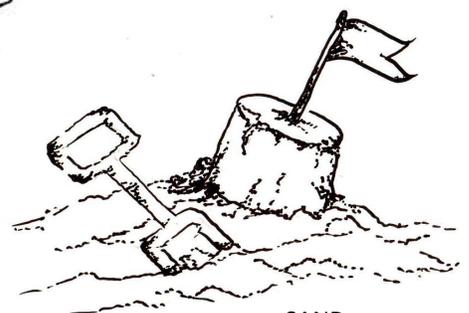
BUTTERFLY



SNAIL



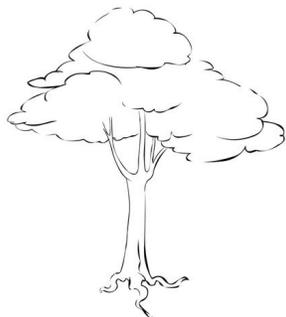
HORSESHOE
CRAB



SAND

ANSWER KEY

LIVING (BIOTIC)



TREE



GRASS



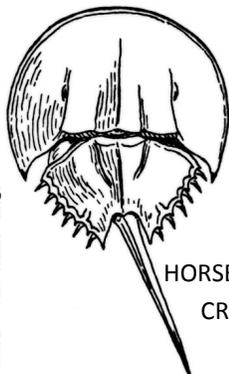
HUMAN



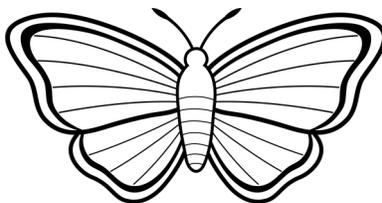
FLOWER



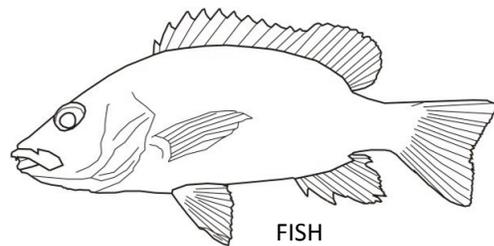
ALGAE



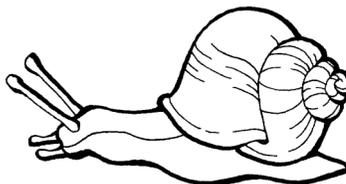
HORSESHOE
CRAB



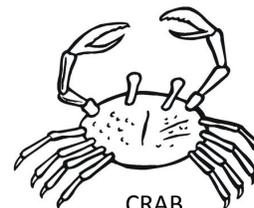
BUTTERFLY



FISH



SNAIL

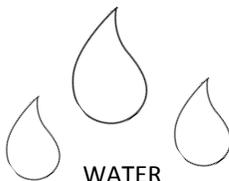


CRAB

NONLIVING (ABIOTIC)



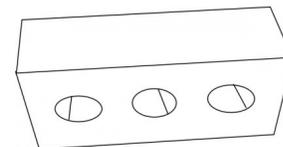
ROCK



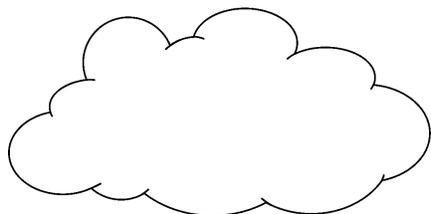
WATER



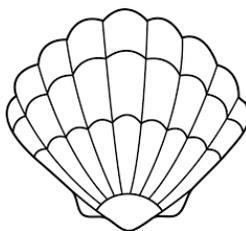
PLASTIC BOTTLE



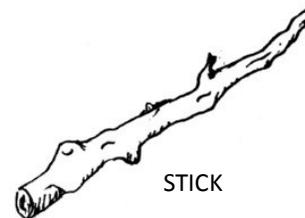
BRICK



CLOUD



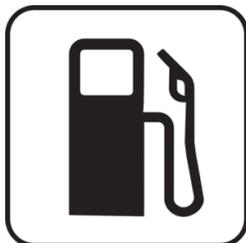
SHELL



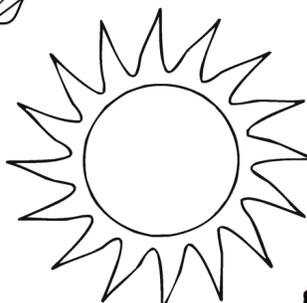
STICK



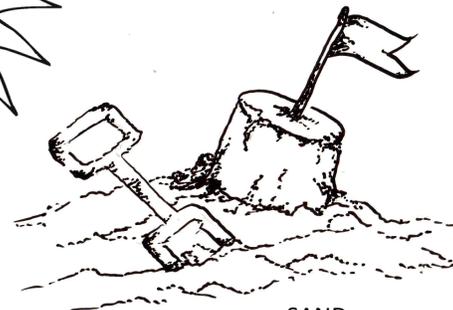
POTTERY



OIL



SUN



SAND

★ = MAN-MADE OBJECT

Vocabulary

Algae: a plantlike organism that grows and lives in water. Algae comes in shades of green, brown, and red. It has many shapes and textures. Sometimes people call it seaweed.

Abiotic factors: those nonliving physical and chemical factors which affect the ability of organisms to survive and reproduce.

Biotic factors: The living portion of an environment.

Bivalve: an aquatic mollusk that has a soft body enclosed within a hinged shell, such as oysters, clams, mussels, and scallops. In other words, an animal with two shells.

Brackish: Slightly salty water, due to the mixture of freshwater from rivers and streams and seawater.

Driftwood: pieces of wood or tree debris that are floating on the water or have been washed ashore.

Ecosystem: community together with its environment, functioning as a unit.

Estuary: A semi-enclosed body of water containing both fresh and salt water.

Habitat: The area or environment where an organism or ecological community normally lives or occurs.

Horseshoe crab: are marine arthropods that live primarily in and around shallow ocean waters on soft sandy or muddy bottoms. They are considered living fossils and more closely related to spiders than actual crabs. Despite their fierce looking shells, they are completely harmless. The sharp looking tail is used for movement and allows them to flip themselves over if they are upside down.

Intertidal zone: the area that is above water at low tide and under water at high tide. Also known as the seashore or shoreline and sometimes referred to as the littoral zone.

Living thing: organisms composed of cells that display the key characteristics of life. These characteristics include the ability to grow, reproduce, take in and use energy, excrete waste, respond to the environment, and possess an organized structure.

Man-made: made or caused by human beings (as opposed to naturally occurring); artificial.

Nonliving: Not having the characteristics of life.

Natural: existing and produced by nature; not artificial

Tidal Strait: A channel that connects two saltwater bodies. The East River is technically a tidal strait because it connects the New York Bay to the Long Island Sound.

Univalve: a mollusk with a shell consisting of a single valve or piece, such as a snail. Also known as gastropods.