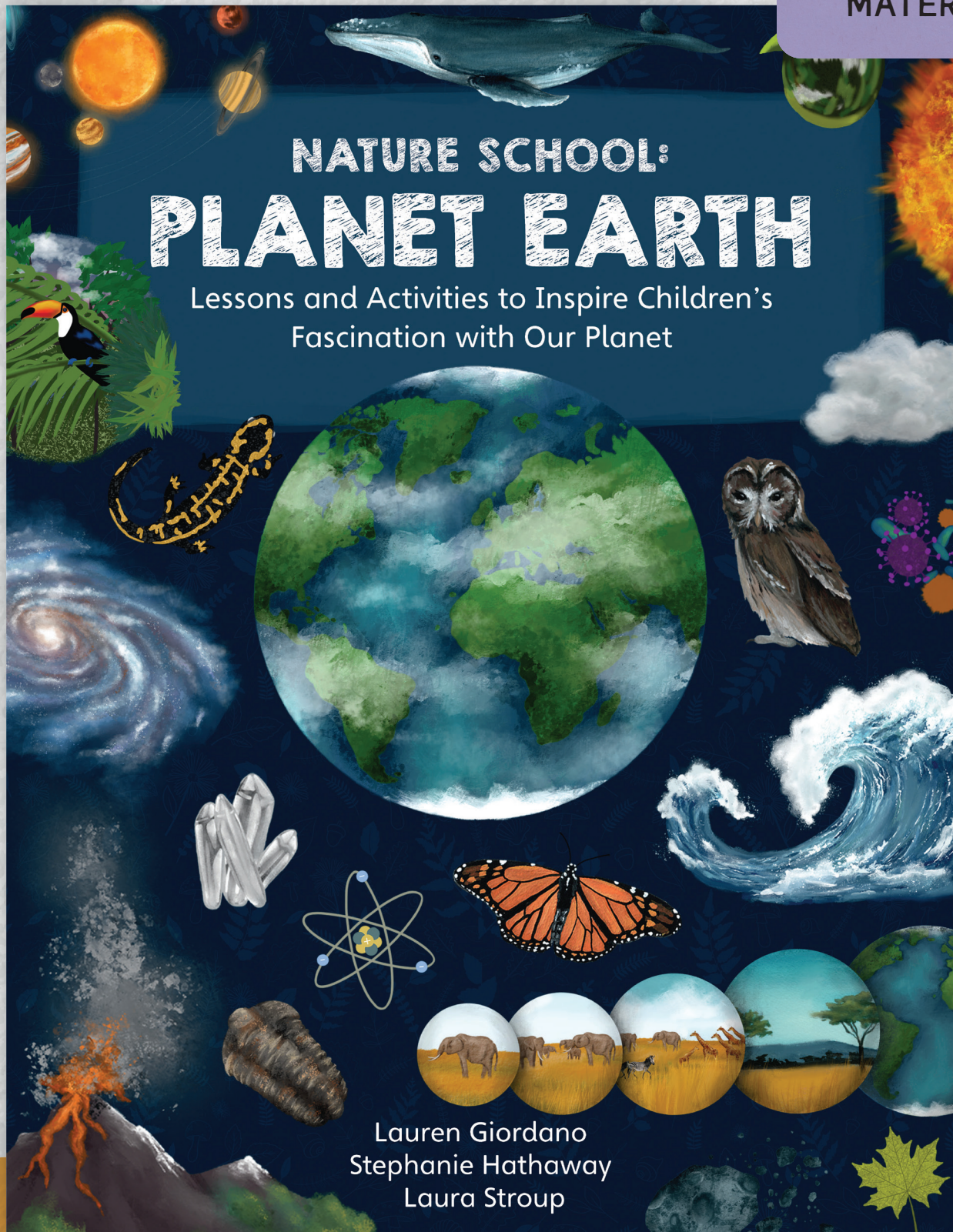


BONUS
MATERIAL



NATURE SCHOOL: PLANET EARTH

Lessons and Activities to Inspire Children's
Fascination with Our Planet

Lauren Giordano
Stephanie Hathaway
Laura Stroup

Also Available



Nature School: Planet Earth

Lessons and Activities to Inspire Children's
Fascination with Our Planet

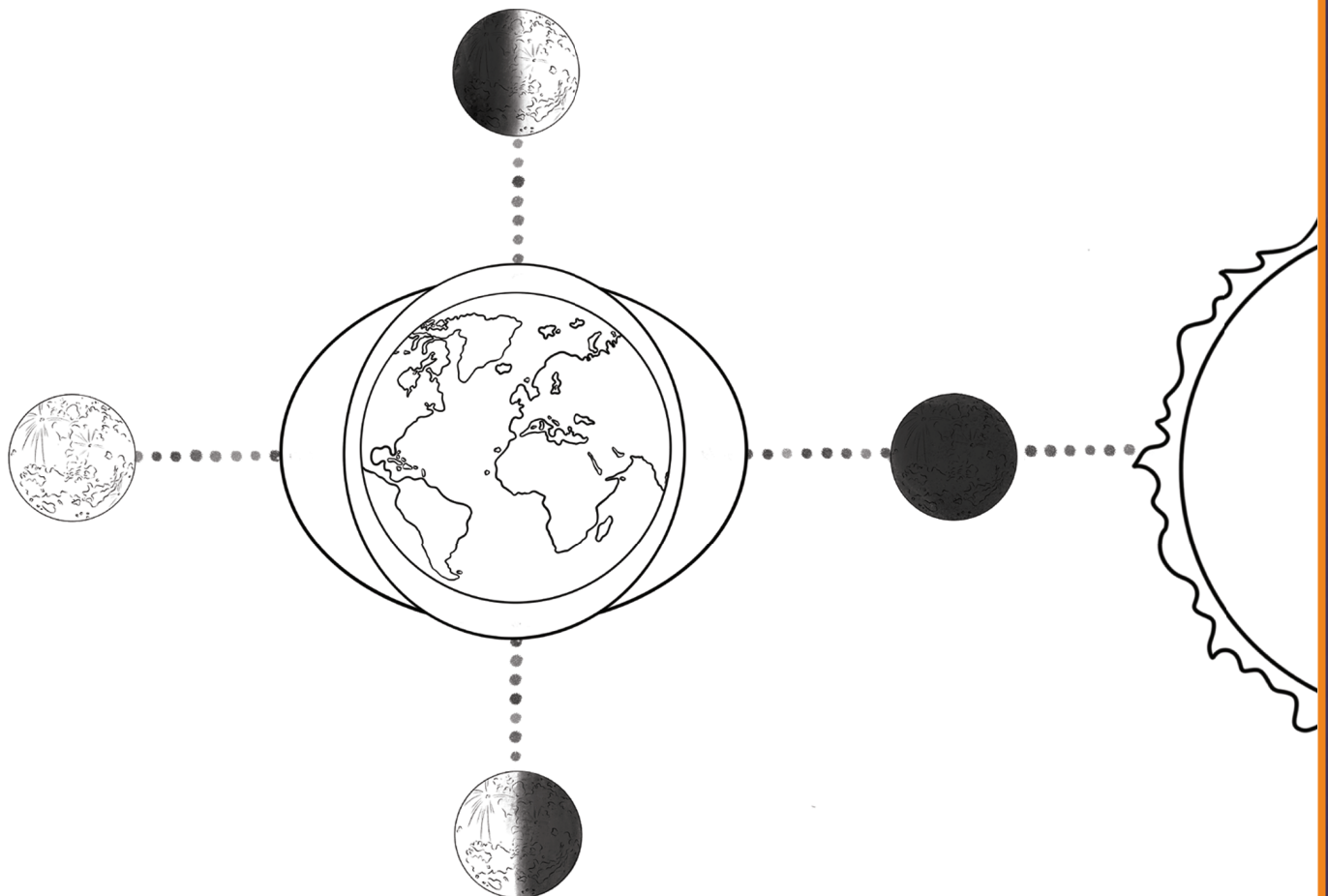
By Lauren Giordano, Stephanie Hathaway and Laura Stroup
Paperback, 144 pages • **Now Available!**

HOW DOES THE MOON INFLUENCE OCEAN TIDES?

Tides occur where water from the ocean meets the coast. High and low tides are primarily caused by the Moon's gravitational pull on both Earth and the water on it. High tides will occur on the side of Earth closest to the Moon and the side of Earth opposite the Moon, while low tides occur on the sides of our planet that are perpendicular to the Moon's position.

When the Sun, the Moon, and Earth are aligned, tides are higher than normal, resulting in a *spring tide*. *Neap tides* are lower than normal, and they occur when the Moon and Sun form a right angle in relation to the Earth.

Label each of the moons in the diagram either **neap tide** or **spring tide** based on the position of the Sun, Moon, and Earth.



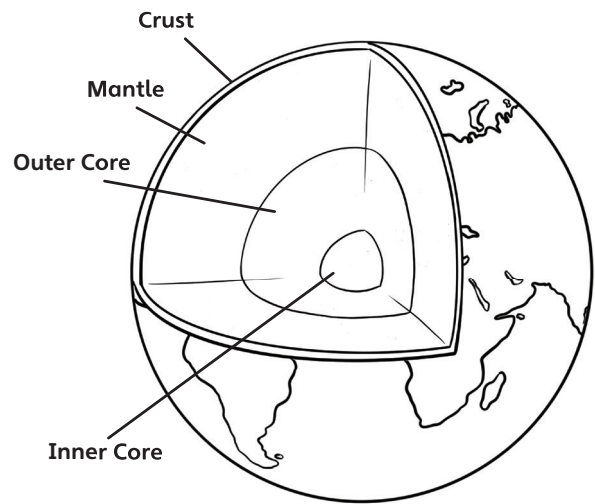
CAN YOU MAKE A MINIATURE MODEL OF EARTH?

Using different colors of playdough or clay, you can create a tiny version of Earth's layers.

**Parental supervision required*

You'll need to construct the following layers: inner core, outer core, mantle, and crust. We recommend using red for the inner core, yellow for the outer core, orange for the mantle, and blue with green "land" areas for the outermost crust layer.

1. Start by making a small sphere of red for the inner core, approximately 1 inch across.
2. For the following steps, make a ball with each color of playdough, and then roll it out into a flat circle to wrap around the previous spheres. Cover the inner core with a layer of yellow for the outer core. Then, cover the yellow layer with orange for the mantle.
3. Finally, layer the blue followed by green continents. Your model will look like a mini globe!
4. With the help of an adult, cut through your sphere with a knife, taking care not to flatten the model while cutting. All the layers should be revealed upon slicing it open. See if you can name each one.



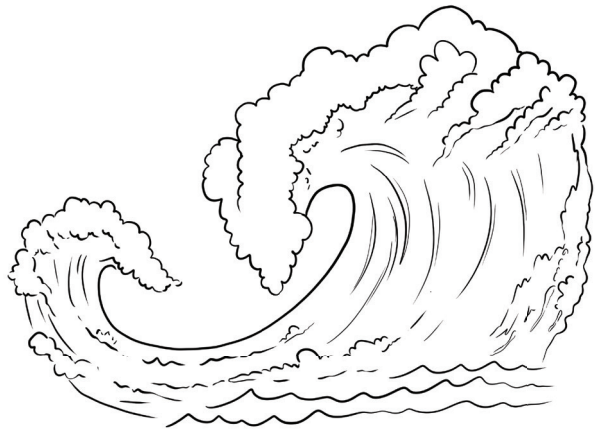
Draw a picture of your model in the space below and label each of the layers.

CAN YOU MAKE WAVES?

With this activity, you can create your own waves in a bottle!

You'll need a clear, plastic water bottle with a lid, water, blue food coloring, and vegetable or baby oil.

1. Fill your bottle halfway with water, and mix in a couple of drops of blue food coloring to make the water blue.
2. Then, fill the bottle the rest of the way with oil.
3. Put on the lid, and turn your bottle on its side.
4. Then, move it back and forth gently to create waves within the bottle.



By moving the bottle, you're creating the energy needed to move the water much like the wind does on the ocean or lake surface.

Record your observations in the space below. Be sure to include a sketch of the waves you created in your bottle!



Let's Explore! Visit an ocean or lake to observe the waves and movement of water and its effect on the shoreline.

WHAT IS IN THE AIR WE BREATHE?

Air contains gases like oxygen, nitrogen, and carbon dioxide. Humans and other animals breathe in oxygen, which is added to our bloodstream by our lungs. The oxygen gets carried to the cells all around the body, and cells use oxygen to make energy for them to function. During photosynthesis, plants take in carbon dioxide from the air to create food for their cells.

Without air in the atmosphere, humans, along with other living things, would not survive!

Use the data below to correctly color the sections in the pie chart that represent the composition of air.

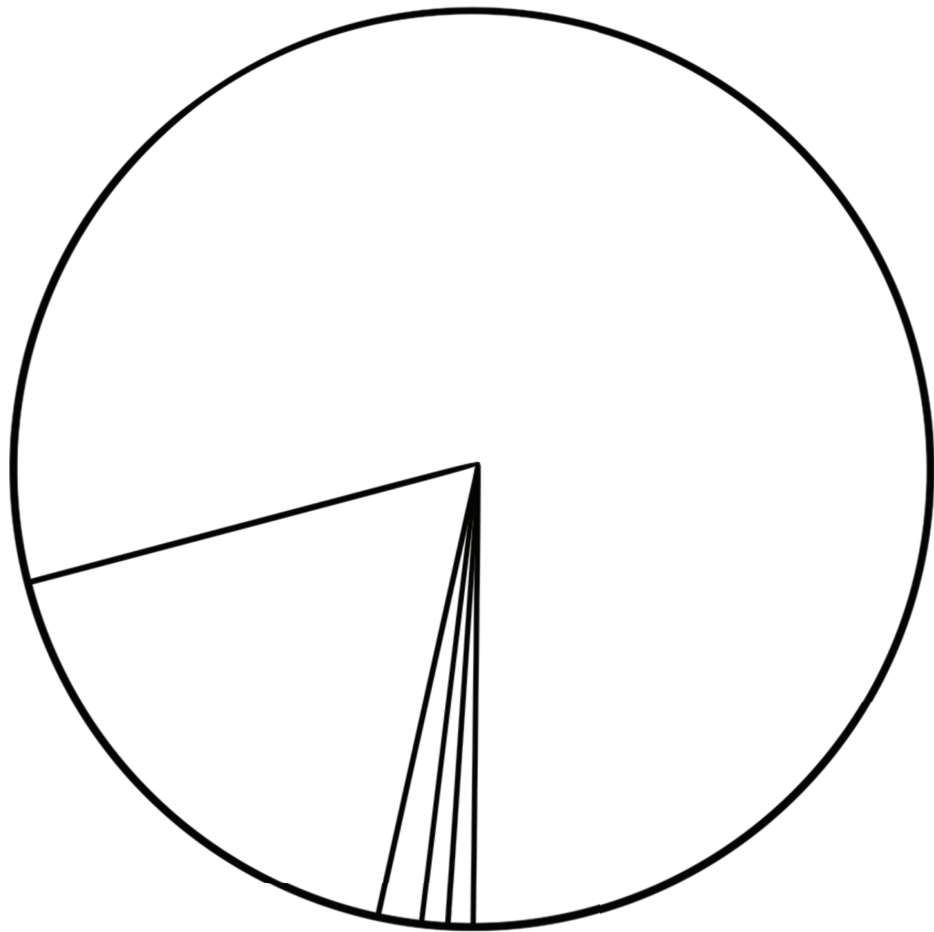
nitrogen 78%

oxygen 20%

argon 1%

carbon dioxide 0.5%

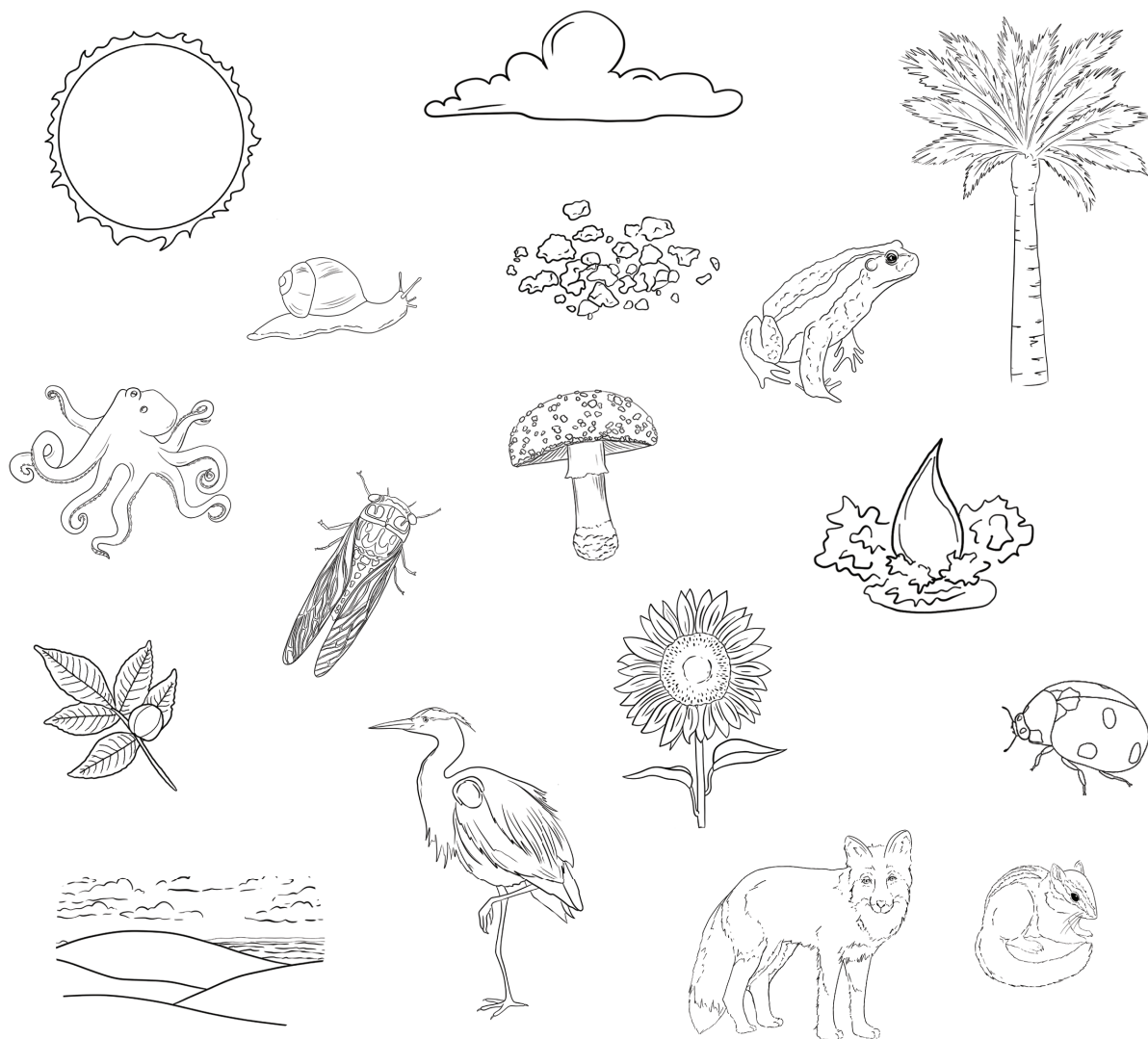
mixed gases 0.5%



Did You know? Air contains solid particles called aerosols in it? Aerosols can enter the air naturally through burning wildfires, volcanic eruptions, soil and rock dust, and salts from the ocean. Humans can also add aerosols to the air through air pollution.

IS EVERYTHING IN AN ECOSYSTEM ALIVE?

Both biotic (living) and abiotic (nonliving) factors are important for the success of an ecosystem. Examples of biotic factors include plants, animals, humans, microbes, and fungi. Conversely, things like rocks, sunlight, soil, and water are abiotic, but necessary for the living parts of the ecosystem to survive. Look at all the different aspects of an ecosystem illustrated below. Determine which are biotic and abiotic. Circle the factors that are living and put an "X" on those that are abiotic.



Let's Explore! On your next nature walk, name all the living and nonliving things you can see, hear, touch and smell around you.