LESSON 3.1
HOW DOES PLASTIC POLLUTION GET INTO THE WATER?

GRADE LEVEL	TIME
3-5, 6-8, 9-12	MULTIPLE CLASS PERIODS

Overview:

In this activity, students will learn how plastic pollution that is in our communities and on our shorelines can end up in our lakes, rivers, and oceans. Beginning with a video from NOAA that introduces the concept of marine debris, students will learn how water moves through a watershed and then construct a watershed model to observe how trash, litter, and plastic pollution move throughout a watershed.

Instructions:

1. On the Wonder worksheet, have students add claims or evidence they notice, as well as questions they have about plastic and plastic pollution and their watershed, while watching these two videos:
    a. "TRASH TALK: Marine Debris and Plastics" from NOAA Marine Debris Program and Ocean Today
    b. "What is a Watershed?" from Niagara Peninsula Conservation Authority
2. As a class, find your watershed by using the Environmental Protection Agency's "How's My Waterway" website. Once you find your watershed, compare the EPA's map to other maps of your community, such as Google Maps.
    a. Use different views, including satellite and topographic to demonstrate different land uses (ie: urban, rural) and changes in elevation.
    b. Encourage students to think about where major local landmarks, parks, and other parts of their community are located within their watershed.
3. Have a class discussion about what students noticed and are wondering about. Here are some additional questions you can ask to prompt a discussion:
    a. Where does most of the trash in lakes, rivers, and the ocean come from?
    b. Where have you seen trash around our school or your neighborhood?
    c. What do you notice about trash and litter around our school or your neighborhood?
    d. What might happen if trash and litter in neighborhoods is not picked up and there is a big rainstorm?

Materials:

- National Oceanic and Atmospheric Administration's Trash Talk Video
- "What is a Watershed?" video
- Environmental Protection Agency's "How's My Waterway" Website
- Local watershed maps, online or print
- Wonder worksheet
- Student formative assessment
- Supplies for watershed model – tray or large basin, plastic items, plastic sheet, sprinkles, spray bottle, small sponges or other absorbent material.

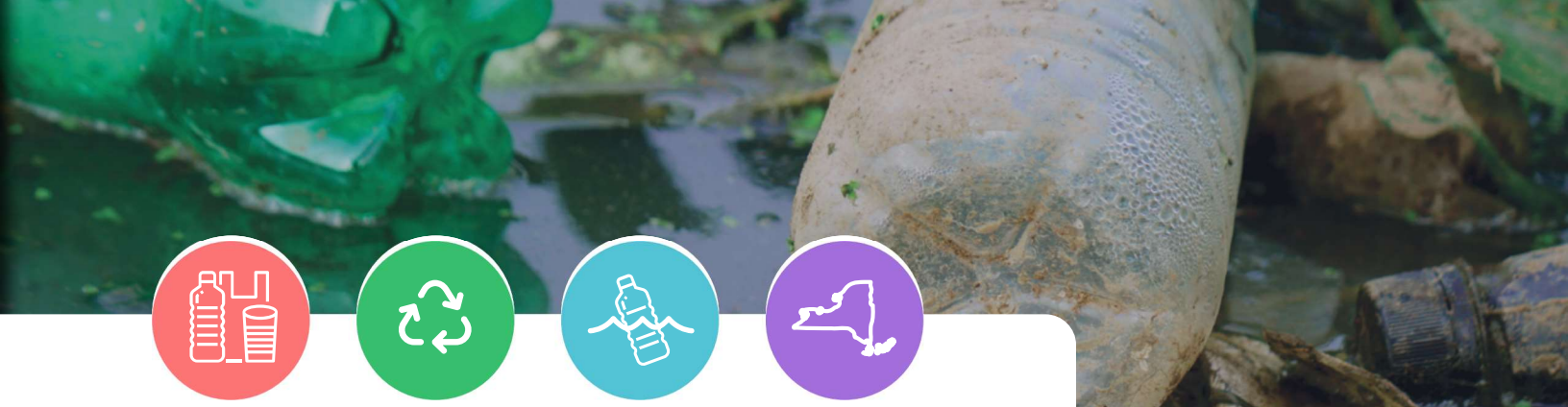
Notes:

Learning Standards:

SCI:

5-ESS3-1, MS-ESS3-1, HS-ESS3-1

GLLP: 1, 6



e. How can you prevent trash from ending up in the environment?
f. What do you think happens to rainwater when a watershed has a lot of paved, or impervious, surfaces in it? Where does that water go?
g. How might it be different if a watershed has a lot of parks? What about farms?

4. Build a watershed model with emphasis on how litter moves through the system.
   a. Make sure each student has their Student Formative Assessment.
      Gather the group around the table holding the materials.
   b. Build a large watershed model by placing plastic items on the large tray/basin. Make an irregular mound with peaks, ridges, and valleys. Drape a tarp or large plastic sheet over the items.
   c. Talk with students about the model.
      i. What do you notice about this model? Where are there mountains or hills? How many mountains and hills do we have? What do you predict will happen? Where do you think rivers and lakes might form?
      ii. If we spray water on the mountain peaks, what will happen to it?
   d. Have students take turns spraying the watershed with the spray bottle.
      i. What happens as they add water to the system? Can they see rivers and lakes forming?
      ii. Have students fill out the questions on the Student Formative Assessment.
   e. Have students place sprinkles throughout the model to symbolize litter in the watershed.
   f. Have students take turns spraying the watershed again and watch where the litter flows and accumulates.
      i. Where do the sprinkles end up once the students are done spraying water?
   g. Add pieces of sponges to the watershed model that can absorb moisture as well as trap sprinkles.

NOTE:
If you completed Lesson 1.4 (Plastic Pollution in Your Life), compare the litter tracking map the students created with the watershed maps in this lesson.

Plastic Pollution and You

WONDER WORKSHEET

Name: _____ *Class:* _____ *Date:* _____/_____/_____

As you watch the videos about plastic pollution and watersheds, make annotations in the left column below to record important information you noticed. Also record questions or things you are wondering about in the right column.

I NOTICED...	I WONDER...

Plastic Pollution and You

STUDENT FORMATIVE ASSESSMENT

Name: _____ *Class:* _____ *Date:* _____/_____/_____

1. Draw and label how water flows through your watershed.

2. How do you think water flows through the natural environment?

3. Go back to your drawing and add litter. How do you think litter flows through the natural environment?