

OCEARCH STEM LEARNING

Earth Day STEM Packet

Grades K-8

NGSS: Elementary-Earth and Human Activity: (3-ESS3-1) K.ESS3.B, K.ETS1.A, 4.ESS3.B, 4.ETS1.A, Middle School-ESS3:
Human Impacts on Earth's Systems, High School-Earth and Human Activity

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Earth Day was founded in 1970. It is a day to spread awareness about environmental issues this planet is facing. Replace fear with facts as you learn about how plastic affects the sharks on the OCEARCH Global Shark Tracker, the ocean, and our planet as you complete the S.T.E.M. activities in this packet.

The average “lifespan” of a plastic water bottle is 14 minutes. When we toss it though, that same plastic water bottle stays as part of the environment for up to 500 years. Many plastic bottles and bags can only be recycled one time, then they are down-cycled. If the plastic we use ends up in the ocean, it floats along the surface, where it could be eaten by marine life, marine life can get stuck in it, or it remains until it is picked up. It is projected that there could be more plastic in the ocean than fish by 2050.

Costa Sunglasses is a partner of OCEARCH. Costa Sunglasses is helping to reduce, reuse, and recycle plastic by making products that use recycled plastic, selling alternatives to plastic water bottles, and educating the public about plastic and its impacts on the environment. You can watch their #KickPlastic video [here](#).

You can also download the OCEARCH STEM Learning curriculum available for free, for grades K-2, to teach about pollution, plastic, and marine debris.

There are several ways that you can help #KickPlastic too!

1. Reduce the use of single-use plastic bottles and bags in your classroom & home.
2. Use reusable bags when shopping.
3. Purchase products that are made from recycled plastic.
4. Skip the plastic straw when you get a drink.
5. Recycle any plastic that you do use.
6. Purchase products from companies that use minimal plastic packaging.
7. Read labels and avoid using products with microbeads.
8. Reuse the plastic water bottles you do use.

Follow along with OCEARCH on Twitter and with this calendar as we complete activities and raise awareness to keep plastic out of the ocean, and as we educate, inspire, and enable students to take action for a healthier planet.

Earth Day Activity Guide: April 17-21

Work alongside OCEARCH for a week of earth-friendly activities! **Show us how you're** educating, inspiring, and enabling your students to be planet stewards, by tagging @OCEARCH on Twitter!

Monday, April 17 – Introduce Plastic Pollution

Challenge students to collect the Plastics they use throughout the week. This plastic will be reused at the end of the week.

Tuesday, April 18 – Paper not Plastic

Ask your local grocery store for paper bags. Have your students decorate these bags for Earth Day. Return the bags to the store and ask that they push her paper over plastic on Earth Day.

Wednesday, April 19 – Host a campus clean up!

Or go on a reduce reuse recycle scavenger hunt! See how much waste you find around your school or classroom. Separate the debris into categories and discuss your findings. Also help students to locate the closest recycle bin and teach them what can be reduced, reused, or recycled.

Thursday, April 20 – Mix it up!

- Read or watch 'The Lorax'
- Plant a tree; discuss the importance of trees and clean oceans in relation to air quality.
- See Racing Extinction Activity**

Friday, April 21 – Art Installation

Create an art installation or piece using the Plastics created throughout the week of conservation artwork!

Contest Alert Upload a photo to Twitter of your piece, tag @OCEARCH and tell us about your design for a chance to be featured on the OCEARCH Education Newsletter!

- Join us at 1pm EST for a Periscope with Bonnie Monteleone, Director of Science, Research, and Academic Partnerships for the Plastic Ocean Project. This periscope will include a discussion on the impacts of marine plastics and debris. Be sure to tune in and learn about how we can take action for a healthier planet!

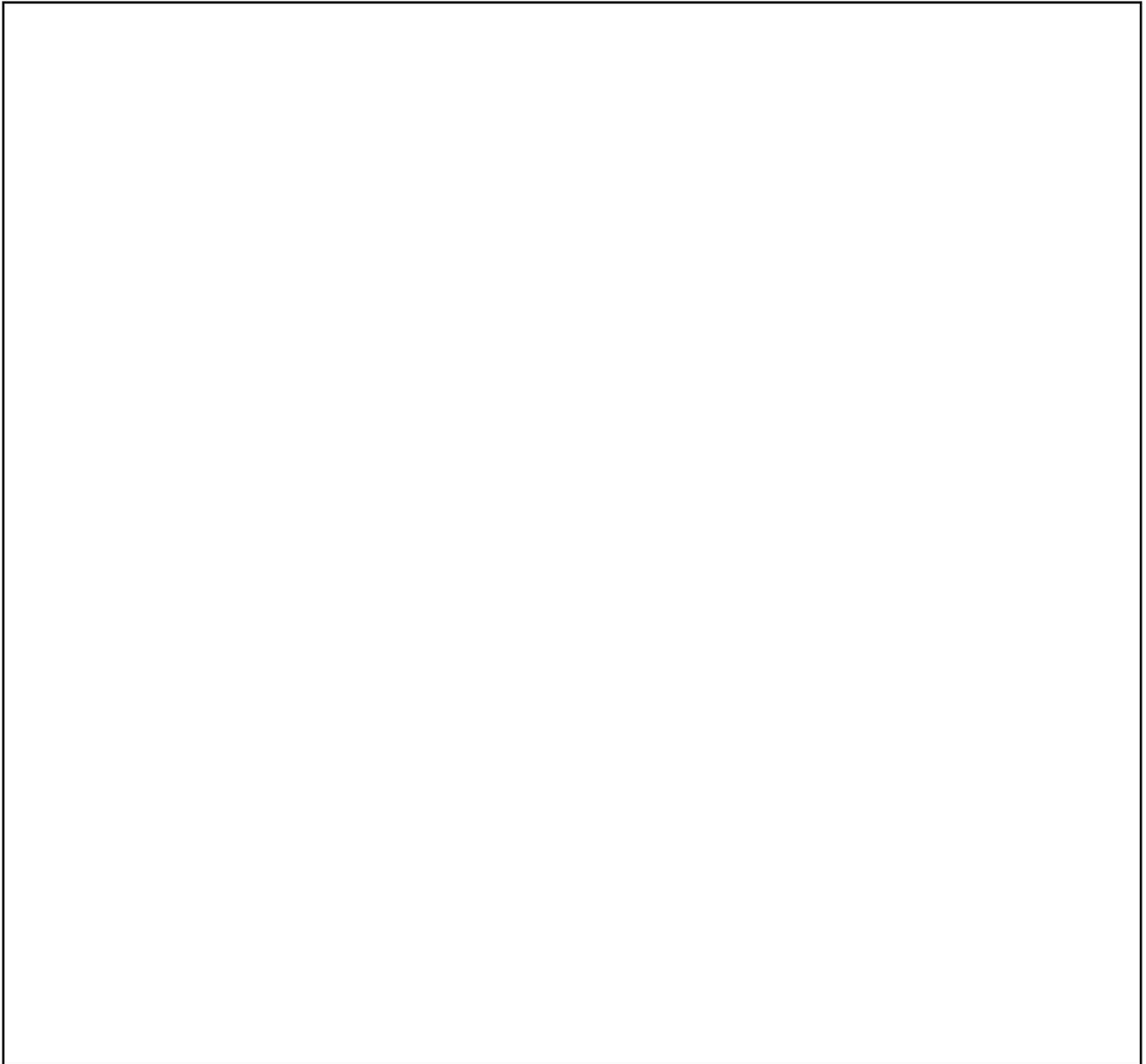
OCEARCH STEM Learning

Reuse, Recycle, and Kick Plastic!

Grades K-5

Name _____

We can help the health of the ocean by kicking plastic! When we reduce or stop using plastic, we are helping the ocean and the environment! Help get the word out by designing **a poster to teach others about how plastic affects the ocean and the animals in it.** Don't forget to share your picture with us!



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Grades K-8

Summary

The oceans on this planet are what make it sustainable for life! The Earth is 70% covered in water and 30% is land. The oceans are the life force of this planet. Of all the water on Earth, 96% of it is salt water from the ocean, then water from ice, glaciers, and snow, then groundwater, and the smallest percentage of Earth's water comes from freshwater sources. The ocean is part of what fuels the climate and atmosphere; therefore, it is very important that we take care of the ocean and the marine animals that call it home.

You can help protect the ocean and the planet!

1. Kick Plastic (use reusable water bottles and reusable bags instead)
2. Conserve water and energy
3. Recycle
4. Clean up any litter you see when you're at the beach
5. Don't leave fishing line or hooks in fish or in the ocean, when possible
6. Buy items, like seafood, from sustainable companies
7. Educate others about the importance of ocean conservation

Ocean Conservation Paper Bag or Tote

One way to help the ocean and the planet as a whole is to reduce, reuse, and recycle items that we use every day. One of the most common items found in the ocean are single use plastic bottles, straws, balloons, and plastic bags. The average use time for a plastic bottle is 14 minutes before it's discarded! Plastic bags and straws end up in the ocean and are not only trash but can become a part of the food chain if they are consumed by animals, like sea turtles who may mistake them for jellyfish, which are part of their normal diet. This is bad for two reasons: 1) it injures or harms the sea turtle, and 2) it can contaminate the food chain.

One way to keep plastic from going into the ocean is to use reusable bags or bags that can be recycled. Help the oceans and help others to kick plastic by using reusable bags. You can decorate bags that you already have, or purchase a reusable bag and decorate it or personalize it if you'd like.

Middle school students at our school even took paper bags that had been used to hold groceries, and turned them into recycled art, by pasting them together painting them and turning them into a mural! Personalized totes or bad reusable bags are a great way to educate others about the importance of taking plastic and keeping plastic out of the ocean, and are functional, to hold items that you buy.

Materials

- Paper bag or reusable tote
- If making a personalized reusable bag you may either use fabric paint or acrylic paint for paper bags
- One cup of water, if painting
- Paint brushes for painting
- Paper towels
- Writing utensils for writing your sentence for brainstorming ideas for your artwork



OCEARCH STEM Learning

Reduce, Reuse, Recycle Scavenger Hunt

Grades K-5

Name _____

Look around your classroom to find these items! Make an X or a check mark when you have found that item, write down its name, and place it on top of your desk. When we are done with the scavenger hunt, we will recycle some of these things in order to help the environment. We all can play a part in making sure our oceans and planet have a better, healthier future.

1. Find an item in your classroom that is made out of paper.

2. Find an item in your desk that is made out of plastic.

3. Find an item that can be reused! (a piece of paper, a plastic bottle, a box, etc.)

How would you reuse it? _____

4. Find the recycle container in your classroom, school, or talk about where to find it in your neighborhood. _____

5. Name one thing that you can recycle in your classroom that you could start reduce, reuse, or recycle more. _____

6. Name something that you can reduce, reuse, or recycle in your lunch.

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Community Debris Survey

Grades 6-8

Objective: Examine debris in your local community or school campus. Discuss the potential these items have of becoming marine debris and the impact they could have on the ocean.

Make a Hypothesis: **What type of debris will be the most prevalent in your local community/campus?**

Materials Needed:

1. Work gloves for each student
2. Collection bag

Hint: try using reusable bags to show environmentally friendly options to students

3. Collection data sheet
4. Writing utensil

Safety Notes:

- Students must wear work gloves
- Advise students to not pick up anything sharp or unidentifiable
- Be available for any questions students may have on an object.

Procedures:

Once you have a designated location in mind, survey a plot of land for 15 minutes. Place all objects not found in nature into your collection bag. As you work, use the data collection sheet to itemize your debris into categories. Be prepared to share your results.

Item	Number	Class Total	Notes
Food wrappers			
Plastic bottles			
Plastic caps//lids			
Plastic bags			
Beverage cans			
Straws/stirrers			
Cups/utensils			
Other			
Other			
GRAND TOTAL			

**Enrichment opportunity: Add all of the class totals to find a daily rate. Have students find an estimate for a yearly debris total.

Post-collection follow up and discussion

Answer the following questions below, and be prepared to discuss.

1. What was your debris collection rate per minute?
2. Using your results, graph your findings.
3. Which items could be recycled?
4. Which location did you find the most debris? Make an inference on the reason for this quantity.
5. Which items could entangle marine life? If you did not find anything, discuss possible type of debris that could do this.
6. Why does this Survey on land matter to organisms in the ocean, potentially far away from your area?
7. Was your hypothesis supported? Use evidence to explain your answer.

OCEARCH STEM Learning

Water, World, Necklaces

Grades K-8

Summary

The oceans on this planet are what make it sustainable for life! The Earth is 70% covered in water and 30% is land. The oceans are the life force of this planet. Of all the water on Earth, 96% of it is salt water from the ocean, about 2.0% water from ice, glaciers, and snow, then 1.5% groundwater, and the smallest percentage of Earth's water comes from freshwater sources at 0.5%. The ocean is part of what fuels the climate and atmosphere. Therefore, it is very important that we take care of the ocean itself and the marine animals that call it home.

You can help protect the ocean and the planet!

1. Kick Plastic (use reusable water bottles and reusable bags instead)
2. Conserve water and energy
3. Recycle
4. Clean up any litter you see when you're at the beach
5. Don't leave fishing line or hooks in fish or in the ocean, when possible
6. Buy items, like seafood, from sustainable companies
7. Educate others about the importance of ocean conservation

World Water Necklaces

To make these necklaces you can use recycled beads or cord, or purchase these items **from a store. The colors represent the parts of the world's oceans that are salt water, article water or glaciers, groundwater, and freshwater.** Take the jewelry cord and have an adult cut it with scissors into an 18-inch strand. Then take one end of the strand and knot it, **so that the beads don't fall off once you have put them on. Next, put the beads on the jewelry cord one at a time, stringing them in order from dark blue, clear, teal, and then orange.** After all of the beads have been strung, then tie the two ends of the cord together to make the necklace!

Materials

- Glass beads (25 large dark blue beads, 2 large clear beads, 2 small teal beads, 1 tiny orange bead)
- Jewelry cord or clear line (18 inches long)
- Safety Scissors



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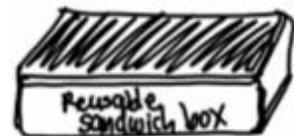
Earth Day STEM Packet

Grades K-2

Name _____

It's important to use items that can be reused or recycled instead of plastic. Every year more and more plastic bottles and bags end up in the ocean and either float there as trash, or are eaten by marine animals, like sea turtles, mistaking them as food. You can help keep plastic out of the ocean and by replacing the plastic items below with something that is reusable or can be recycled.

Match the plastic item by drawing a line to the one that can be reused or recycled.



OCEARCH STEM Learning

Earth Day STEM Packet

Grades 6-12

Watch “Racing Extinction” and discuss the impact that unsustainable fishing practices have on the world. Have students Define the importance of apex predators to ecosystems. Using the OCEARCH Global Shark Tracker, link sharks to their environment. Show students how the range of their migratory tracks shark how they can be impacted by commercial and recreational fishing regulations. How are different shark species affected? What life stages are the most vulnerable? Why? Discuss as a class and write down your thoughts.

OCEARCH STEM Learning

Earth Day STEM Packet

Grades 3-8

Summary

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Ocean Conservation Art

The first step to this project is to have your student or child tell you what they would do to help protect or conserve the ocean, or to have them write a sentence about how they would **make one change to conserve or protect the ocean and its inhabitants.**

The second step is to then draw out a picture that reminds them of the ocean or is a picture of them making a change to help the ocean. Once they have drawn a sketch of what they would like to paint or draw they can find a creative way to take the words from their sentence either that an adult wrote for them or that they wrote themselves and weave it somehow into the picture.

Materials

- Recycled canvas, regular canvas, OR drawing paper
- Acrylic or oil paints
- One cup of water, if painting
- Paint brushes for painting
- Paper towels
- Writing utensils for writing your sentence for brainstorming ideas for your artwork

