

REDUCE, REUSE, AND RECYCLE / INSTRUCTOR INFO

Summary

This lesson includes vocabulary, content, examples, and activities to help students learn and understand the importance of conservation. Students will learn about different types of conservation by introducing the concepts of reducing, reusing, and recycling. Using their knowledge of conservation and real-life data collected from the OCEARCH Global Shark Tracker™, students will be able to brainstorm different ideas for helping sharks. Students will create an action plan to help the school and classroom become good stewards of our oceans and help to recycle!

Part 1. Introduction

Part 2. Reduce, Reuse, and Recycle

Part 3. Activity 1. “Kick Plastic”

Goals & Objectives

The students will:

- Learn the meaning behind each word – reduce, reuse, recycle;
- Observe different ways to reduce waste, reuse items they already have, and recycle plastic, glass, and paper;
- Discover where they can go to recycle and obtain bins to begin recycling at home;
- And know at least three ways that reducing, reusing, and recycling helps our oceans and our environment.

// STANDARDS

This lesson aligns with the following TEKS:

Kindergarten Science: 1C, 3A, 3C

Grade 1 Science: 1C, 3A, 3B

Grade 2 Science: 1C, 2E, 2F, 3A

This lesson aligns with the following Next Generation Science Standards:

K-ESS3 – 3: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.* [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

Science and Engineering Practices

Obtaining, Evaluating and Communicating Information

- Communicate solutions with others in oral and/or written form using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)

Disciplinary Core Ideas

ESS3.C: Human Impacts on Earth Systems

- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)

STEM

This lesson plan aims to assist teachers in implementing a STEM-based program into their classroom while inspiring the next generation of explorers, scientists, and stewards of the ocean. Based on real science and the Global Shark Tracker™, “Reduce, Reuse, and Recycle” is intended to promote environmental awareness and to prepare students for STEM careers.

Helpful Tips

1. The content in this lesson is based on the conservation work of OCEARCH™ and the Global Shark Tracker™. Spend a few minutes getting familiar with the website and the tracker if you have not done so already. The Global Shark Tracker™ is also available as an app for iPhone and android.
2. This lesson plan is designed to be adaptable to suit your specific needs. Use the entire lesson plan or just parts of it. This material can be expanded to be an entire unit or condensed for just one day in the classroom.
3. Vocabulary words will be underlined as they first appear in the lesson plan. A complete list of vocabulary words is included as well.
4. Answers to questions and prompts for discussions will appear in italics.
5. Optional activities and content (side notes) will appear in a box. Use these to enhance your lesson and adapt it to suit your needs!

6. Have questions for M/V OCEARCH Expedition Leader, Chris Fischer? Email in-fo@OCEARCH.org to schedule a Skype session and let your students/child talk directly to Chris and the M/V OCEARCH crew!
7. Email all questions about this lesson to info@OCEARCH.org.

Field Trip and/or Special Speaker!

Your local recycling center may offer tours for students! This is a great opportunity for students to see what happens to the materials when they go to the recycle center and why it is beneficial for them to recycle instead of only throwing away trash. They can also learn the science behind what happens to the materials during the process (physical change vs. chemical change).

If you are unable to take your students to the recycle center as a field trip, often times, your local recycle center is happy to send someone to your classroom to talk to them about the benefits of recycling and answer any questions your students have.

Vocabulary

Pollution: Introduction of chemicals or other contaminants into the environment that causes a negative impact.

Reduce: Using less of something.

Reuse: To use something again either for the same use or a repurposed use.

Recycle: To make something new out of something that has already been used.

REDUCE, REUSE, AND RECYCLE / LESSON PLAN

PART 1. INTRODUCTION 10 mins

Pollution occurs when an environment is contaminated, or dirtied, by waste, chemicals, trash, and other substances. *Ask the students to think of pollution they might see around their school or home. Allow time for discussion.*

There are three main forms of pollution: air, land, and water. This lesson will focus on water pollution and more specifically, ocean pollution. The world's oceans are facing many threats due to pollution. Pollution comes in many forms including pesticides, fertilizers, and trash. *How do these pollutants get into the oceans and how do they affect our oceans and wildlife?*

PART 2. REDUCE, REUSE, AND RECYCLE 30 mins

Humans throw away 200 billion water bottles every year! Yes, you read that right – 200 billion! Americans use 35 billion water bottles in the United States alone. 10% of these bottles, or 3.5 billion, end up thrown away in our oceans!

Did you know, in the Pacific Ocean there is a garbage patch that is the size of Texas? *Show the students on the map how large the state of Texas is.*

This trash kills one million sea birds every year. Two out of three fish will accidentally eat a piece of plastic trash. Sea Turtles will eat plastic bags floating in the ocean thinking it is their favorite food, a jellyfish! Plastic can harm all of the Earth's oceans and all of the animals in it, including sharks and the animals that they eat such as seals, sea turtles, squid, and fish. *What can you do to change this?*

What does it mean to reduce, reuse, and recycle?

Reduce

When you reduce something, it means to use less of it. What are some resources you can reduce using? Examples – water, electricity, plastic, gasoline, paper, and more!

You can reduce the amount of water you use when you wash your hands and brush your teeth. Just turn off the water faucet when you are rubbing your hands together or brushing your teeth instead of letting the water run down the drain. Why is this important? Freshwater is a resource that humans need to survive and unfortunately there's not a lot of it. Water that goes down a drain has to be cleaned before it can be reused. Cleaning water uses more precious resources. So the less you use, the better for everyone!

You can also reduce the amount of paper you use. You use paper at school and home every day! Other paper products include bathroom tissue, paper towel, paper plates, tissues, etc. Paper products are made from trees, which have to be cut down from the forests. By reducing the amount you use, you are directly and positively impacting forests! You are also reducing the amount of trash that ends up in the natural environment.

Reuse

To reuse something means to use it again, sometimes in the same way, and sometimes items can be used in a different way. Can you reuse plastic water bottles? Of course you can! Even better, you can switch to reusable water bottles that do not need to be thrown away. You can wash them over and over again and they are very durable.

You can also reuse plastic bags. Plastic bags are used in almost all stores. Use your grocery bags to carry your lunch or gym clothes. They also make great doggy bags for picking up after your dog at the park! Want to go the extra mile? Switch to reusable fabric bags to do your shopping in. This will reduce the need for plastic bags and in turn the amount of trash that ends up in the natural environment.

Recycle

Recyclable items can be taken to a recycle center instead of thrown away in the trash. The men and women who work at the recycle center will then melt those items down and use the material to make new items! Not everything can be recycled, but many things are recyclable such as paper, plastic, aluminum cans, and glass.

How do you know if something is recyclable? Show students what the recyclable symbol that is found on bottles and cans. *This will tell students if an item is recyclable or not. Not all recycling centers will accept all types of plastic, however, so check with your local center before tossing any plastics into a recycling bin.*

PART 3. ACTIVITY 1. KICK PLASTIC 20 mins

Introduction

Americans may be recycling more than ever before, but we're also making more trash than ever before. So even though we're getting better, our oceans continue to get worse—strangled by plastic bottles, bags, and other trash. Costa Sunglasses, one of OCEARCH's partners, is dedicated to the conservation of the ocean, to educating people about how they can help, and to inspiring others to be responsible stewards of the world ocean.

On your computer, visit Costa Sunglasses' website at <https://www.costadelmar.com/inside-costa/kick-plastic> to watch a video about their conservation initiative, "Kick Plastic". After viewing the video, have the students complete the journal activity below.

Journal Activity

This is an opportunity to pose the following question to students, "How are you going to kick plastic?" Ask students to write about the different ways that they will promise to do this at home. They should also include how they plan to spread the work about Kick Plastic!