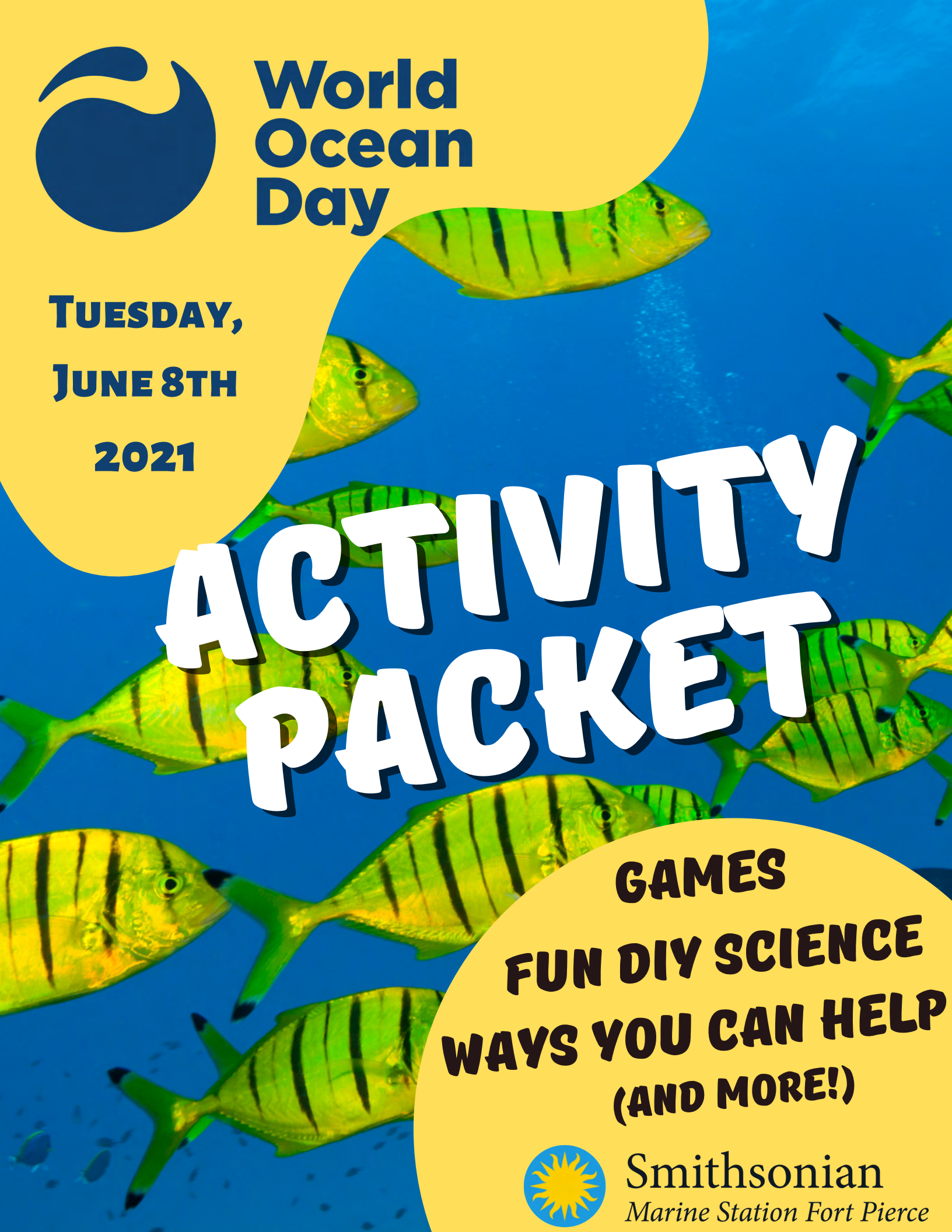

World Ocean Day

Tuesday, June 8th 2021

ACTIVITY PACKET

GAMES
FUN DIY SCIENCE
WAYS YOU CAN HELP
(AND MORE!)

Smithsonian
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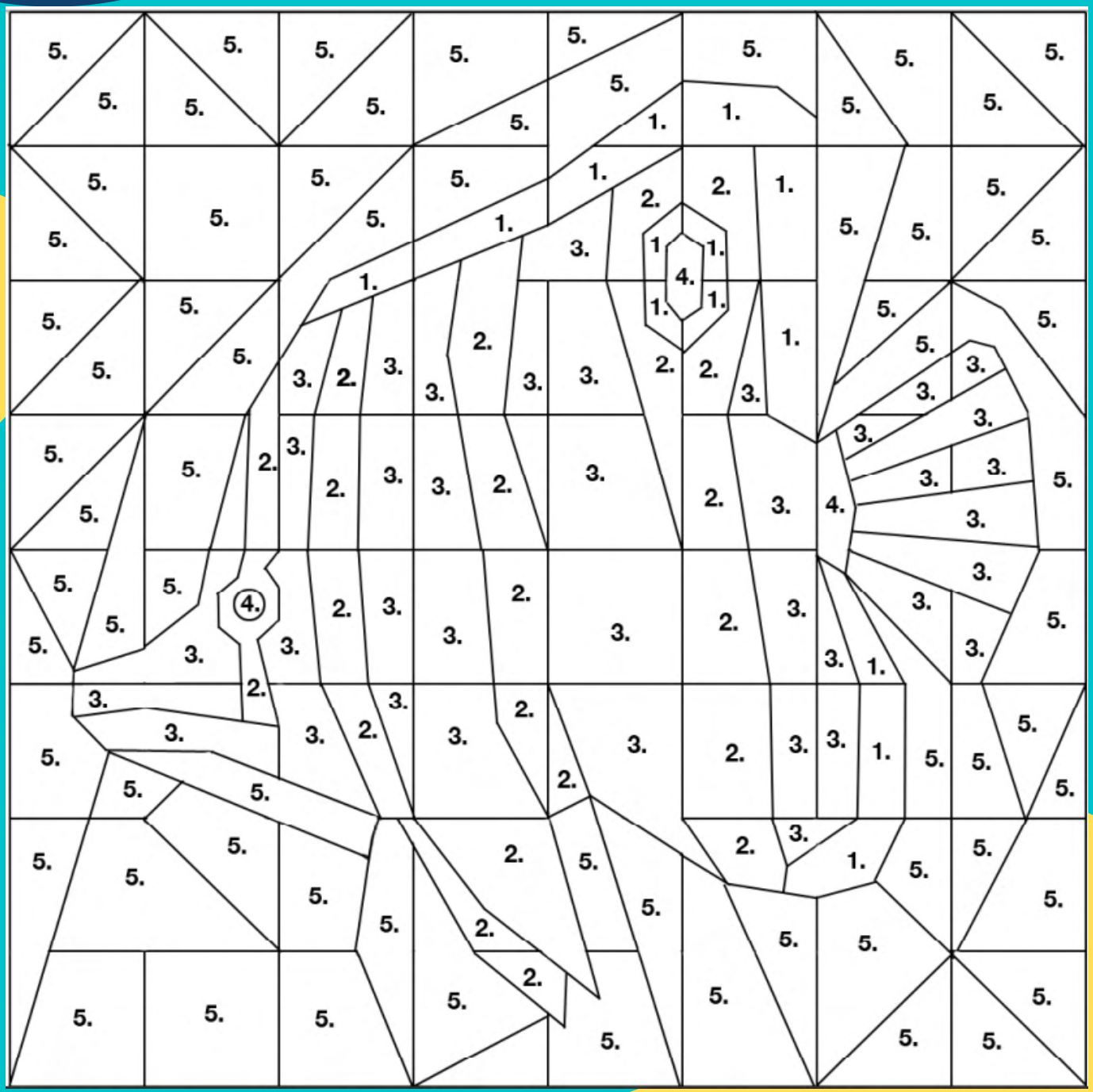
COLOR BY NUMBER

Color in the boxes below to reveal a colorful sea critter! Use the color guide below for each number!



1 - Orange
2 - Yellow
3 - White
4 - Black
5 - Blue

What is this colorful sea critter? It's called a butterfly fish!

DIY SCIENCE AT HOME

HOW DO SHARKS STAY BUOYANT?

Sharks are *buoyant,* which means they don't sink in the water. *Buoyancy* is the ability to maintain equilibrium in water or other liquid. Sharks have a few ways to stay buoyant. One way is by relying on their big, oil-filled liver. This science activity will explore how sharks use their oily liver to stay buoyant!

MATERIALS NEEDED

- 2 small water bottles
- Cooking oil
- Water
- Large container filled with water
- Permanent marker

{optional but fun to draw shark faces}

START HERE

STEP 1

Fill one bottle of water with cooking oil and the other with water. Draw a shark face on the bottles if you'd like!

STEP 2

Take both of your bottles and place them gently in a large container filled with water. Which bottle do you think will float?

Continued on next page

HOW DO SHARKS STAY BUOYANT?

Page 2

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STEP 3

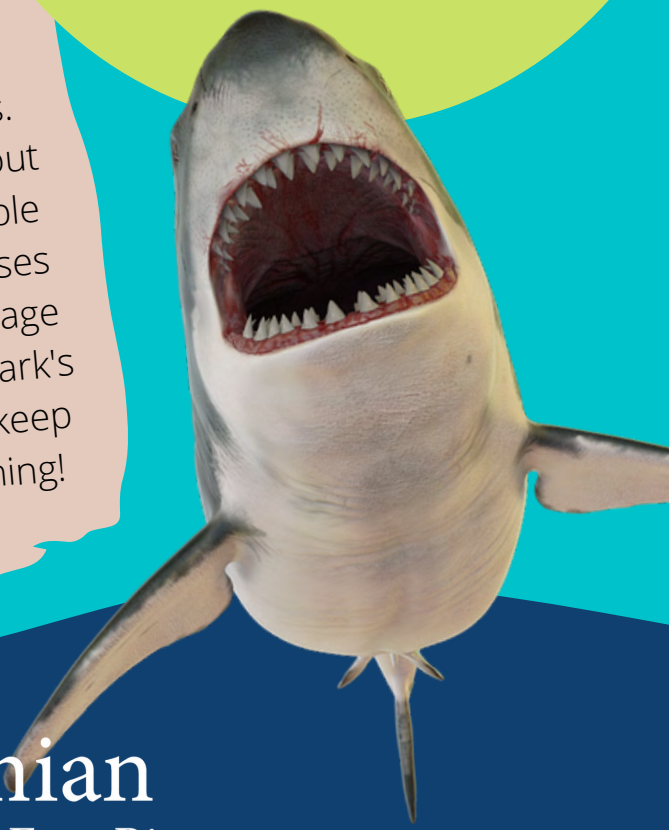
Did the oil-filled bottle float, while the water-filled bottle sank? Why do you think that is?

IT'S BECAUSE OIL IS LIGHTER THAN WATER!

Density is a word we use to describe how much space an object or substance takes up in relation to the amount of weight in that object or substance. If an object is heavy and compact, it has a high density. If an object is light and takes up a lot of space, it has a low density. So, since oil is less **dense** than water, it floats and is one of the ways sharks are able to stay buoyant in the water!

WHAT ARE OTHER REASONS FOR SHARKS BEING BUOYANT?

Sharks don't have bones like us. Instead, their skeleton is made out of **cartilage -** a somewhat flexible connective material that our noses and ears are made out of! Cartilage is lighter weight than bone. A shark's wing-like fins and tail also help keep the animal buoyant and swimming!



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Activity pictures courtesy of LittleBinsForLittleHands.com

OCEAN ADVENTURE

BEACH SCAVENGER HUNT

The next time you go to the beach, take this cool beach scavenger hunt with you! See how many items you can observe on the beach.
Remember, never take shells with living animals inside or pull living plants out of the sand! Keep our beaches beautiful and healthy!


Bittersweet clam


Seagrape tree


Sanderling


Ghost crab


Quahog clam


Gull


Whelk shell


Pelican


Sargassum


Olive shells


Cockle


Sand dollar


Sea oats


Hamburger Bean


Sabal palm


Whelk egg casing

DIY SCIENCE AT HOME

MANGROVES VS. COASTAL EROSION

WHAT IS COASTAL EROSION?

Coastal erosion is a process where water - driven by waves and wind - wear away sand, soil, and after many years, even rocks!

Although erosion is a natural process, removing shore-stabilizing plants like mangroves increases the rate of erosion, which can threaten our shorelines! The root systems of mangroves, which grow in sand and sandy soil, hold the shoreline in place, preventing massive erosion that could lead to loss of natural habitat or even the homes of humans living near the water! **This experiment will show us how shore-stabilizing plants like mangroves prevent coastal erosion!**

MATERIALS NEEDED

- Shallow pan, like a paint pan
- Sand
- Rocks or other somewhat heavy objects that can get wet (to use in place of mangroves!
- Plastic bottle
- Water

START HERE

STEP 1

First, fill one half of your shallow pan with sand, making a steep slope in the middle.

MANGROVES VS. COASTAL EROSION

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STEP 2

Now slowly fill the empty side of the pan with water. You can add blue food coloring to make it more realistic! Grab your plastic bottle and push it up and down to create waves on your shoreline. **Do this for one minute and observe what happens!**

DID MOST OF YOUR SAND END UP GOING INTO THE WATER? NOW LET'S SEE WHAT HAPPENS WHEN WE ADD "MANGROVES"!

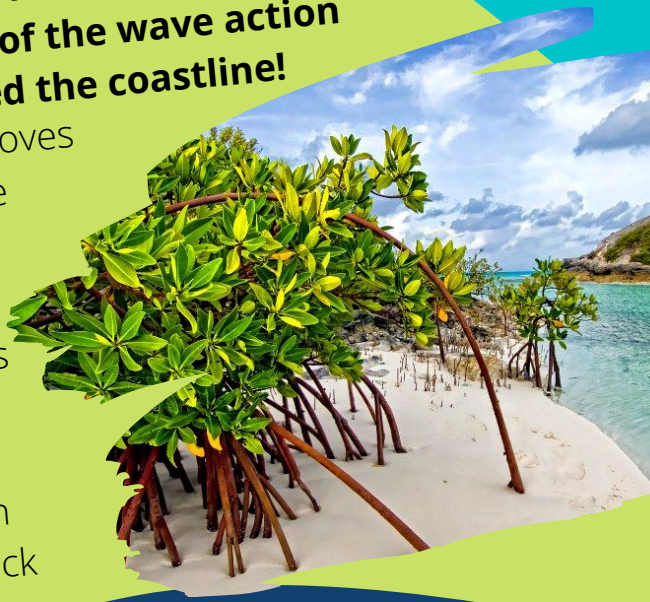
STEP 3

For this experiment, rocks or another non-floating object will take the place of mangroves. After scooping your sand back into a slope, place several rocks near the water and repeat the wave motion with the your water bottle.

DID LESS SAND WASH INTO THE WATER?

Yes, because our "mangroves" absorbed much of the wave action and protected the coastline!

Not only do mangroves help us protect the coastline, they are important habitats for thousands of plant and animal species that use mangrove areas for food and shelter. Mangroves are found all over the world, including three species here in Florida: red, white and black mangroves!



Activity pictures courtesy of LittleBinsForLittleHands.com

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HOW CAN YOU HELP THE OCEAN?

There are a lot of things YOU can do to help the ocean! Here's a few ideas:

USE LESS SINGLE-USE PLASTICS

Single-use plastics are things like plastic bags, straws and water bottles. Did you know these are some of the most common pieces of trash in the ocean?

EAT SUSTAINABLY-SOURCED SEAFOOD

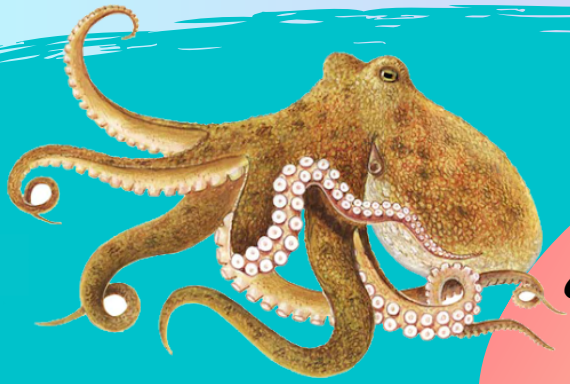
Harmful fishing practices can lead to lower populations of fish, crabs and other animals in the ocean. By only eating seafood that was caught or reared in an environmentally responsible way, you can help protect ocean-dwelling animals!

PARTICIPATE IN LOCAL BEACH CLEAN-UPS

A lot of trash from the land can end up in our ocean. By keeping the beach free of trash, we can prevent it from entering the oceans and harming animal life.

REDUCE YOUR ENERGY USE

Excess carbon dioxide from fossil fuels is absorbed by our ocean and can be harmful to ocean life, so whenever possible, ride a bike or walk instead of using a car! You can also turn off lights when you're not using them!



World Ocean Day

TAKE THE WORLD OCEAN DAY PLEDGE ON THE NEXT PAGE!

World Ocean Day

TAKE THE WORLD OCEAN DAY PLEDGE!

Now that you know some ways you can help protect our ocean, take the pledge! Choose from any of the ways to help on the previous page, or create your own! Write it on the lines below and color in the picture to create your own special promise to help the ocean!