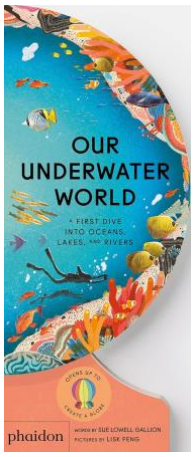

A teacher's guide
created by Marcie Colleen
based upon the book
written by Sue Lowell Gallion
and
illustrated by Lisk Feng

This classroom guide is designed for students in kindergarten through third grade. It is assumed that teachers will adapt each activity to fit the needs and abilities of their own students.

It offers activities to help teachers integrate *Our Underwater World: A First Dive into Oceans, Lakes, and Rivers* into the curricula.

All activities were created in conjunction with the Common Core and other relevant content standards.

***

To learn more about Sue Lowell Gallion, visit her at www.suegallion.com. To learn more about Lisk Feng, visit www.liskfeng.com.

Before You Read…

Before reading *Our Underwater World: A First Dive into Oceans, Lakes, and Rivers…*

Look closely at the illustrations on the front and back ~

- Read the title aloud.
- Describe what you see.
- How would you describe the shape of the book?
    - Why do you think this shape was chosen?
    - Brainstorm other possible shapes that would be suitable for a book about the underwater world.

English Language Arts

Reading Comprehension

Now read or listen to the book.

Help students summarize in their own words what the book is about.

- What is your favorite part? Explain why.
- Did you learn anything new that you didn't know about already?

- The text is written in two parts: in rhyme on the left side and in deeper explanation on the right side.
    - Why do you think the author chose to write the book in this way?
    - Read through only the rhyming part of the book.

    - Then read through only the informational part of the book.
    - Which do you prefer and why?

Let's talk about the people who made *Our Underwater World: A First Dive into Oceans, Lakes, and Rivers.*

- Who is the author?
- Who is the illustrator?
- What kind of work did each person do to make the book?

Now, let's look closely at the illustrations. Can you find:

- Three swimming ducks
- A family in a canoe
- A crocodile
- A turtle on a rock
- A beaver
- A jumping pink dolphin
- A Bengal tiger
- Pink sea urchins (can you count them all?)
- Two clownfish
- A humpback whale
- A pink and blue jellyfish
- Two yeti crabs
- Ten penguins
- Four flying flamingo
- Two octopus

Reading Nonfiction

While reading *Our Underwater World: A First Dive into Oceans, Lakes, and Rivers*, take notes in two columns:

    - *Things We Learned*
    - *Questions We Have*

Pause before each page turn to add notes to the columns. These columns can either be individual or hung on the board and worked on as a class.

Things We Learned (Facts)	Questions We Have	Answers We Found

- Once the story is read, discuss the *Questions We Have* column.
    - Were any of these questions answered as the story went along?
    - If so, find the answer within the text.
    - Record the answer next to the question in a third column labelled *Answers We Found.*
- For all remaining questions in the *Questions We Have column*, that have yet to be answered, take the steps to find answers, either through Internet or book research.
    - Discuss how to find answers to questions through research.
    - Assign students to specific questions to help them focus.
    - Record all answers in the *Answers We Found* column.
- After the answers have been shared with the class, engage in a discussion on research practices.
    - What was the most difficult about finding answers?
    - Was it easier to find answers on the Internet or in a book?
    - Which type of source do you think is more reliable, the Internet or a printed book? Why?
    - How can you determine whether to trust a source?
    - What tips would you give someone who is about to do research?

Extension: Design and illustrate posters representing each Fact, Question, and researched Answer based on *Our Underwater World: A First Dive into Oceans, Lakes, and Rivers* and display them within the classroom.

Make Your Own Nonfiction Book

Wiith paper, tape, and scissors create your own nonfiction book about the underwater world with novelty elements like lift-the-flaps, cut-outs, or pop-ups. Maybe construct your book using a non-traditional shape to best convey your topic.

Science

Sea Creature Research Project

There are several sea creatures mentioned in *Our Underwater World: A First Dive into Oceans, Lakes, and Rivers*.

Create a list of the creatures mentioned and choose one to research on the Internet.

Information to be gathered must include:

- Type of sea creature
- What it eats
- Where it lives
- Draw a picture of the sea creature
- Write 3 words that describe your sea creature
- Tell why you chose this creature to research
- Interesting fact #1
- Interesting fact #2
- Interesting fact #3

Once all the needed research is done, create a poster visual with all of the necessary information and present their findings to the class.

Watersheds

What is a watershed? A watershed is an area of land that catches precipitation (rain, sleet, snow) that flows and drains into a body of water such as a wetland, stream, river, lake, or groundwater.

We all live in a watershed, furthering the idea that we are all connected and our choices on how to treat our water impact everyone else.

Turn an opened umbrella upside-down, and you'll form a clearer picture of how a watershed works.

To create a crumpled paper model of a watershed you will need:

- Two sheets of paper. Use paper from the recycling bin, if possible.
- A spray bottle filled with water.
- Non-permanent markers so the colors will run when moistened. You'll need 3-4 different colors (blue, brown, green, and red.)
- A tray or lots of old newspapers or towels to catch the water.

1. Take one sheet of paper and crumple it up in your hands.

2. Then open the paper, but do not flatten it. You want to have some "relief"—some high and low places. The high places are hills, the low spots are valleys, the wrinkles are streams and rivers.

3. With the blue marker, draw on the paper where you think the streams and rivers would be.

4. Place the paper on a tray or newspapers/towels. With the spray bottle, make it rain in the watershed by squirting a fine mist over the crumpled paper model, enough to make water flow down the "hills."

a. Did you draw the streams and rivers in the right places?

b. Do you have a lake?

This is how watersheds function, the water is shed by the land into streams, rivers, and lakes.

5. Now do the same thing with the second piece of paper. Crumple it and then open it up but not too much.

6. Draw the streams and rivers with the blue maker. Maybe include a lake or two.

7. Next, use the brown marker and draw along the tops of the hills. With a green marker you can draw trees, grass, crop or farmland. Use a red marker to draw towns, houses, or businesses.

8. Place the "watershed" on a tray or newspapers/towels and mist it with water.

You'll see streams again. But you will also see a lot of other stuff (colors) running into the streams along with the water. If this were a real watershed, the brown would be dirt from bare soil, the green could be grass clippings or leaves, and the red could be oil from leaky cars or fertilizer someone spilled. That's what happens when things on the ground are picked up by stormwater runoff. They end up in streams and rivers moving down the watershed.

Our daily activities around our homes, on our streets, and in our neighborhoods can greatly impact the quality of our water. Making informed choices about our activities such as washing our cars, changing the oil in our cars, and having our pets go to the bathroom outdoors can greatly reduce or increase the amount of pollution going into our lakes and rivers every time it rains or the snow melts.

To reduce the amount of pollution going into our streams, rivers, and lakes you can do the following:

- Wash your car at the carwash or on your lawn (not driveway) and use as little soap as possible.
- Pick up pet waste and put it in the trash.
- Keep storm drains free of debris and litter.
- Bring used oil to a disposal facility; do not dump it on the ground or a storm drain.
- Brainstorm other ways to reduce watershed pollution in your area.

Climate Change and Its Impact on our Water

Systems to treat wastewater and to clean and filter drinking water have impacted our water quality for the better. But the growing threat of climate change is affecting the quality and quantity of the water in US rivers.

Conduct internet research on one of the following elements of climate change:

- Increase in annual precipitation
- Drought

- Coastal flooding
- Shrinking lakes
- Freshwater flooding
- Saltwater intrusion
- Changes in snowfall
- Rising sea temperatures

How are the quality of water and the creatures who live underwater impacted by these elements of climate change?

The Problem with Plastic

Scientists have been warning us since the 1970s that plastics are accumulating in our oceans, waterways, and along our coasts. Most plastics don't wear down, they simply break into tiny pieces called microplastics. Ocean currents gather plastic waste to form great "garbage patches" in the oceans. Some aren't even visible because the plastic pieces are so small.

By creating plastic and then discarding it without considering the consequences, we are causing great harm to our oceans, the marine plants and animals that live there, and to many coastal communities.

The good news is that since humans are the ones causing the problem, we also have the power to solve it!

For one week:

1. Go on a plastic journey – make note of all the single-use plastic items you use throughout the day that are simply thrown away.

2. Look into your recycling bin and garbage cans. Record items before you throw them away.

3. Keep track of the single-use plastic items you use each day.

Then…

4. After collecting your plastic waste for one week, weigh the plastic collection.

5. Brainstorm ideas about how the waste produced could be reduced—not only by recycling, but by reducing use.

6. Use the collected plastic to make a sculpture or art installation to raise awareness of the pollution problem and how oceans are being polluted by plastic.

7. Where might a piece of plastic trash discarded near you end up? Visit the Ocean Cleanup's Interactive Plastic Tracker https://theoceancleanup.com/plastic-tracker/ to find out. Fill in your location and track the plastic trash as it travels. What waterways does it follow? Does it end up in an ocean?

For more information regarding plastic and our oceans, visit the following resources:

- National Geographic Plastic Pollution Resource Library https://education.nationalgeographic.org/resource/resource-library-plastic-pollution/
- Tracking a Plastic Bottle in the Ocean https://www.onelessbottle.org/oceantracking/#:~:text=Designed%20to%20mimic%20a%20single,marine%20wildlife%20along%20the%20way.
- Can We Track Ocean Pollution From Space? https://thekidshouldseethis.com/post/can-we-track-ocean-plastic-pollution-from-space
- The Life of a Plastic Bottle https://thekidshouldseethis.com/post/plastic-bottle-life-cycle-ted-ed
- Ocean Confetti: The Challenge of Microplastics https://thekidshouldseethis.com/post/ocean-confetti-microplastics
- Stop Marine Plastics https://www.youtube.com/watch?v=02WjKxk1veQ&t=3s

Social Studies

Kids Can Make a Difference!

Join the global mission to raise awareness, educate, and impassion citizens of the world on ways to protect and preserve the Earth's waters, endangered marine life, and marine habitats.

Here are some ways you can make a difference.

1. Raise Awareness – Spread the word in your communities on the importance of our oceans and the dangers affecting the ocean and its inhabitants. Create a poster or flyer campaign to educate people about it.

2. Create a school or community mural entitled OUR UNDERWATER WORLD to motivate others to take action.

3. Pollution of any kind can get into our waterways. Clean up nature – Volunteer your time to help clean up trash.

4. Support ocean and beach conservation organizations – Raise funds through bake sales or lemonade stands so that these organizations can educate people.

5. Find out more about the underwater ecosystems nearest to where you live, whether it's a creek or one of the Great Lakes. Then, get involved in local conservation efforts with your family or school.

6. Be Respectful to Mother Earth –By doing your part, you are lightening a heavy load resting on the shoulders of our great planet.

Pledge 50 Ways to Help

Want to do more to help our planet?

Check out 50 Ways to Help http://www.50waystohelp.com/ and pledge to do at least one of these simple tasks each day for a month.

Each task earns you one point. How many points can you earn before the month is up? Set a class goal and celebrate with an eco-friendly party if the goal is met.

Keep a daily journal of your efforts to share with your class.