art doing its part

SUPPLEMENTAL EDUCATIONAL MATERIALS

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MSUCOASTAL.COM/ARTDOINGITSPART

LAND TRUST FOR THE MISSISSIPPI COASTAL PLAIN

MISSISSIPPI SOUND ESTUARY PROGRAM

Here is an accompaning in-classroom presentation to compliment this document:

IN-CLASSROOM PRESENTATION

Defining the Problem

Mississippi and connecting water bodies face significant litter problems, much of which originate from inland areas. Items like bottles, cigarette butts, straws, and fragmented plastics travel through rivers, streams, and stormwater systems to eventually reach coastal waters, affecting human health, local economies, and aquatic life.

Addressing this issue requires a statewide, collaborative approach, involving both inland and coastal communities.

What is a Watershed?

A watershed, often called a drainage basin, is a region of land that drains into a particular body of water. Watersheds can range in size from small local water basins to large regional watersheds made up of many smaller basins.

A watershed not only influences the water quality in the surrounding water body but also has a significant impact on the well-being of the communities of people and wildlife that inhabit it. Healthy watersheds play a crucial role in safeguarding water quality and offer more advantages to the inhabitants than degraded ones.

How Does Water Move Through a Watershed?

On the Surface

Stormwater runoff (surface water moving through the watershed) is generated from precipitation that flows over land or impervious surfaces (i.e., paved streets, parking lots, rooftops, etc.) and does not soak into the ground.

Urbanization and Stormwater Runoff | US EPA

Underground

Water moves underground through infiltration and seepage.
A large portion of the Earth's freshwater can be found underground.

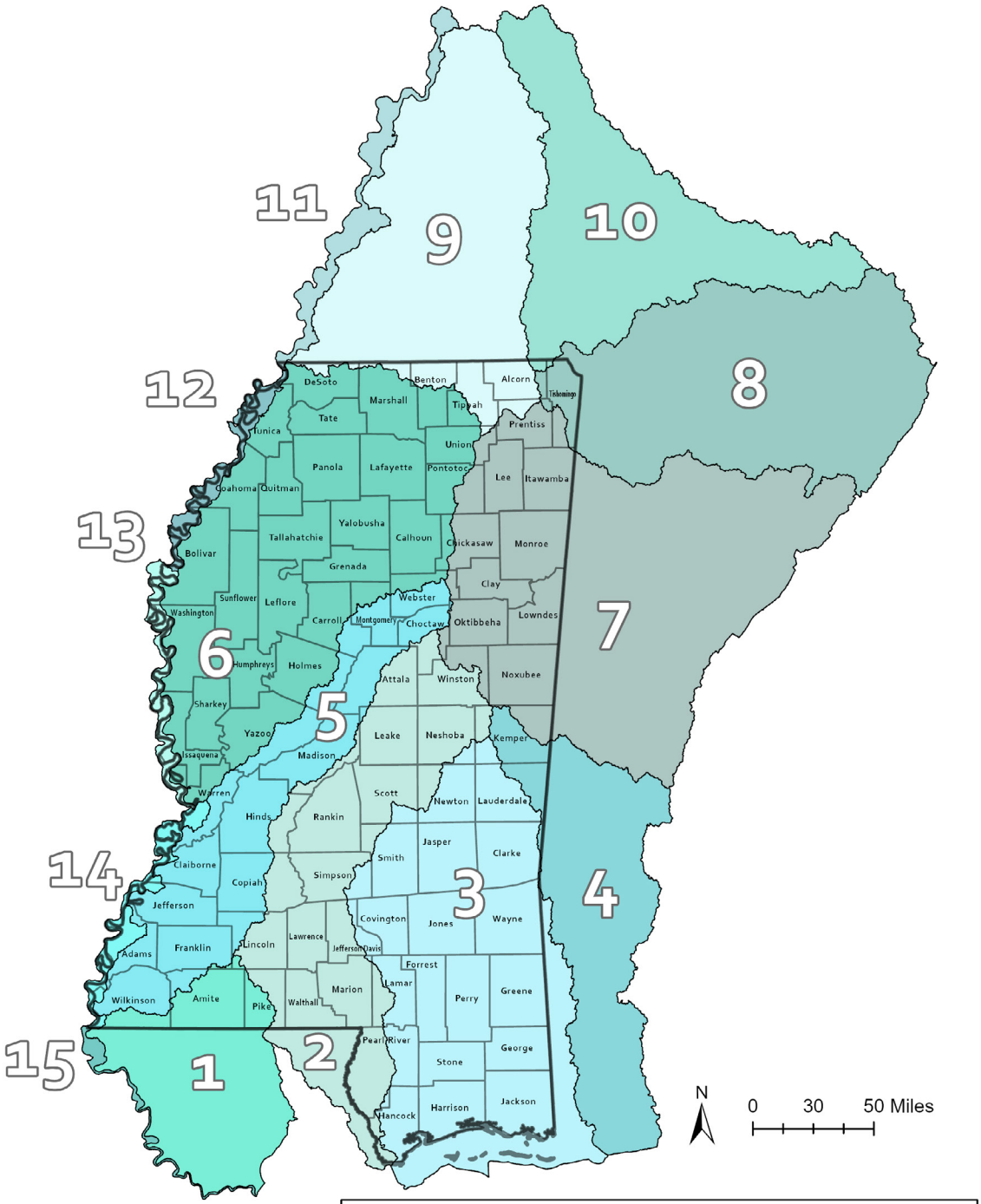
Infiltration and the Water Cycle | U.S. Geological Survey

Infiltration (the flow of water from above ground into the subsurface) can help clean the water as it moves slowly through the soil, ending up in the water table or being taken up by plants.

Urbanization and Stormwater Runoff | US EPA

Watersheds in Mississ

Where does your stormwater runoff end up?



1	LAKE MAUREPAS
2	PEARL
3	PASCAGOULA
4	MOBILE BAY-TOMBIGBEE
5	BIG BLACK-HOMOCHITTO
6	YAZOO
7	BLACK WARRIOR-TOMBIGBEE
8	MIDDLE TENNESSEE-ELK
9	HATCHIE-OBION
10	LOWER TENNESSEE
11	LOWER MISSISSIPPI-MEMPHIS
12	LOWER MISSISSIPPI-HELENA
13	LOWER MISSISSIPPI-GREENVILLE
14	LOWER MISSISSIPPI-NATCHEZ
15	LOWER MISSISSIPPI-BATON ROUGE

Stormwater Runoff

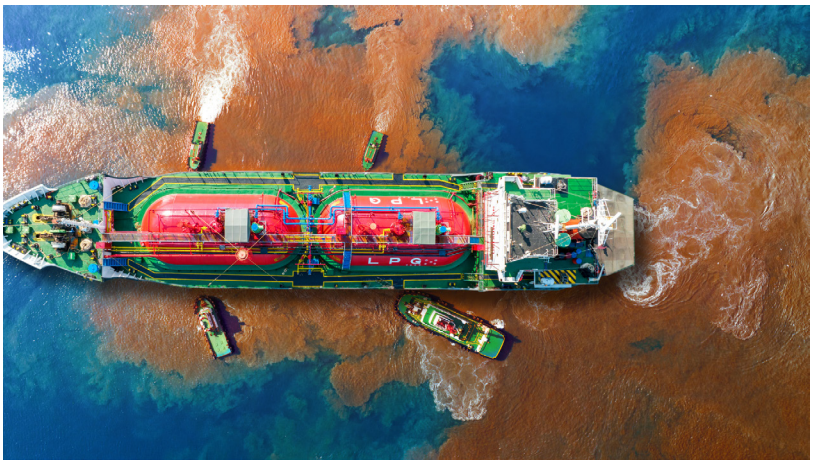
Stormwater runoff is generated from rain and snowmelt that flows over land or impervious surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground.

Stormwater runoff:

- Does not infiltrate the ground.
- Does not get cleaned or filtered.
- Picks up and deposits pollutants such as chemicals, trash, and sediment into surface and groundwater.

Urbanization and Stormwater Runoff | US EPA

Health of the Watershed



Point Source Pollution

Easily identifiable source of pollution input.
Examples: Deep Water Horizon Oil Spill, factory outputs, sewage treatment plant overflows

Nonpoint Source Pollution

Occurs as a result of stormwater runoff.
Examples: Septic tanks, farms, timber harvest areas, mismanaged trash

About Litter

Litter can be defined as trash that is not disposed of properly, intentionally or unintentionally.
Mismanaged litter often travels via waterways (watersheds, rivers, oceans, etc.) to marine environments where it becomes marine debris.

Litter, especially plastic, is one of the greatest threats to our natural environment today

Plastic is NOT biodegradable, only breaking down into smaller and smaller pieces called microplastics.

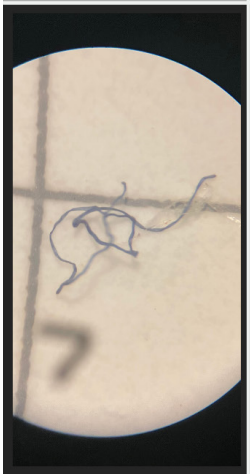
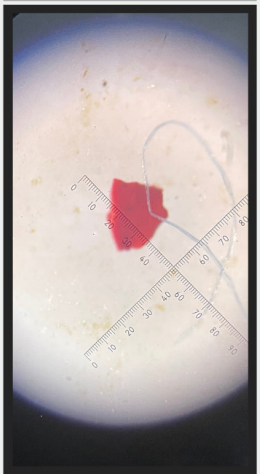
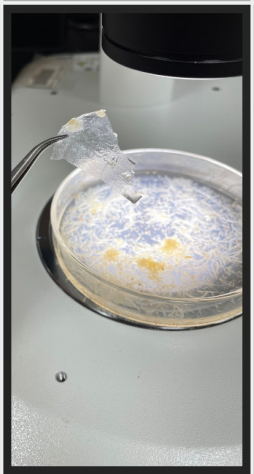
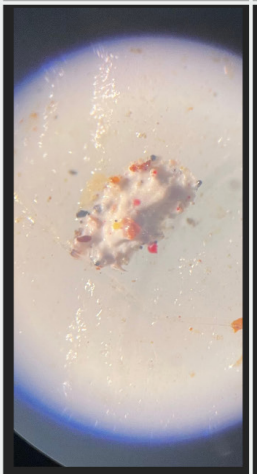
Microplastics

A microplastic is a plastic 5 mm or smaller in size (about the size of a pencil eraser)
Chemical and Physical processes like wave action, heat, UV radiation, and animal grazing cause plastics to break up into smaller and smaller pieces.

There are FIVE categories of microplastics: Fiber, Film, Fragment, Foam, and Bead

Primary microplastics include plastic particles that are purposefully manufactured as small pellets, beads, and fragments.
Many everyday cosmetic products, including face wash, toothpaste (banned in 2018), exfoliants, deodorant, and makeup, contain plastic microbeads.

Secondary microplastics are the result of the breakdown of larger plastic pieces.

Fiber *(Secondary Microplastic)*	**Fragment** *(Secondary Microplastic)*	**Film** *(Secondary Microplastic)*	**Foam** *(Secondary Microplastic)*	**Bead** *(Primary Microplastic)*
EX: Synthetic Clothing, Carpet, Rope, Netting	**EX:** Broken Pieces from Larger Plastics	**EX:** Grocery Bags, Cling Film	**EX:** Styrofoam	**EX:** Nurdles, Microbeads
 Photo Credit: Jessi A. James	 Photo Credit: Jessi A. James	 Photo Credit: Jessi A. James	 Photo Credit: Jessi A. James	 Photo Credit: Amber Banks

Impacts of litter:

Habitat

Changes to ecosystem structure, depletion of oxygen and light levels in water bodies, and entanglement of animals are just a few examples of habitat impacts.

Human

Impedes habitat and ecosystem services—such as commercial fishing, transportation, tourism, and general health and safety. Scientists are just beginning to study the effects of plastic on human health. Example: Plastic is a known endocrine disruptor and is being linked to obesity, infertility, and thyroid issues.

Biological

Fauna can ingest harmful litter, causing inefficient feeding, mating, or mobility (i.e., sea turtles and plastic bags)

Chemical

Persistent, bioaccumulating, and toxic ingredients from plastic products [ex: pesticides, polychlorinated biphenyl (PCBs), etc.] Weather, UV radiation (sunlight), and mechanical exposure can speed up the chemical impacts of litter.

Standards and Laws

Clean Water Act

Under the Clean Water Act, every state must develop and adopt water quality standards to protect, maintain, and improve the quality of the nation's surface waters.
The goal of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters".

Learn more about

Mississippi's water quality standards:
https://www.mdeq.msw.gov/water/surface-water/watershed-management/water-quality-standards/

Summary of the Clean Water Act:
https://www.epa.gov/laws-regulations/summary-clean-water-act

How you can make a difference

Make small changes!

Awareness

Talking with friends and family about what you have learned!
Be a conscious consumer.

Education

Researching similar topics and staying up-to-date with data and research.

Removal

Volunteer with local cleanup programs to help keep your local communities clean.
Host your own cleanup!

Prevention

Reduce or eliminate your usage of plastic.
Be a good steward of the environment by disposing of your waste properly.

Participate in a cleanup event and collect data!

Participate in a local cleanup and help collect valuable data. While removing litter from your environment, it is important to document what you find. **Data collection is a critical part of any cleanup event** because it helps scientists understand how much litter is being removed and what types of debris are most common. This information allows us to identify problem areas, support applications for funding and grants, and target hotspot locations and specific debris for future marine debris and terrestrial litter research.

Cleanup data also helps quantify the collective effort required to keep our environment clean and demonstrates the educational and community impact of these events.

DOWNLOAD DATA SHEETS HERE

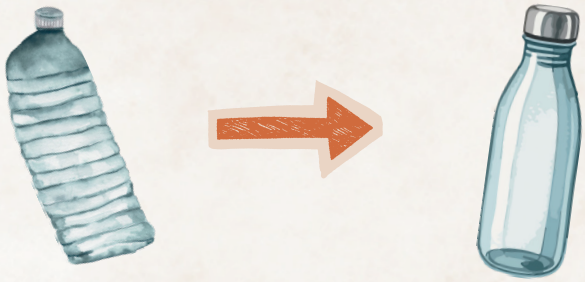
After completing your cleanup, please enter your data into the Ocean Conservancy's International Coastal Cleanup Database using their Clean Swell app, available at https://oceanconservancy.org/work/plastics/cleanups-icc/clean-swell-app/

DOWNLOAD THE CLEAN SWELL APP

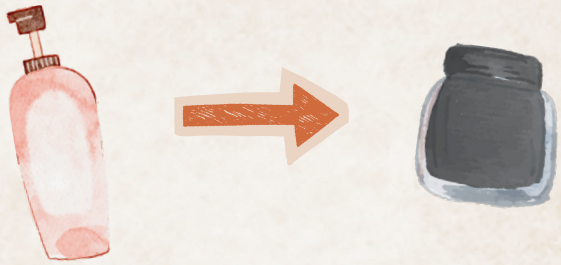
SUSTAINABLE SOLUTIONS

MAKE THE SWITCH FROM SINGLE-USE PLASTIC PRODUCTS TO REUSABLE OPTIONS!

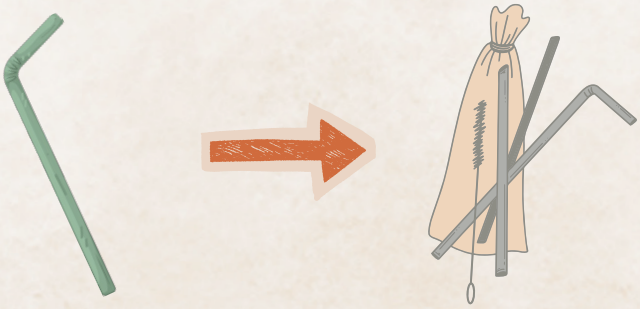
Swap your single-use bottle to a refillable one



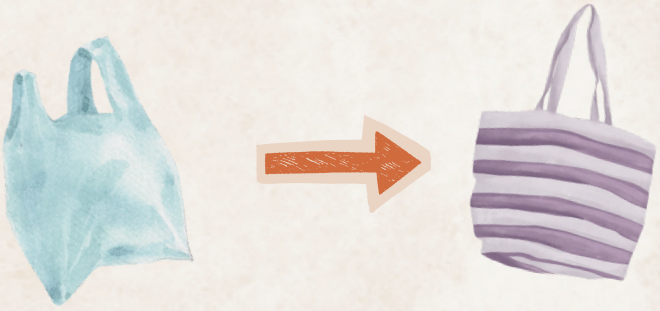
Swap your mass-produced plastic Lotion bottle to a DIY lotion tin



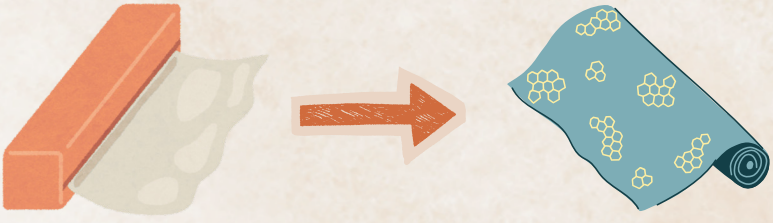
Swap your plastic straws to a washable one



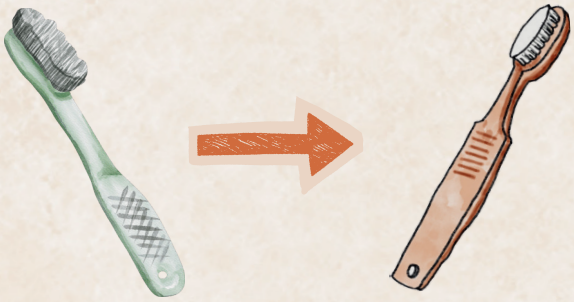
Swap your plastic grocery bag to a Cotton one



Swap your cling wrap to a beeswax wrap



Swap your plastic toothbrush to a Bamboo one



Classroom Microplastic Sampling Activity

Teachers, if you're looking for a hands-on way to teach students about the hazards associated with plastics and their impacts on water quality, consider trying our Microplastic Sampling Activity. This activity allows students to collect and filter water samples from locations of their choice, such as school water fountains, bottled water, or household faucets, to test for the presence of microplastics.

After filtering the samples, students examine them under a microscope to identify the five main types of microplastics: fiber, film, fragment, foam, and bead. This engaging investigation helps students better understand where microplastics are found and how they can affect our water systems.

You can find the full activity instructions here:

MICROPLASTIC SAMPLING ACTIVITY

Advertising and the Environment

Advertising has helped shape consumption patterns and influence societal values for decades, having a substantial role in perpetuating unsustainable practices and in advocating for environmental sustainability. Early advertising promoted rapid consumption, emphasizing convenience and single-use products as symbols of modern living. This normalized a throw away culture, contributing to widespread waste generation. With plastic in particular, affordability and versatility were highlighted in promoting this single- use waste stream, rapidly increasing plastic production and resulting in its accumulation in landfills, waterways, and natural ecosystems.

Within a few decades of plastic's creation, it began to become clear that there were drawbacks to this convenience lifestyle. In 1993, a photo of a turtle with its shell shaped like a figure eight due to a plastic 6- pack yoke made headlines, helping to influence an entire generation into cutting these rings habitually to help keep this scene from repeating. Just one year later, federal regulations began requiring the yoke be made of plastic formulated to break down within months in the environment. This began an era of advertising focused primarily on promoting eco-friendly products and green consumer behaviors. These marketing campaigns have since been criticized for placing responsibility on the consumer rather than on large-scale production and corporate accountability, promoting false solutions that have misled consumers.

Figure 1: 1993 photo of a turtle with its shell shaped like a figure eight due to a plastic 6-pack yoke

False Solutions

False solutions are ideas that seem like they fix an environmental problem but don't actually solve it. They can even make things worse by distracting people from real solutions.

One example is the plastic recycling myth. Many people believe recycling alone can solve plastic pollution, but that isn't true. In 2021, the U.S. created about 40 million tons of plastic waste, and only about 5% of it was recycled. Just because something can be recycled doesn't mean it will be.

Some plastics are also designed to break down faster, but they don't disappear. Instead, they break into tiny pieces called microplastics, which stay in the environment and can harm wildlife and people.

These examples are part of something called greenwashing. Greenwashing is when a company or product is made to look environmentally friendly—even when it really isn't. This can confuse consumers and make it harder to know what choices actually help the environment.

There are six main types of greenwashing:

1. Fibbing – making environmental claims that are simply false
2. No proof – making claims without evidence to back them up
3. Vagueness – using unclear or confusing language about materials or practices
4. Hidden trade-off – focusing on one "green" feature while ignoring other harmful impacts
5. Lesser of two evils – making a harmful product seem better by comparing it to something worse
6. Irrelevance – claiming to avoid something that is already banned or uncommon

Greenwashing makes it harder for people to understand sustainability and choose real solutions to environmental problems.

The Circular Economy

In recent years, advertising has again begun to shift, increasingly focusing on communicating corporate social responsibility initiatives such as the circular economy. The circular economy considers every stage of a product's journey from conception to end of life. This shift supports the development of marketing campaigns that advocate for resource conservation, product longevity, and equitable supply chains toward authentic sustainability in place of greenwashing practices.

Figure 2: The Circular Economy

Tips for making impactful environmental art for advertising

Environmental art is a diverse global field, with artists from around the world using a wide range of methods and materials to address ecological issues. This work aims to raise awareness of environmental problems, propose solutions, reconnect people to their local environments, and challenge our perceptions of our relationship with nature.

Use Symbols

Symbols, visual or conceptual elements carrying specific meanings, are fundamental tools in advertisement. They can evoke emotional responses from audiences through subconscious associations. For example, the color green is often used in eco-friendly advertising to evoke feelings of sustainability and promote the support of environmentalism. Similarly, blues often convey trust and calmness, reds represent urgency and passion, and golds promote a sense of sophistication or premium quality.

By utilizing symbols in your own work, you can be influential in changing attitudes and behaviors of the people of Mississippi.

What symbols come to mind when you think of Mississippi?

Use easy-to-read lettering, high contrast, and bright colors!

Using easy-to-read lettering, high contrast, and bright colors in an art and slogan competition is crucial for ensuring the message is instantly visible, legible, and impactful to judges and viewers. These elements maximize accessibility, prevent viewer fatigue, and ensure the message is conveyed quickly and clearly, even from a distance.

Figure 3: Art by Rilyn in the Oklahoma statewide art and slogan competition