

# Third Grade Manatee Curriculum—Lesson 10: How Students Impact Their Environment<sup>1</sup>

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For more lessons in the *Third Grade Manatee Curriculum* series, go to [http://edis.ifas.ufl.edu/topic\\_series\\_third\\_grade\\_manatee\\_workbook](http://edis.ifas.ufl.edu/topic_series_third_grade_manatee_workbook).

## Description

Students will learn that different activities create different amounts of pollution.

## Objective

By the end of the activity, students will be able to list at least three different types of pollution. Students will be able to list at least one thing that they can do to reduce pollution.

## Vocabulary

Pollution, solar, wind energy, sewage, storm water, environment

## You Will Need

- A projector (LCD or smartboard)
- PowerPoint presentation “Lesson 10: Pollution” (available at [https://www.flseagrant.org/wp-content/uploads/2022/12/Manatees\\_Lesson10\\_Presentation.ppt](https://www.flseagrant.org/wp-content/uploads/2022/12/Manatees_Lesson10_Presentation.ppt)).

## Strategy

Use the “Pollution” PowerPoint presentation to explain to students some things that people do things that are not healthy for the natural environment.

## Script for PowerPoint

**Slide 1:** Sometimes people do things that harm the natural environment and make it difficult for wild animals and plants to live healthy lives. We call this pollution. Today we will learn about different types of pollution—some are easy to see, and some are very difficult to see.

**Slide 2:** We don’t like to see trash on the ground, especially at the beach. Unfortunately, trash is often dropped on the ground, or sometimes it blows out of trash cans. Storms can wash trash from the ground into the water. This picture was taken after a hurricane came past Flagler Beach.

**Slide 3:** Cars, buses, airplanes, trains, and other vehicles use gasoline or coal to make them go. When gas or coal are burned, the result is a smoke that contains harmful chemicals.

**Slide 4:** Can you see the brown stuff in the air over the buildings? This is called smog, a mixture of the words

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“smoke” and “fog.” The exhaust from cars, smoke from fires, and many other things can cause smog. We mostly see smog around cities.

**Slide 5:** Have you ever looked at the parking lot after it has rained and noticed a rainbow on the ground? This rainbow is caused by small amounts of oil that have leaked from cars and trucks onto the parking lot surface. When it rains, the oil gets spread out and light shining on it looks like a rainbow. Sometimes ships have accidents and oil gets spilled in the ocean. This oil can cover birds and animals and can kill them. Even the small amounts of oil from the parking lot can be harmful to wildlife.

**Slide 6:** Many animals and plants need it to be dark at night for 10 or more hours or else their bodies become confused. Some plants will not start to make flowers unless the night length is correct. Some animals will not reproduce unless they have enough darkness. When we leave lights on all night, we can mess up the day-night cycle that animals and plants are used to. This picture shows North America from space at night. Can you find Florida? Where do you think the big cities are located? (*Answer:* Where the brightest lights are.)

**Slide 7:** Loud noises can scare animals and can even damage their ability to hear—just like in humans! Sound travels long distances underwater, and scientists are worried about the effect of loud underwater noises on animals like whales. These noises can be caused by ship engines, by underwater explosions, or by sonar (sound used for underwater exploration). (If you have Internet access, you can play some of these sounds for students from <https://dosits.org/galleries/audio-gallery/marine-mammals/baleen-whales/north-atlantic-right-whale/>.)

**Slide 8:** When we flush the toilet, the stuff that is flushed is called “sewage.” In some places, that sewage is piped out into the ocean. This sewage has had some of the harmful stuff removed from it, but is not safe to drink.

**Slide 9:** When people put fertilizer on their yards to make the grass green or spray outside the house to kill bugs, those chemicals can wash into creeks or ponds when it rains. We cannot see the chemicals in the water, but sometimes the chemicals can harm the creek or pond.

**Slide 10:** Power plants, like this one in St. Lucie County, Florida, use water to cool down the big engines that create electricity. The water that is in the front of the picture was originally taken from the lagoon. As it was piped past the engines, the heat from the engines made the water hot,

letting the engines cool down. It was then pumped into the ponds. It is allowed to cool down in these ponds before it is pumped back into the lagoon. If it was not allowed to cool down first, it would make the water in the lagoon too hot for some creatures to live in.

Manatees have learned to visit power plants in the winter months because of the warm water they produce. Unfortunately, some older power plants are no longer efficient and are closing. This is a problem for the manatees. Some power plant owners will operate their plants just in the winter months to keep the manatees warm.

**Slide 11:** We have mentioned that rainwater can wash chemicals and even trash into the water. We call this storm-water pollution. All of the ditches that you can see next to the roads drain into a canal, lake, or other water body, so whatever is in the ditches will eventually get into the water somewhere.

**Slide 12:** Which one of these pictures shows a polluted lake? The bottom picture is obviously polluted—we can see lots of plastic and even a tire floating in the water. That cannot be healthy for wildlife. The picture at the top looks healthy, doesn’t it? But without testing the water, we cannot say for sure that it is healthy. In reality, both pictures were taken at the same lake, just around the corner from each other.

**Slide 13:** There are lots of things that we can all do to help keep our water and air healthy. Here are some examples. How does each of these help prevent pollution? (*Answers:* Both recycling and throwing trash away properly helps to prevent trash from ending up in the ocean; riding a bicycle or walking helps to reduce the amount of pollution that is produced by car exhaust; and using solar or wind energy instead of electricity from a power plant is considered “clean” energy—it does not produce as much air pollution as do gas or coal power plants.)