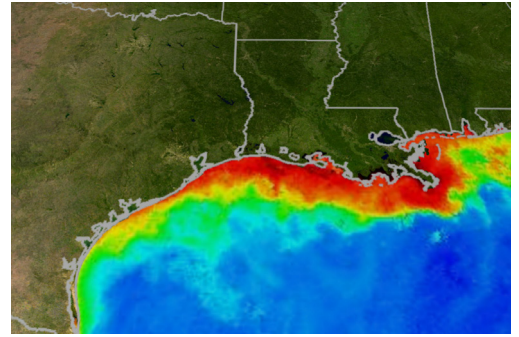


The DEAD Zone Activity

Overview: Every summer, marine biologists have come to expect the formation of a huge band of nearly lifeless ocean off the coast of Louisiana in the Gulf of Mexico. This area, called a “dead zone”, kills or drives off fish, crustaceans, and other sea life because it is so depleted of oxygen.

The condition of oxygen depletion is known as hypoxia. Hypoxia results in dead zones worldwide, but the one in the Gulf of Mexico is the largest. The size of the dead zone in the Gulf changes every year. In 1988, a year of drought, the dead zone was relatively small.



In this activity students will read the links below to find out information that will allow them to answer the questions and gain background knowledge about this problem. Students will then brainstorm and research different solutions to stopping the dead zone from occurring. They will then visit the raingarden and talk about how it helps reduce the effects that lead up to the major problem. Here is a helpful link explaining raingardens: http://www.lowimpactdevelopment.org/raingarden_design/whatisaraingarden.htm

Benchmarks:

7.4.4.1.2 Describe ways that human activities can change the populations and communities in an ecosystem.

Literacy Standard: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

Objectives:

1. Students will be able to explain how human activities can have an effect on populations/communities in an ecosystem.
2. Students will be able to come up with solutions to prevent or reduce the problem of water pollution.

Materials Needed:

- Computer and projector
- Computer Lab- 2 students per computer or print out the research articles

How to Start:

Part One

Break students into teams of two. They will read the articles to each other. If you do not have enough computers for everyone you will need to print the articles for them. They will go through and find the answers to the questions on the “Dead Zone” research worksheet.

- <http://news.nationalgeographic.com/news/2013/06/130621-dead-zone-biggest-gulf-of-mexico-science-environment/>
- <http://science.time.com/2013/06/19/this-years-gulf-of-mexico-dead-zone-could-be-the-biggest-on-record/>
- http://www.classzone.com/books/earth_science/terc/content/investigations/es2206/es2206page01.cfm?chapter_no=investigation



Part Two

Students then will research ways to reduce nitrogen runoff on the following websites:

- <http://www.scientificamerican.com/article.cfm?id=fertilizer-runoff-overwhelms-streams>
- <http://ga.water.usgs.gov/edu/nitrogen.html>

When students are done you will then have them come back to the large group and discuss their findings or you could break them into smaller groups to share.

School Yard Visit:

Take students outside on the school grounds and show them the raingarden or other nature area that may be helping prevent nitrogen contaminated stormwater runoff. Explain what a raingarden is and why they are important. If you need information about raingardens check out this link: http://www.lowimpactdevelopment.org/raingarden_design/whatisaraingarden.htm





Curriculum developed in 2013 by the City of Rochester, Minnesota - Storm Water Management Division.
Learn more about "Keeping it Clean" by visiting: www.rochesterstormwater.com

