

Built on Water – Water in Milwaukee

Engage

Purpose: To generate interest in the science of water. To gain an understanding of why water is fundamental to a healthy living and non-living community. To explore water related ecosystems, where does water come from, and expand vocabulary. To provide Milwaukee's rich historical connection to water.

Activities:

1. The teacher will provide background on why water is important for a healthy community. Provide background on watersheds, hydrology and why it is important to keep our water clean. If teacher has a watershed model, please use it to demonstrate what a watershed is.
2. Student will be map, conduct background research and will be able to identify river closest to their home.
 - Background research – What is a watershed, lake, river, wetlands, estuaries?
 - Activity - Why is water important? Where does it come from?
 - Mapping – students will pin point their home using the Milwaukee Urban Water Trail Map to identify the watershed and river closest to their home, sense of place
 - Historical background – watch John Gurda's video and complete Cornell notes
 - Who is John Gurda? – Background on a Milwaukee historian

Explore

Purpose: Assess the potential risks to water from storm water runoff coming off their school or home properties. Explore personal water use habits at home and school. Explain causes and effects of pollutants in their community. Explore water usage (commercial, industrial, domestic, recreational) and ways to conserve water.

Activities:

- Water You Doing with Hydrology
- Stormwater! Water pollution in urban areas
- TedTalk video – Water usage
- Water related careers

Explain

Purpose: To provide students with relevant vocabulary to analyze the Milwaukee River Basin environmental quality report. Explain the role of Milwaukee Metropolitan Sewerage District and Water works in keeping water clean.

Activities:

- Analyze the Milwaukee River Basin quality of water
- Milwaukee Water Works Drinking Water Treatment Process – How does it work?
- Milwaukee Metropolitan Sewerage District – What happens at MMSD?

Elaborate

PURPOSE: To provide students with relevant vocabulary to analyze and explain water related issues in their community. Identify steps they can personally take to prevent water pollution. Demonstrate an understanding of how to communicate what they have learned with their families and communities. Create a sense of place and a responsibility for stewardship of the Milwaukee River Basin.

Activities:

- Persuasive essay
- Writing assignment
- Graphic organizer
- Final oral presentation

Evaluate

Purpose: Formative--For students to assess their understand of the learning objectives

Summative—For the teacher to assess student understanding of the learning objective

Learning Objectives for unit

Great Lakes Principle: Principle 1: The Great Lakes, bodies of fresh water with many features, are connected to each other and to the world ocean.

Content learning targets –

Earth and Space Science (NGSS): HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

Earth and Space Science (NGSS): Environmental Science: Natural Resources: Resource availability has guided the development of human society and use of natural resources has associated costs, risks, and benefits.

Energy and Matter

The total amount of energy and matter in closed systems is conserved. (HS-ESS2-6) Energy drives the cycling of matter within and between systems. (HS-ESS2-3)

Geography

A.12.8 Identify the world's major ecosystems and analyze how different economic, social, political, religious, and cultural systems have adapted to them

**Assessment for unit:
Built on Water Thematic Rubric**

