

Unit: <u>Water</u>	Topic: <u>Human Impact</u>	Teacher: <u>Kari Lockett and Claudia Witt</u>
<p>State Standards:</p> <p style="text-align: center;">Michigan State Standards</p> <p>E4.1C Explain how water quality in both groundwater and surface systems is impacted by land use decisions.</p> <p>E2.4B Explain how the impact of human activities on the environment (e.g., deforestation, air pollution, coral reef destruction) can be understood through the analysis of interactions between the four Earth systems.</p> <p style="text-align: center;">Next generation science standards</p> <p>ES.S 2A Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original change.</p>	Course: <u>Environmental Science</u>	Grade Level: <u>9-12</u>

Learning objectives:

Students will....

- Assess prior knowledge on how water relates to health, hunger, poverty and education
- Investigate water related issues
- Prepare a poster
- Make connections of water related issues between the United States and third world countries.
- Reflect on other human privileges and connect them to the global freshwater crisis.

	Description of Lesson component
Elicit	Assess prior knowledge with an anticipation guide
Engage	Review answers to anticipation guide (All answers are true!) Youtube video: cholera for sale in New York http://www.youtube.com/watch?v=TtOQda0aKlc
Explore	Jigsaw activity – health, hunger, poverty and education http://thewaterproject.org/health.asp http://thewaterproject.org/hunger.asp http://thewaterproject.org/poverty.asp http://thewaterproject.org/education.asp
Explain	Create a poster (must include two key fact from anticipation guide) See attached rubric.
Elaborate	Powerpoint connections to the United States, Michigan, Kalamazoo, etc. to make it more relevant to the students.
Evaluate	Poster
Extend	Ecojournal article reflection

thewaterproject.org Anticipation Guide

Directions: Read each of the following statements and determine whether they are true or false.

1. _____ Nearly a billion, 884 million people do not have access to clean and safe water. 37% of those people live in Sub-Saharan Africa.
2. _____ 1 in 8 people worldwide do not have access to safe and clean drinking water.
3. _____ 443 million school days are lost each year due to water-related diseases.
4. _____ In developing countries, as much of 80% of illnesses are linked to poor water and sanitation conditions.
5. _____ Half of the world's hospital beds are filled with people suffering from a water-related disease.
6. _____ Girls under the age of 15 are twice as likely as boys their age to be the family member responsible for fetching water.
7. _____ Over half of the developing world's primary schools do not have access to water and sanitation facilities. Without toilets, girls typically drop out of school at puberty.
8. _____ Less than one in three people in Sub-Saharan Africa have access to a proper toilet.
9. _____ 84% of the people who don't have access to improved water, live in rural areas, where they live principally through subsistence agriculture.
10. _____ The average container for water collection in Africa, the jerry can weighs over 40 lbs when full.
11. _____ Almost two-thirds, 64% of households rely on women to get the family's water when there is no water source in the home.
12. _____ Globally we use 70% of our water sources for agriculture and irrigation, and only 10% on domestic uses.
13. _____ Girls under the age of 15 are twice as likely as boys their age to be the family member responsible for fetching water.
14. _____ Nearly 1 out of every 5 deaths under the age of 5 worldwide is due to a water-related disease.
15. _____ The United Nations estimates that Sub-Saharan Africa alone loses 40 billion hours per year collecting water; the same as an entire year's labor in all of France!
16. _____ Research has shown that for every 10% increase in women's literacy, a country's whole economy can grow by up to 0.3%.
17. _____ According to the World Health Organization, for every \$1 invested in water and sanitation, there is an economic return of between \$3 and \$34.
18. _____ By investing in clean water alone, young children around the world can gain more than 413 million days of health.

Water-related Issue

Health

Hunger

Poverty

Education

thewaterproject.org Poster Rubric

Poster Project requirements:

- Summarize information in reading
- Include two relevant picture
- Include at least two relevant facts from anticipation guide
- Include one additional fact (you research)
- Note: Use of class time and attractiveness will also be assessed

CATEGORY	4	3	2	1
Content - Accuracy	At least 8 accurate facts are displayed on the poster.	5-7 accurate facts are displayed on the poster.	3-4 accurate facts are displayed on the poster.	Less than 3 accurate facts are displayed on the poster.
Graphics - Relevance	Both graphics are related to the topic and make it easier to understand.	Two graphics related to the topic are included.	One graphics relating to the topic is included.	At least one graphic is included but do not relate to the topic.
Incorporation of facts		At least two included facts from the anticipation guide and one researched fact are included.	Two of the three required facts are included.	One of the three required facts are included.
Use of Class Time	Used time well during class period. Focused on getting the project done. Never distracted others.	Used time well during class period. Usually focused on getting the project done and never distracted others.	Used some of the time well during class period. There was some focus on getting the project done but occasionally distracted others.	Did not use class time to focus on the project OR often distracted others.
Attractiveness	The poster is exceptionally attractive in terms of design, layout, and neatness.	The poster is attractive in terms of design, layout and neatness.	The poster is acceptably attractive though it may be a bit messy.	The poster is distractingly messy or very poorly designed. It is not attractive.

____/20 points

ECOJOURNAL PART ONE...

Welfare, free healthcare, minimum wage, and subsidized housing are all programs put into place by the government to help those in need. Many people who are more well off resent those less fortunate for "taking" from them in the form of taxes and extra "benefits". How do you feel about these programs? Do you feel that they are helpful and good for society? Do you believe that some people in society should have to contribute money (via taxes) for the misfortune of others? Why or why not? Fill at least half of a page in your ecojournal.

DRAW A HORIZONTAL LINE AND LABEL THE FOLLOWING AS PART TWO...

Our society relies heavily on water. We use water on a regular basis for drinking, cooking, cleaning, watering our lawns, gardens, and crops, doing our laundry, etc. Reflect on the concepts you've discussed in your groups today. Do you believe that society should be limited on the amount of water we use so people who are less fortunate can have what we have? Why or why not? What can you do about this? How does this relate to part one? Fill at least half of a page in your ecojournal.

ECOJOURNAL PART ONE...

Welfare, free healthcare, minimum wage, and subsidized housing are all programs put into place by the government to help those in need. Many people who are more well off resent those less fortunate for "taking" from them in the form of taxes and extra "benefits". How do you feel about these programs? Do you feel that they are helpful and good for society? Do you believe that some people in society should have to contribute money (via taxes) for the misfortune of others? Why or why not? Fill at least half of a page in your ecojournal.

DRAW A HORIZONTAL LINE AND LABEL THE FOLLOWING AS PART TWO...

Our society relies heavily on water. We use water on a regular basis for drinking, cooking, cleaning, watering our lawns, gardens, and crops, doing our laundry, etc. Reflect on the concepts you've discussed in your groups today. Do you believe that society should be limited on the amount of water we use so people who are less fortunate can have what we have? Why or why not? What can you do about this? How does this relate to part one? Fill at least half of a page in your ecojournal.