

8a.5 Pure Water

Story Extension for This Lesson:

Sam and Alex's journey prompts their curiosity about why and how humans pollute their water sources. In this lesson students watch and learn from a documentary how to take action

Grade: 8

Strand: Water Systems

Big Ideas:

- Water is crucial to life on Earth.
(Overall expectations 1 and 2)
- Water is an important resource that needs to be managed sustainably.
(Overall expectations 1 and 2)

Overall Expectations:

1. assess the impact of human activities and technologies on the sustainability of water resources
2. investigate factors that affect local water quality

Specific Expectations:

- 1.3** assess the impact on local and global water systems of a scientific discovery or technological innovation
- 2.4** use scientific inquiry/research skills (see page 15) to investigate local water issues
- 2.6** use appropriate science and technology vocabulary, including water table, aquifer, polar ice-cap, and salinity, in oral and written communication
- 3.1** identify the various states of water on the earth's surface, their distribution, relative amounts, and circulation, and the conditions under which they exist
- 3.3** explain how human and natural factors cause changes in the water table

Inquiry Skills:

Analyzing, Reporting, Teaching

Instructions:

This lesson will investigate the effect of urbanization on the watersheds that flow into the Great lakes.

Discuss the issues with urban watersheds and how there is still not enough protection in most communities to preserve their water sources.

Watch 11th Hour. ([https://en.wikipedia.org/wiki/The_11th_Hour_\(film\)](https://en.wikipedia.org/wiki/The_11th_Hour_(film)))

Discuss the concerns raised by this video in class with your class experts and the teacher.

Many of the North American watersheds have been contaminated by an assortment of different pollutants. In small groups, choose from the list below and create a lesson to teach the rest of the class why these things happen (with an example), and how we can begin to rectify the issue.

Contaminants:

Chemical

- Metals
- Micro-beads / Plastics
- Household cleaners
- Household
- Oil spills
- Pesticides
- Fertilizers

Biological

- Micro organisms
- Invasive Species
- Sewage

Physical

- Garbage
- Others
- Others

Remember to use the Learning Process, and conference to develop ideas.

Materials List:

- pens or pencils
- paper
- computer

Subject Area:

Environmental, Science, Social Studies

Connects to:

Grade 8

Assessment Strategy:

The Learning Process

Handouts/Assessments:

- - Water Systems 5
- The-NEW-Learning-Process-3.0-3

Pure Water

Name: _____

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The Learning Process

Inquiry Process: Immersion - *Define Topics, Build Background and Invite Curiosity*

Traits

- Create self-reliance when interacting with a variety of media to explore and develop background knowledge
- Responds to text by jotting or drawing questions, connections, and reactions
- Works productively with groups to create a plan
- Identifying the Main ("Big") Ideas
- Completed a conference to confirm Main ("Big") Ideas

Step 1: *The BIG Question (What is the big idea being investigated?)*

Step 3: *Conference Notes*

Level:

Distinction = 4, Proficiency = 3, Emerging = 2, Beginning = 1

Inquiry Process: Investigation – *Developing Questions, Searching for Information and Answers*

Traits

- Listens, talks, views, and reads to gain information
- Uses the Q-chart to develop questions for investigation
- Works productively with teams to monitor schedules and task completion
- Completed a conference to develop questions

Guiding Questions *(One (1) guiding questions from each column and each row.)*

	Is/Is not	Do\Did(not)	Can (not)	Would/Should	Will	Might/Could
Who						
What						
Where						
When						
How						
Why						

Write out the completed questions in full. (You may change these or add to them during the process.)

Who	
What	
Where	
When	
How	
Why	

Step 3: *Conference Notes*

Check off:

Distinction = 4, Proficiency = 3, Emerging = 2, Beginning = 1

Inquiry Process: Integration – *Intensify research, Synthesize Information, Connect Knowledge*

Traits

- Engages in deeper reading and researching: Books, articles, and websites.
- Checks sources, determines reliability
- **Synthesizes information**
- Works productively with teams to monitor task completion and sharing
- Use appropriate technology as a tool to help gather and analyse information, solve problems, and communicate.
- Completed a conference concerning

Step 3: Conference Notes

Level:

Distinction = 4, Proficiency = 3, Emerging = 2, Beginning = 1

Inquiry Process: **Instruction** – *Sharing Learning and Demonstrate their Understanding*

Traits

- Completed a conference
- Demonstrates learning and understanding in a variety of ways
- **Teaching others**
- Reflects upon and articulates **the learning process**
- Defends and reflects upon the cooperative procedure

Step 3: Conference Notes

Level:

Distinction = 4, Proficiency = 3, Emerging = 2, Beginning = 1