

Standards-Based Lesson Template

Submission Date

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Teacher:

Tom Arnold

Class:

Burbank 5th and 6th grade

Lesson/Unit Title:

Shower Curtain Watershed

Abstract/summary of lesson:

What is a watershed? How do our actions affect the health of a watershed? Students explore these questions by analyzing pictures and identifying watershed features. Students will then create a watershed model using a shower curtain. How does life affect the watershed?

Students will know...

Students will know:

- Where rainwater goes upon entering earth's surface
- Academic vocabulary related to the watershed, including nonpoint source pollution, point source pollution, runoff, drainage system, and watershed.
- how to keep a watershed healthy.
- What a watershed is and where the watershed fits within the model of the water cycle.
- How to read a topographic map and how to use a map scale and compass rose.
- A model of the water cycle as a system of flows or pathways by which water moves through the Earth's system.

Students will be able...

Students will be able to:

- Identify nonliving and living features found in a watershed.
- Understand how human activities can affect watersheds.
- Name three actions they can take to keep a watershed healthy.

Standards/Skills addressed

The Next Generation Science Standards and CCCS are:

MS-ESS2-4 Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and / or atmosphere interact.

ESS2.A Earth Materials and Systems

ESS3.C Human impacts on Earth Systems

Cross-cutting concepts: Compare and Contrast

MP.1 Make sense of problems and persevere in solving them.

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

6.RP.3.C Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent.

6.EE.B.9 Use variables to represent two quantities in a real-world problem that changes in relationship to one another; write an equation to express one quantity, thought of as the dependent variable., in terms of the other quantity, thought of as the independent variable.

Performance tasks/projects:

- Students will collaborate together and build a sample model of the Tuolumne River Watershed.
- Graph the water volume entering and leaving the watershed
- Design and perform assessment on Kahoot with their teammates - then challenge other groups to a competition.

Test and quiz questions or essay prompts:

- Essay: What is a watershed and what does it consist of?
- Art - create an artistic drawing of a water shed in the Central Valley
- Examples: Areas of high elevation in a watershed are known as _____
- What is a place where fresh water and salt water meet called?
- All streams and rivers that combine and eventually flow into the bay are called _____.

Other evidence to be used (e.g., observations, evaluation of work samples, discussion):

Group project presentation for the class followed by a Kahoot, Quizzizz, etc.

Student self-assessments:

Students will analyze their performance and knowledge against the class created rubric on the Water shed. Students, in their science databooks, will score themselves and their group within the notebook.

Objectives

Students will know:

- Where rainwater goes upon entering earth's surface
- Academic vocabulary related to the watershed, including nonpoint source pollution, point source pollution, runoff, drainage system, and watershed.
- how to keep a watershed healthy.
- What a watershed is and where the watershed fits within the model of the water cycle.
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Motivation:

Students to watch the following video as the anticipatory set: Note taking - Notice / Wonder

<https://video.nationalgeographic.com/video/00000144-0a2c-d3cb-a96c-7b2d4ff50000>

<https://www.youtube.com/watch?v=dUIAANVBYHM>

Presentation:

A combination of lecture, guided discussion, notice/wonder, research, vocabulary searches and lesson samples from the Monterey Bay Aquarium, SF Exploratorium, TID-MID- SMUD websites, and the Tech Interactive museum.

Application/Activities:

Upon finishing the data worksheets and learning activities, students will build their own water shed model using a large garbage bag or part os shower curtain. They will show how the water cycle works in a water shed. Other extensions can include condensation, soil erosion, and sewer/drain development.

<https://www.epa.gov/waterdata/surf-your-watershed>

Materials needed:

Watershed pictures
Labels and Databooks
Clear plastic bag/shower curtains
Spray bottles
Sand
Diluted food coloring
Cake Sprinkles
Sponges
Small house, figurines (optional).
Cardboard base

Assessment/Evaluation:

Students will self-assess throughout the weekly discussions and research with their teams. Occasional "family feud" challenges will be instituted to keep the energy flowing. Databook details will be graded based on student-driven rubric. On-line quizzes will be quick self-assessments. Groups will be graded by other groups after full presentation at end of project timeline.

Closure/Reflection:

Students will wrap up the lesson and fulfill a goal that they can apply to their own lifestyle at home and at school. This course work will lead into the next scheduled curriculum of the Science NGSS standards.