Water Pollution and Wastewater Treatment Lab Activity

Aligned with All Published National Standards

ward's
science

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* The Dimension I practices listed below are called out as **bold** words throughout the activity.

DIMENSION 1 — Science and Engineering Practices

×	Asking questions (for science) and defining problems (for engineering)		Use mathematics and computational thinking
×	Developing and using models	×	Constructing explanations (for science) and designing solutions (for engineering)
×	Planning and carrying out investigations	×	Engaging in argument from evidence
×	Analyzing and interpreting data	×	Obtaining, evaluating, and communicating information

DIMENSION 2 — Cross Cutting Concepts

	Patterns		Energy and matter: Flows, cycles, and conservation
×	Cause and effect: Mechanism and explanation		Structure and function
×	Scale, proportion, and quantity		Stability and change
×	Systems and system models		

DIMENSION 3 — Core Concepts

Discipline	Core Idea Focus
Earth and Space Science	ESS3: Earth and Human Activity

NGSS Standards © 2013

Middle School Standards Covered	High School Standards Covered
MS.ESS3-3	HS.ESS3-1
	HS.ESS3-2
	HS-ESS3-6

national science education standards © 1996

Content Standards (K-12)			
×	Systems, order, and organization		Evolution and equilibrium
×	Evidence, models, and explanation	×	Form and Function
×	Constancy, change, and measurement		

Science in Personal and Social Perspectives Standards Middle School		Science in Personal and Social Perspectives Standards High School	
×	Populations, resources, and environments	×	Natural Resources
×	Science and technology in society	×	Environmental Quality
		×	Natural Hazards
		×	Science and technology in local, national, and global challenges

✕ Indicates standards covered in activity

learning objectives

benchmarks for science literacy (AAAS, © 1993)

1. The Nature of Science	1B: Scientific Inquiry
4. The Physical Setting	4B: The Earth
	4C: Processes That Shape The Earth
11. Common Themes	11A: Systems
	11B: Models

activity objectives:

- Examine and understand the importance of wastewater treatment.

- Explore methods used to treat polluted water.

- Create a laboratory model to simulate the steps in large-scale commercial water treatment methods.

- Understand the purpose of each stage of the water treatment process.

- Evaluate the effectiveness of each stage of the water treatment process.

time requirement:

Day 1: 15 minutes

Day 2: 30 minutes

Day 3: 60 minutes