



Title: Is It Trapped? (This lesson is best done after <i>Rocks and Sponges</i> .)			
Author: Kathy Rusert Acorn High School Mena, AR			
Course: Science		Duration: One 45 minute class period	
Grade Level: 7-8			
Objective: Students will learn how oil and natural gas are trapped below Earth’s surface.			
Summary of Lesson: Using materials and background knowledge from Rocks and Sponges Lesson, students will design a “trap” to hold oil.			
Arkansas Standards:			
Subject:	Grade Level(s):	Code:	Standard:
Science	7-8	7-ESS2-1	Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.
		7-ESS3-1	Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geosciences processes.
		NS.1.8.1	Justify conclusions based on appropriate and unbiased observations.
		NS.1.8.2	Evaluate the merits of empirical evidence based on experimental design.
		NS.1.8.3	Formulate a testable problem using experimental design.
		NS.1.8.5	Analyze scientific data in data chart
		ESS.8.8.20	Conduct investigations on soil permeability.

**Teacher Excellence and Support System:**

Establishing a Culture for Learning, Managing Classroom Procedures, Managing Student Behavior, Organizing Physical Space, Communicating with Students, Using Questioning and Discussion Techniques, Engaging Students in Learning, Using Assessment in Instruction

Instructional Strategies and Practices:

Identifying Similarities and Differences, Cooperative Learning, Setting Objectives, Generating and Testing Hypotheses, Brainstorming and Discussion

Bloom's Level: *(Highest Level Only)*

Creating

Materials and Resources:

Materials for each group of 4-6 students:

350mL each: sand, small gravel, clay, large gravel

One 500 mL clear beaker

150 mL vegetable oil

3 beakers

1 graduated cylinder

400 mL water

Formative Assessment:

Lab Sheet

Teaching Notes:

Instead of a 500 mL beaker, you could use a clear 2-liter bottle with the top cut out.

Student Activity:

1. Using clay, sand, large and small gravel and other materials from the Rock and Sponge Lesson Plan, construct a "trap" that will hold the oil.
2. Follow the instructions on the lab sheet included in the Student Handout section.

See Student Handout: For printable copies go to:

<http://www.arkansasenergyrocks.com/educators/lesson-plans-k-8/>



Student Handout
Is it Trapped?
LAB SHEET

The problem: Using sand, large gravel, small gravel and clay, create a model showing how oil can be trapped within the earth. Be sure to brainstorm with all group members before starting the experiment to develop a workable plan.

1. Hypothesis—draw your proposed model labeling the raw materials

2. Record predicted transmission times for permeability as you test the earth materials.

3. How was your model different than others in the classroom?