



Title: Creating a Model Oil and Natural Gas Reservoir	
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Course: Environmental Science	Duration: One 45 minute class period
Grade: 9-12	
Objective: Students will understand how some rock formations don't allow permeability or porosity creating a reservoir for oil and natural gas deposits.	
Summary of Lesson: Students will investigate how density plays a role in the placement of oil, natural gas and water.	
Standards: Common Core State Standards, Arkansas State Frameworks	
SP.3.ES.2	Investigate the relationships between human consumption of natural resources and the stewardship responsibility for reclamations including disposal of hazardous and non-hazardous waste
PD.1.ES.4	Categorize the type and composition of various minerals
PD.1.ES.7	Describe tectonic forces relating to internal energy production and convection currents
PD.1.ES.19	Describe the cycling of materials and energy: <ul style="list-style-type: none"> • nitrogen • oxygen • carbon • phosphorous • hydrological • sulfur
Teacher Enhancement Support Systems: (TESS) 3b: Using questioning/prompts and discussion, 3d: Using assessment in instruction	

**Instructional Strategies and Practices:**

Brainstorming and Discussion, Experiments, Labs, Models, Visualization and Guided Imagery

Bloom's Level: Highest Level Only

Applying

Materials and Resources:

- Clear plastic cups (one for each lab station)
- 50 mL water tinted with 4 drops of blue food color
- 50 mL vegetable oil to represent the oil deposit
- 50 mL rubbing alcohol tinted with 4 drops red food color to represent natural gas

Formative Assessment:

Students can explain what each layer represents.

Notes to Teacher:

While rubbing alcohol is used in this experiment, students need to be reminded that natural gas is in a gaseous state when found underground.

Student ActivityProcedure:

1. Put water into clear cup.
2. Gently pour oil over water.
3. Gently pour rubbing alcohol over water.
4. Observe how layers separate based on density.
5. Discuss how density plays a role in the location of oil and natural gas formations.