

# 2 Migration and Trapping

of Natural Gas and Oil

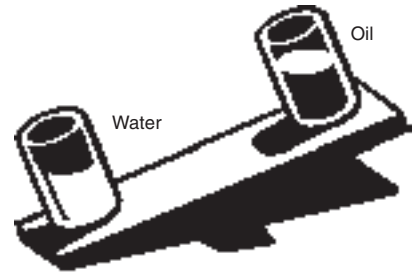
## Experiment

### Getting Physical with Oil

How do the properties of oil and water compare?

#### Materials:

- 3 clear plastic drink bottles with lids
- 2 clear plastic cups
- Water
- Vegetable oil
- Balance scale
- 2 plastic graduated cylinders
- 2 marbles
- Permanent marker
- Motor oil



#### Procedure:

##### Test Viscosity

1. Fill a clear plastic drink bottle with water. Add one marble and seal. Fill another bottle of the same size with motor oil. Add one marble and seal.
2. Invert bottles so marbles settle in caps. Then simultaneously turn the bottles upright and observe the speed at which the marbles sink to the bottom of the bottles.
3. Record observations: which marble travels faster?

##### Test Density

1. Use graduated cylinder to measure equal parts motor oil and water and pour into a clear plastic drink bottle and seal.
2. Shake the bottle. Observe what happens. Draw a picture of the oil and water in the bottle.

# Experiment, Continued

## Getting Physical with Oil

### Test Mass

1. Use the graduated cylinder and measure 25 ml of water and pour into one plastic cup.
2. Use the graduated cylinder and measure 25 ml of vegetable oil and pour into a second plastic cup.
3. Predict which has more mass: oil or water? Record your prediction.
4. Use the balance scale to compare the 25 ml of oil and the 25 ml of water. Which is heavier and has more mass? Record your observation.

### Questions and Explanations:

1. What are some of the differences between the oil and the water?
2. How does the mass and density of oil compare with water?
3. What would happen if the water and oil were different temperatures?
4. Could water be used to get oil out of the ground?

### Reflection:

1. How can information about the properties of oil and gas help the industry?

### Safety and Clean-Up

Be careful not to spill the motor oil samples. Once the bottles with oil and water are sealed, they will last for several labs. Any vegetable oil spills can be cleaned up with warm water and dish detergent.

**Do not taste any oil products!**