



This experiment demonstrates some important properties of reservoir rock and the substances it contains. It appears in the section *It's a Gas*.

### Materials

- 1 clear jar
- 1 measuring cup
- tap water
- playground or beach sand

### Experiment Tips

- Although the experiment does not suggest it, you can add a tablespoon of cooking oil to the water that you add to the jar so the mixture more closely resembles that in a gas trap.
- When students pour the water in, remind them to do it very slowly.

### Objective

Students will observe the porousness of rock, and thus understand how reservoir rock can house oil and gas within it.

### Questions and Answers

#### 1. Is the jar full? Explain your answer.

After students fill the jar to the top with sand, it will appear full. Some students will know that the jar is actually full of both sand and air. If students maintain that the jar is full of sand only, do not correct them.

#### 2. Predict how much water you can add to the jar without it overflowing.

Students will have varying predictions of how much water they will be able to add to the jar without it overflowing.

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**3. How much water can the jar of sand actually hold?**

The actual amount of water students will be able to fit into the jar without it overflowing will vary, depending on the size of the jar, the coarseness of the sand, and the speed with which they pour the water in.

**4. Where did the water go?**

The water will go in between the grains of sand.

**5. What substance did the water replace?**

The water will replace the air that was there.

**6. Where did that substance go?**

The air left the rock and rejoined the air outside. Some students may have noticed how the air came bubbling up when the water was poured in.

**7. How are the substances in your jar like the reservoir rock, water, oil, and natural gas in a gas trap? How are they different?**

You can draw parallels between the parts of this experiment and the parts of a gas trap. The sand in the jar is like the reservoir rock. The water is like the water in the trap, and the cooking oil (if used) is like the crude oil in the trap, which floats on top of the water. The air is like the natural gas in the trap, which rises above both the water and oil. However, while the air escaped from the jar in this experiment, in a gas trap there is an impermeable rock seal that keeps the gas from escaping.