

4

Drilling & Production

of Natural Gas and Oil

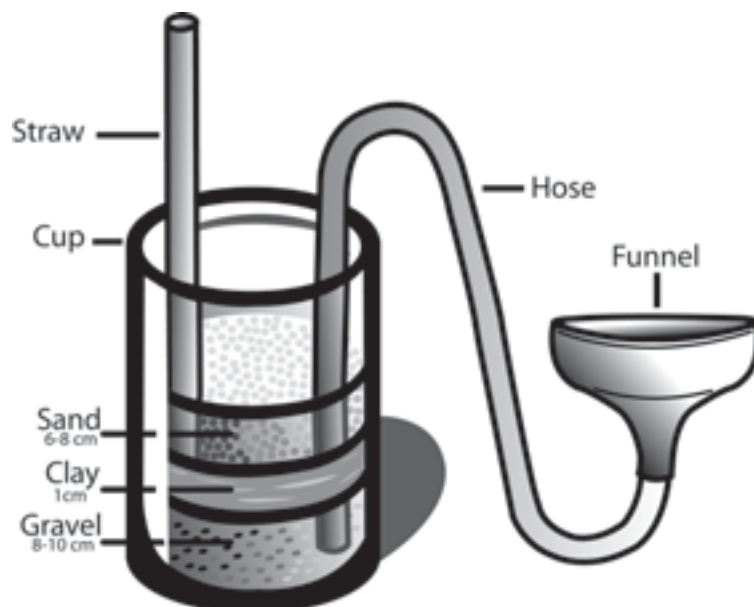
Experiment

A Model Oil Well

Demonstrate how scientific principles affect the flow of fluids to the surface.

Materials:

- Clear glass or plastic container about the size of mayonnaise jar
- 2 straws
- Aquarium gravel
- Clay or modeling dough
- Sand
- 12-15 inches flexible rubber tubing
- Funnel to fit on end of tubing
- Water



Experiment, Continued

A Model Oil Well

Procedure:

1. Fit one straw with the rubber tubing and funnel.
2. Place the straws at opposite sides of the container, next to the outside so the fluid may be observed.
3. Place the aquarium gravel/sand in the bottom of the container and fill to a height of 8-10 cm. Carefully pack a layer of clay (1 cm is sufficient) on top of the gravel and seal around each piece of tubing against the inside of the container. Add a layer of sand (6-8 cm) on top of the clay layer.
4. Fill the funnel with water while holding the funnel below the level of the gravel.
5. Slowly raise the funnel and observe the flow of water.
6. Add more water as needed and continue to raise the funnel. Observe the results.
7. Using your mouth, force air into the funnel and observe what happens. Blow harder and observe.

Questions and Explanations:

1. What scientific principles are at work in this experiment when you raise and lower the tubing and the funnel?
2. What scientific principles are at work when you blow into the tubing?

Reflection:

1. How can these scientific principles help the oil and gas industry retrieve the oil?