OOGEEP: Trapping & Migration
Exploring Porosity

Solid rock is often not so solid! There are spaces between the particles and these spaces, or pores, are where crude oil and natural gas may be found. How much open space is there is a rock? In this experiment, check the porosity of gravel and sand--the raw materials that sandstone is made of.

Materials for teams of 4 people
1 bag large gravel
1 bag small gravel
1 bag of sand
3 600 ml beakers
1 100 ml graduated cylinder
water

Procedure
1. Fill one beaker to the 350 ml mark with large gravel, fill a second beaker with 350 ml of small gravel, and fill the third with 350 ml of sand.
2. Fill the graduated cylinder with 100 ml of water.
3. Slowly pour water into the first beaker until the water just reaches the top of the gravel. Record exactly how much water you poured into the beaker. (If you need more than 100 ml of water, fill the graduated cylinder again.)
4. Follow Step 3 again for the other two beakers.
5. Calculate the porosity of the three materials using this formula:

$$\text{Porosity} = \frac{\text{volume of water}}{\text{volume of material}} \times 100 =$$

Porosity of Large Gravel:

Porosity of Small Gravel:

Porosity of Sand: