

## Rocks & Minerals – Absorbency of Rock

When you think of people drilling for water, oil or gas underground you may think they are trying to drill into a giant hole filled with liquid or gas. Although it may seem solid they are drilling into rock that has oil, gas or water inside it. How much can a rock hold? For this experiment we will use water rather than oil since clean up is easier and there's a neat relationship using water measurements:



$$1 \text{ gram} = 1 \text{ cm}^3 = 1 \text{ ml}$$

### Materials:

- Porous Rock such as \*pumice sandstone or shale
- Digital Food Scale that can measure units of 1 gram or less
- Container of water large enough to hold the stone submerged in water

(\*If you don't know rock types visit a landscape business; they may even give you a free sample. Also many foot care sections of most pharmacies sell pumice stone for scrapping away dry skin.)

**Procedure:** (Remember to have your parent's permission and have them watch and help you.)

- Weigh the dry rock and record your result.
- Put the rock in water and leave it there for at least an hour.
- Take the rock out and shake off the excess water. Weigh it again and record your result.
- Weigh and record several more times at one hour intervals.
- Leave the rock in water overnight. Weigh and record again.

### What's happening?

The rock should increase in weight. It may take a day or more to reach its maximum weight. This means that the rock has absorbed water. For example if the rock weighed 15 grams dry and 16.2 grams wet then it is holding 1.2 grams of water inside the stone therefore there are 1.2 ml of water in the rock or 1.2 cm<sup>3</sup> of space in the rock sample. Some rocks are more porous than others. If you look at sandstone under a magnifying glass you'll see it is made out of little grains of sand. Shale is similar only the particles are much smaller (think of mud particles instead of sand). There are little air spaces between particles making up the stone which gets filled by the water (or oil or gas).

### Extension:

Experiment with different types of rocks and/or oil. Working outside makes clean-up easier.

This activity is based on our Rocks & Minerals kit. The source for this lab was: <http://www.planetseed.com/node/19768>. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Mark your calendars, our next community event will be the Family Science Olympics Oct 13, 2012. Also, please consider volunteering as a classroom speaker or allow your business as a field trip location.

Lorne Cooper, Regional Executive Director

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