Kid's Corner

Reservoir Capacity of Igneous, Sedimentary, and Metamorphic Rocks

Task: Determine which category of rock (igneous, sedimentary, metamorphic) has the ability to hold oil and by implication natural gas.

Materials

Sandstone, limestone, marble, and shale rock samples
Disposable plastic plates
Eyedropper
Watch or clock
Mineral oil

Procedure

1. Place each rock sample in separate dishes.
2. Fill the medicine dropper with the mineral oil. Place 5 drops of oil on each rock sample.
3. Observe and record the time required for the oil to be soaked up by each of the rock samples.

Name of Rock Sample	***Time required to Soak up the Oil***
Sandstone	
Limestone	
Marble	
Shale	

Research Questions

- *Which rock sample soaked up the oil the fastest?*
- *Which rock held the least oil?*
- *Which type of rock would probably make the best oil reservoir?*
- *Based on the results of this experiment, if you were a petroleum geologist which rock strata would you look for reservoir rock that might contain deposits of oil and natural gas?*
- *Why is porosity (pore space) in rock layers important to oil and natural gas accumulation?*
- *Why is oil and natural gas called fossil fuels?*

Things to Remember: Some sedimentary rocks are **porous**, like a sponge. Tiny particles of sand are held together with rock "cement." Pressure, time and sediments create this natural type of "cement."

Oil and natural gas form from decayed plant and animal material. Over time, the many layers of sand and sediments are compacted into **sedimentary rock**. Tiny spaces, or **pores**, exist between the particles that enable the rock to hold a liquid. Petroleum oil is frequently mixed with water underground and, since oil floats on water, the oil tends to migrate upward. Sometimes, though, it comes up against **impermeable rock**, through which it cannot pass. Then it becomes trapped and slowly accumulates, forming a reservoir between the particles that form rock.

Sedimentary (sandstone & limestone) rocks are the most common **reservoir rocks** because they have more porosity than most igneous and metamorphic rocks. In summary, a rock with pores is referred to as porous. This means it has tiny holes through which oil and gas may flow. Reservoir rocks must be porous, because oil and natural gas can only become trapped inside the pores.

Source: *https://www.education.com/science-fair/article/reservoir-capacity-rocks/*

Letter Scramble

Unscramble the letters of these mineral names.

oretiufl _____

evlsri _____

rpjsae _____

ytierp _____

dlog _____

rmealde _____

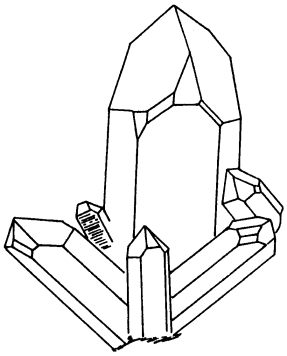
zuqatr _____

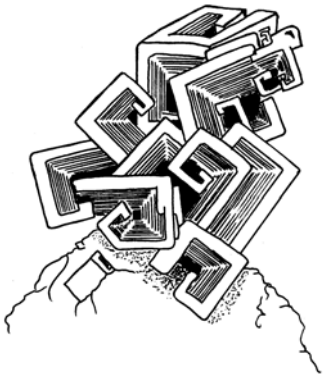
cclatei _____

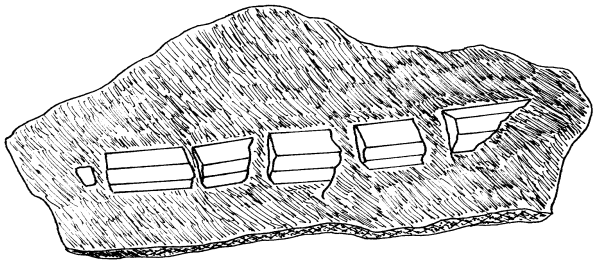
amsytteh _____

gmypus _____

lnagea _____







Source: http://www/kidsloverocks.com/pdf/Activity01.pdf

Answers: flourite, silver, jasper, pyrite, gold, emerald, quartz, calcite, amethyst, gypsum, galena.