NATIONAL SCIENCE OLYMPIAD

May 21, 2011

Experimental Design C

Cleaning up the BP oil spill and helping the Mississippi River basin manage spring floods involve an acute awareness of how water and other spilled liquids move through or are trapped by soil and sand. A working knowledge of porosity and permeability helps engineers predict where problems may develop and how they might be remedied.

You will have a variety of materials to simulate how different liquids might move through materials. You may design an experiment that tests any aspect of movement or volume of liquid a material can hold. That movement could be upwards(capillary action), down or sideways. It is imperative that your write-up displays an understanding of what you are planning and in your analysis why it occurred.

Materials: sugar cubes
small test tube of sand (tan)
small test tube of diatomaceous earth (white)
small test tube of artist clay
2 petri dishes
small measuring cup

pipettes marked for measuring
~~alcohol~~
water
oil
~~vinegar~~

Porosity: the percentage of total volume of a sediment, soil or rock that consists of open spaces or pores

Permeability: the ability of a sediment, soil or rock to let fluids pass through open spaces or pores

YOU MUST CLEAN UP YOUR WORK SPACE WHEN YOU HAVE COMPLETED YOUR WRITE-UP. FAILURE TO DO SO WILL RESULT IN DISQUALIFICATION.