Mike Keilholz, Ideas Unlimited "Soils and Sponges!"

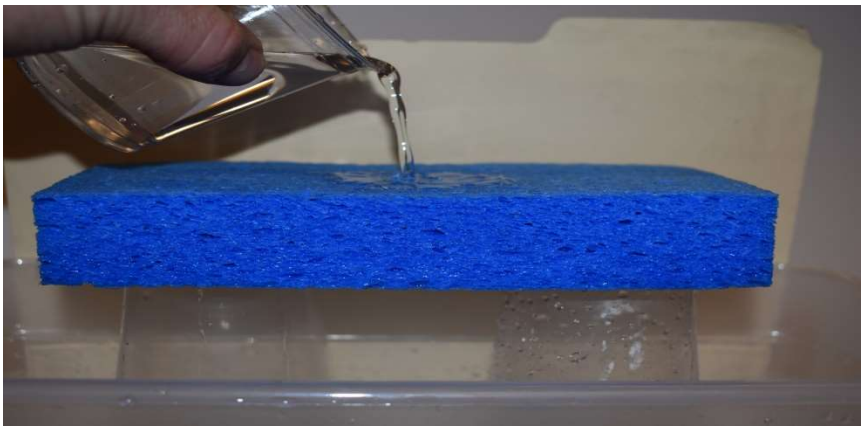
1. **"Soils and Sponges" Surface Area and Texture Demonstration Sponge**. This sponge will demonstrate the **water holding capacities** of a **soil texture** (sand, silt & clay) by its **surface area**.

2. While holding under water, squeeze and let the sponge open and absorb until it is full of water then lift. The **Clay side with the most surface area** will show that it can hold all the water that the sponge absorbed by having the **largest surface area** of the three sides (textures).

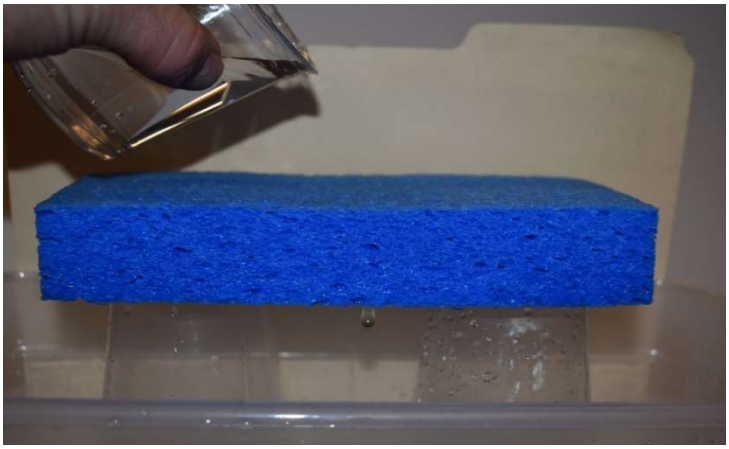
3. By turning the sponge on its "**Silt Side**". Water is lost by the reduction of the surface area relative to the clay side because of the reduced size of the silt.

4. Then, by turning it on its **"Sand Side"** or edge; it will **hold even less water** because of the big loss of surface area compared to that of the "Silt" side.

5. Put the sponge back to the "Clay surface" side and **add water** to show that it will be able to **hold more water** than the "silt and sand surface" sides because of its increased surface area.



6. Next, you can teach "**Gravitational Water**": Add a drop-lose a drop to explain gravitational water.



7. Squeezing out the "**Capillary Water**" which is plant available water in the soil.

8. After I squeeze out the sponge and ring it as tight as I can, I'll give it to a student to see if it still feels wet. I then teach them that the water remaining is "**Hygroscopic water**" and that it is held by the soil so tight that it is not plant available.

9. "**Capillary Action of Soils Absorbing Water**" by different sponges and pore spaces. "Pore Space and % Air and Water"

10. **Student Materials** for "Soils and Sponges": sponge, permanent marker, tub to hold water, cup and paper towels.