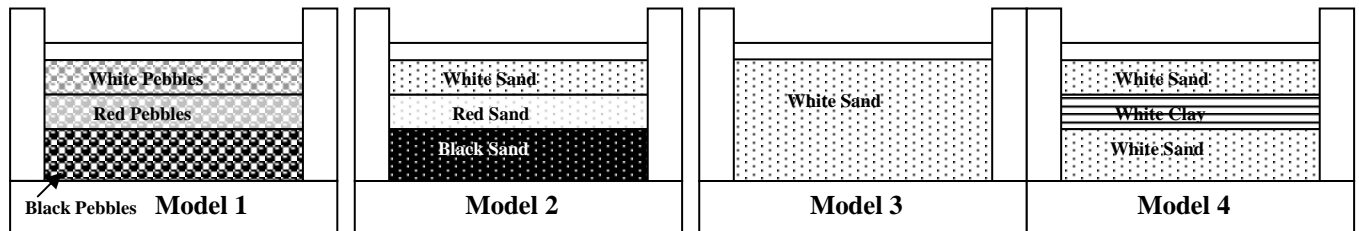


## Activity 2: 4<sup>th</sup> Grade Classification and Soils / Follow-Up Activity



1. One property of soils is **SOIL TEXTURE**. Soil texture refers to the \_\_\_\_\_ of the particles.

2. Rank the following in order from largest to smallest particle size: **SAND, CLAY, PEBBLES**

\_\_\_\_\_ (largest)  
 \_\_\_\_\_ (medium)  
 \_\_\_\_\_ (smallest)

3. We measured and recorded the time it took for water to percolate (or **INFILTRATE**) into four models of soil profiles (see diagram above). The **data** from **5 trials** are presented below.

**CALCULATE** the **mean** (average) rate of infiltration for each soil profile.

**TABLE 1: INFILTRATION RATES OF WATER THROUGH FOUR DIFFERENT SOIL PROFILES**

MODEL 1 Pebbles (3 layers/3 colors)	MODEL 2 Sand (3 layers/3 colors)	MODEL 3 Sand (1 layer/1 color)	MODEL 4 3 layers Sand/Clay/Sand
20	38	50	34
22	42	45	37
18	42	38	44
20	40	47	49
<u>+ 19 seconds</u>	<u>+ 44 seconds</u>	<u>+ 48 seconds</u>	<u>+ 39 minutes</u>
<b>SUM</b>	<b>SUM</b>	<b>SUM</b>	<b>SUM</b>
_____ seconds	_____ seconds	_____ seconds	_____ minutes
<b>DIVIDE the SUM by 5 to get the MEAN</b>	<b>DIVIDE the SUM by 5 to get the MEAN</b>	<b>DIVIDE the SUM by 5 to get the MEAN</b>	<b>DIVIDE the SUM by 5 to get the MEAN</b>
SUM ÷ 5 = _____ seconds	SUM ÷ 5 = _____ seconds	SUM ÷ 5 = _____ seconds	SUM ÷ 5 = _____ minutes

4. Rank the following in order from fastest to slowest infiltration of water: **SAND, CLAY, PEBBLES**

\_\_\_\_\_ (fastest flow through)  
 \_\_\_\_\_ (medium)  
 \_\_\_\_\_ (slowest flow through)

5. \_\_\_\_\_ particles are the smallest sized particles in soil—smaller than **silt** or **sand** particles.

6. Which particle size would you predict to be best at providing good drainage? \_\_\_\_\_

Why do you think that? \_\_\_\_\_

7. Which soil model might be the most similar to soils in a wetland habitat? \_\_\_\_\_

Why do you think that? \_\_\_\_\_

8. In our experiment of water percolation through soils, what variable did we **measure** that was the **RESPONDING (DEPENDENT)** variable?

9. In this experiment *we changed* the **soil texture** of the soil profile. By changing this, we were changing a \_\_\_\_\_ variable (**MANIPULATED** or **RESPONDING**).

10. **COMPARE** your average for soil profile Model 2 with the average for Model 3. Based on five **REPEATED TRIALS**, did *sand color* seem to influence the speed of infiltration of water?

11. Based on the **results** of this experiment and your **data analysis**, what would you **INFER** is the relationship between particle size and water flow in soils? \_\_\_\_\_

**Bonus Questions:** What was the **MEAN NUMBER OF MINUTES** it took for the water to infiltrate Model 4? \_\_\_\_\_ minutes.

**Calculate** the **mean** (average) *number of seconds* it took for the water to infiltrate Model 4 using the information you have already calculated. (Show your work.)

**Answer:** It took \_\_\_\_\_ **seconds** for the water to infiltrate the soil profile in Model 4.