

Have you ever noticed that when you dug in soil it is different colors? WHY?

DO SCIENCE WITH YOUR FAMILY

THE MAKING OF A Windgradski Column

TIME REQUIRED: This activity will take 4 to 8 weeks to complete.

MATERIALS:

- 2-liter clear soda bottle
- Full sheet of newspaper
- Bucket
- 1 Tablespoon of crushed chalk
- Funnel
- Small piece of foil
- 4 cups of mud from pond
- 4 cups of mud from another source (i.e., lake, garden, stream, forest, yard)
- Paint stick stirrer

WHAT TO DO:

1. Shred a newspaper into very small pieces. Set aside.
2. In a small bucket add 8 cups of soil. Remove all the sticks, leaves, and rocks.
3. Slowly add water until it is like thick cream. (Different soils will require varying amounts of water)
4. Add newspaper and 1 tablespoon of chalk.
IMPORTANT: Keep mixing until it can be easily pour through a funnel.
5. Remove all the labels from the 2 liter bottle.
6. Using a funnel add approximately 1 centimeter of the mixture.
7. Tap the bottle to settle the mixture evenly.
8. Continue adding soil and tapping every few centimeters until you reach about 5 centimeters from the top.
9. Cover with foil.
10. Place it in a warm, well lit place, but NOT in direct Sunlight. DO NOT move it!
11. BE PATIENT! It takes about six weeks to notice any change.
12. Observe and record changes. What questions arise from your results?
13. Draw and label your column each week. Keep a lab journal of your findings.
14. If your soil dries up, add 3 tablespoons of water. Check to make sure it is not getting direct sunlight or extreme heat.

CHALLENGE: can you think of a scientific investigation with your column.

Interesting Facts:

- The Winogradsky column is named about the Russian microbiologist who studied how bacteria recycle sulfur in nature.
- Photosynthetic bacteria are found in soil. They need light to grow.
- Different substances added to the column change the microbe growth.