



# Observing the Capillary Action of Water in Different Soils

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: \_\_\_\_\_

**Background:** Capillary action is the ability of water to move upward in small spaces without the help of gravity. In soils, water can move up through tiny pore spaces. Different soils have different pore sizes, which can affect how high water rises.



## Question

How does capillary action of water compare in different types of soil?



## Hypothesis

If the soil has \_\_\_\_\_

then the water will rise \_\_\_\_\_

because \_\_\_\_\_



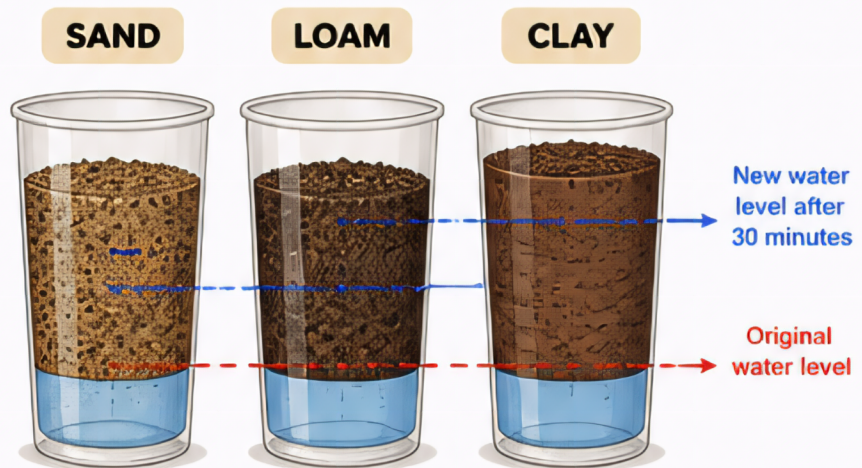
## Materials

- 3 clear plastic cups or jars
- Different soils (e.g., sand, loam, clay)
- Water
- Food coloring (optional)
- Ruler or measuring tape
- Masking tape
- Marker
- Paper towels or tray (to catch spills)



## Procedure

1. Label the cups: Sand, Loam, Clay.
2. Fill each cup with one type of soil to about 3/4 full. Gently tap the cup to settle the soil, but do not pack it down.
3. Add water to each cup until the water level is about 1–2 cm above the soil surface. (Add a few drops of food coloring if desired.)
4. Allow the water to soak in. Then, make a mark at the water level on the outside of each cup using masking tape.
5. Let the cups sit undisturbed for 30 minutes.
6. After 30 minutes, measure the height the water has risen above the original water level in the soil. Record your results in the table.
7. Observe and record any other differences you notice.



## Results

Record your measurements in the table below.

| Soil Type | Original Water Level (cm) | Water Level After 30 Minutes (cm) | Height Water Rose (cm) | Observations (color, soil appearance, etc.) |
|-----------|---------------------------|-----------------------------------|------------------------|---------------------------------------------|
| Sand      |                           |                                   |                        |                                             |
| Loam      |                           |                                   |                        |                                             |
| Clay      |                           |                                   |                        |                                             |



## Analysis & Conclusion

1. Which soil had the highest capillary rise?  
\_\_\_\_\_
2. Which soil had the lowest capillary rise?  
\_\_\_\_\_
3. Why do you think the soils had different results?  
\_\_\_\_\_  
\_\_\_\_\_
4. How might capillary action in soil be important in nature or gardening?  
\_\_\_\_\_  
\_\_\_\_\_



## Think Further

How might these results change if the soils were packed tightly? What if the soil was very dry? Design another experiment to test one of these ideas. \_\_\_\_\_