

Activity Post-Evaluation **Example Answers**

1. Describe capillary action in soil using the concepts of adhesion and cohesion.

When water moves upwards through capillary action in soil, the adhesion between the water molecules is weaker than cohesion between the water and the soil molecules. The water molecules attracted to the soil moves upwards through the adhesive force, and this in turn drives the movement of water molecules that are attracted through hydrogen bonding.

2. Where do you see capillary action in the real-world? Give at least two examples.

A paper towels absorbing water

The transport of body fluids

The upward movement of water in plants from roots to leaves

3. Christopher caught a stomach virus and threw up in science class. Using the concept of capillary action, which type of sand is the best to use to clean up the mess: coarse, medium or fine? Explain your choice.

Fine sand is the best choice. The narrower spaces in the fine sand enable a faster rate of capillary action.

Fine sand works best because the spaces between fine sand particles are smaller, which leads to faster water absorption.

4. Which item absorbs water faster: a cotton ball or paper towel? Explain

A cotton ball absorbs water faster because the spaces between the cotton ball "particles" are smaller.

5. Mateo walked into the Soil Mechanics Lab when he noticed about two inches of water covering the floor of the lab. It rained over the weekend and the lab flooded. Then he noticed that all the expensive equipment in cardboard boxes was water damaged. Mateo wondered how the water completely soaked the boxes that are 10 inches tall while the water on the ground is only two inches deep. *Where did the extra water come from?* Using your understanding of capillary action, help Mateo solve this mystery by explaining what happened.

Water moved up in the sides of the cardboard boxes through capillary action.