

# THE SCIENCE BEHIND THE WALKING RAINBOW

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

So what is making the water move through the paper towel, carrying the colors with it? It's a scientific process called *capillary action*. It may sound weird, but it occurs because water is sticky. Sticky? Yes, sticky. Water molecules like to gather around other water molecules. This is called *cohesion*. When they gather, they stick together. This is called *adhesion*. Cohesion (gathering) and adhesion (sticking) are the basis of capillary action.

This process of gathering and sticking is what allows the colored water to move "uphill." Water molecules gather and stick together to form water drops. They also stick to other things such as soil, cloth, and paper fibers. These things are *porous*. This means they have small holes and spaces for the water to travel or "soak into." This is why you use a cloth to clean up a spill, and not, say, a bowling ball.

In this experiment, it's the attraction of the water molecules to the paper towel fibers that makes it move along. The attraction is strong enough that it can even move upward, against gravity. This is how trees are able to carry water from roots deep in the soil all the way up to their highest limbs and leaves. It happens because of capillary action.

As the tree example shows, capillary action is really all around us. So the next time you're putting ink to paper or soaking your friend's sweatshirt with a water balloon, you'll have capillary action to thank. You can tell your friend it wasn't your fault, and that adhesion and cohesion are really to blame.

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

1. Using the text to help you, explain in your own words what happened during the Walking Rainbow science demonstration?

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2. Based on what you read in the text, would this science demonstration have worked with cloth towels instead of paper towels? Why or why not?

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3. Based on what you read in the text, would this science demonstration have worked with pencils instead of paper towels? Why or why not?

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4. According to the text, what is the connection between capillary action and trees?

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Thanks!  
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