



4-H Learn from Home Activity: Spreading Rainbows

Materials Needed:

- 6 small clear jars/cups
- Water (2-4 cups depending on how big your jars/cups are)
- Food coloring in Blue, Red and Yellow
- Paper towels cut to size (6 pieces)
- Measuring cups
- Spoon

Instructions:

This activity will take time and is really great when you want to practice observations at different intervals. The final result will take about 12 hours to achieve.

Fill 3 of the jars/cups up with water (a minimum of $\frac{1}{2}$ cup for smaller containers, more for larger ones). Add several drops of Red food coloring (about 5 should work) to the first water-filled jar/cup, Blue in the second, and Yellow in the third. You can use a spoon to stir the color in (be sure to wipe off the spoon before you mix another jar/cup with color). Arrange the 6 jars/cups in a small circle so there is an empty jar between each full jar/cup. Next take your paper towel pieces and fold them so one end touches the bottom of a full jar and to the bottom of the empty jar next to it (folding lengthwise worked well). A circle will be formed with 2 paper towel pieces coming into/out of each jar/cup. Watch what happens over the next few minutes, and hours. Youth can record observations on paper or talk about what changes they see happening.

The activity is a way for youth to experience and observe **capillary action**. Capillary action is the way that plants move water throughout their structure. The paper towels are made from plant fibers (cellulose) which attract water molecules and cause movement, much like a push-pull effect (adhesion and cohesion) which can be seen in the blending of the colors and the transfer of water. Another example of this would be using a straw to drink, making the liquid travel up a narrow straw to your mouth – defying gravity!

Reflective Questions: (Use these examples, or come up with others)

- What was your favorite part of this activity?
- What do you think is happening inside each jar?
- What happened to the paper towels?
- How did the water “move” into the empty jars?
- Have you seen anything like this before?

Extensions of this activity:

- Try adding water to every jar (and still only start with the 3 primary colors in 3 jars) so they are arranged in a circle – red, clear, yellow, clear, blue, clear. What differences do you see?
- Use other food coloring – what other colors can you create?
- Change where the colors are in the circle – what if you had color in every jar, or in several jars next to each other?
- Take one colored jar and place a stalk of celery, with both ends freshly trimmed, into it (some cut flowers would work for this, too). Watch what happens over time. How does the celery change? This is another example of capillary action in ACTION!