



Lesson: Capillary Action

Name:

Teacher:

Date:



The Walking Rainbow Experiment Free Lesson Plan – STEM Scholars Hub

Florida Benchmark: SC.8.P.8.4 – Classify and compare substances on the basis of their physical and chemical properties.

NGSS Standards:

- **5-PS1-3:** Make observations and measurements to identify materials based on their properties.
- **MS-PS1-2:** Analyze and interpret data on the properties of substances before and after the substances interact.

Grade Level: 5th Grade

Subject: STEM / Science

Lesson Focus: Understanding **capillary action** and **diffusion** through the Walking Rainbow experiment.

Materials

- Clear cups or glasses (6)
- Water
- Food coloring (red, blue, yellow)
- Paper towels
- Tray to hold the cups
- Measuring cup
- Stirring sticks (optional)



Lesson Objectives

1. Understand the concept of **capillary action** and how it moves liquids through materials.
2. Observe and describe how **colors mix and spread** through paper towels.
3. Explain the scientific principles behind **capillary action and diffusion**.
4. Enhance observation and **critical thinking skills**.

Procedures

1. Introduction

- Discuss **capillary action**. Ask students if they've noticed how sponges absorb water or how plants take up water through roots.
- Introduce **diffusion** and explain how it relates to mixing colors.

2. Experiment

- Arrange six cups in a row on a tray. Fill the 1st, 3rd, and 5th cups with water and add a few drops of food coloring (red, yellow, blue).
- Cut paper towel strips and place one end in each colored cup, the other end in empty cups.
- Observe how colored water travels along the paper towel.

3. Observation

- Have students note:
 - How water moves
 - The height it reaches
 - Color changes
- Discuss **capillary action** and **diffusion**.

4. Generalization

- Connect observations to concepts:
 - What did you notice about color movement?
 - How does this relate to how plants absorb water?
 - What is the difference between capillary action and diffusion?

5. Assessment

- Students write a reflection or answer questions about what they learned.
- Evaluate understanding based on written work and participation.

Safety Notes



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- Handle liquids carefully to avoid spills; clean up immediately.
 - Use **non-toxic** food coloring and remind students to wash hands afterward.
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Accommodations for ELL and ESE Students

- Provide visual aids and diagrams.
- Use simple, clear language.
- Encourage peer collaboration and provide hands-on guidance.