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# Science Lesson: The Fizzing, Bubbling Color Magic Potion!

## Materials Needed

- Three clear jars or cups
- Water
- Red, yellow, and blue food coloring
- Baking soda
- White vinegar
- A small spoon or stir stick
- A tray or baking sheet to contain any spills
- Optional: A small pitcher for pouring water, a dropper or pipette for vinegar

## Learning Objectives

By the end of this lesson, the student will be able to:

- **Observe** and **describe** what happens when two primary colors are mixed together.
- **Predict** a possible outcome of a simple science experiment (e.g., "What color will it make?").
- **Identify** the cause-and-effect relationship between adding vinegar to baking soda (the "fizzing magic").
- **Practice** fine motor skills by scooping, pouring, and stirring.

## Alignment with Early Learning Standards

This lesson aligns with early childhood science standards focusing on:

- **Scientific Inquiry:** Asking questions, making observations, and conducting simple investigations.
- **Physical Science:** Exploring the properties of materials and how they change when mixed.
- **Cause and Effect:** Understanding that actions can make things happen.

## Lesson Procedure

### 1. Introduction: The Potion Master's Puzzle (5 minutes)

- Set up the materials on the tray. Sit with your student and show them the three primary food colors (red, yellow, blue).
- **Engage:** Say, "Today, we are going to be Potion Masters! We have red, yellow, and blue magic potions. But I have a puzzle... I need to make a **green** potion for a friendly frog, but I don't have any green! Do you think we can use our magic to make it?"
- Ask questions to spark curiosity: "*What do you think will happen if we mix two colors together? Which two should we try to make green?*"

### 2. Activity: Mixing the Magic Potions (10-15 minutes)

#### Part A: Making Secondary Colors

1. Fill two of the clear jars about halfway with water.
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2. Add a few drops of **yellow** food coloring to the first jar and **blue** food coloring to the second. Let the student stir them. Talk about the colors.
3. **Prediction:** Hold up the third, empty jar. Ask, "What do you think will happen if we pour some of the yellow water and some of the blue water into this new jar?"
4. **Experiment:** Help your student carefully pour some of the yellow water and then some of the blue water into the empty jar. Watch as the colors mix to become green! Celebrate the discovery. "We solved the puzzle! We made green!"
5. Repeat the process if interest remains, trying to make orange (red + yellow) or purple (red + blue).

Part B: Adding the Fizz!

1. Choose one of the new colored potions (e.g., the green one).
2. **Engage:** Say, "Now for the real magic! Let's make our potion bubble and fizz!"
3. Help the student add a spoonful of baking soda (the "magic powder") to the green water and stir it in.
4. **Prediction:** Ask, "The magic powder is in. Now we will add the super-secret ingredient (vinegar). What do you think will happen?"
5. **Experiment:** Let the student slowly pour or use a dropper to add a small amount of vinegar to the jar. Watch it fizz and bubble!
6. Talk about what is happening: "*Wow, look at all those bubbles! Can you hear that fizzing sound? We made a fizzing, bubbling magic potion!*"

3. Discussion and Wrap-Up (3-5 minutes)

- As the fizzing slows down, review what you did together.
- Ask simple, reflective questions:
  - "*What two colors did we mix to make green?*"
  - "*What happened when we added the secret ingredient (vinegar)?*"
  - "*What was your favorite part of being a Potion Master?*"
- Connect the activity to the real world: "We see green on leaves and grass. We see orange when we eat an orange! Colors are all around us."

Differentiation and Inclusivity

- **For Extra Support:** If the student has difficulty with pouring, use a small pitcher with a spout or pre-measure the liquids. Focus on just one color combination (like making green) to avoid overwhelm. The adult can handle the food coloring to prevent messes while the child does the scooping and stirring.
- **For an Extra Challenge (Extension):**
  - Ask the student to predict what will happen if you mix all three primary colors. (It will likely make a brownish or murky color).
  - Use the newly created colored water for a painting activity.
  - Try the experiment in different containers (a tall, thin vase vs. a wide bowl) and ask, "Does the fizzing look different?"

Assessment (Informal Observation)

Assessment for this age is based on observation and conversation. Look for:

- **Engagement:** Did the student actively participate in scooping, pouring, and watching?
- **Observation & Language:** Did the student describe what they saw, using words like "green," "bubbles," "fizzing," or "mixing"?
- **Understanding of Core Concepts:** Can the student answer simple questions about what happened? (e.g., "What made the bubbles?"). Correct answers are not as important as their

attempt to explain their observation.
- **Curiosity:** Did the student ask questions or show excitement about the process?

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