**Pre-K Primary Color Mixing Experiments**

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| **Content Area:** | Science |
| **Aligned Standard(s):**  **(TN-ELDS)** | PK.PS1.01a. Describe and categorize objects based on their observable properties.  PK.PS1.01d Observe, predict, and describe how objects can be combined, stacked, or arranged to create a new object.  PK.ETS1.01a Use senses to gather, explore, and interpret information.  PK.ETS1.01b With modeling, prompting, and support, record and organize data using graphs, charts, science journals, etc., to communicate conclusions regarding experiments and explorations.  PK.ETS1.01c Make predictions based on observations and prior explorations. |

**Hands-On Color Mixing**

*This gives children hands-on, concrete evidence on how two primary colors blend together to make a secondary color.*

**Lesson Objective:** The learner will demonstrate understanding of color blending by mixing various primary color combinations in a hands-on exploration.

**Student friendly objective:** I can create colors by blending two primary colors.

**Materials**:

Red, yellow, and blue washable tempera paint or finger paint

3 small containers to hold paint

3 paintbrushes

11x17 white construction paper

baby wipes (just in case, for temporary or immediate clean up needs)

**Process**:

Introduce materials to students and ask them what they predict will happen when we mix materials. Record student predictions on chart paper to reference at the conclusion of the experiment.

The teacher paints one of the student’s hands with red and places it on left edge of paper to make a print. Then teacher paints student’s other hand with yellow and makes a print, leaving space between the red and yellow handprints. Ask the child to rub their two hands together and see what happens (sometimes you may have to add a little more red or yellow paint to the hands). Choose one of those orange hands to place a print between the red and yellow handprints on the page.

Wash hands and repeat the process with yellow and blue. Wash again and repeat with blue and red. Prompt discussion about student observations and expand on student discussion using scientific language. Refer back to student predictions on the chart and lead a reflection discussion on student predictions and what actually occurred during the experiment. Encourage students to draw and write their observations in science journals.

**Colored Water Mixing**

*This is always a favorite activity throughout the year, no matter how many times it’s revisited!*

**Lesson Objective:** The learner will demonstrate understanding of color blending by mixing various primary color combinations in a hands-on exploration.

**Student friendly objective:** I can create colors by blending two primary colors.

**Materials**:

White ice cube trays

Pipettes

Small clear cups

Food coloring: red, blue, yellow

Water

Optional: tray large enough to hold ice cube tray and 3 cups to help catch spilled water

Each scientist will need one white plastic ice cube tray, 3 small cups of colored water, and 3 pipettes (one for each color—this cuts down on color mixing in the cups).

**Process**:

Introduce materials to students and ask them what they predict will happen when we mix materials. Record student predictions on chart paper to reference at the conclusion of the experiment.

In the beginning, you may need to teach children how to draw water up in a pipette. Once they have mastered that skill, encourage the color scientists to see how many different colors they can make in the sections of the ice cube tray. Prompt discussion about student observations and expand on student discussion using scientific language. Refer back to student predictions on the chart and lead a reflection discussion on student predictions and what actually occurred during the experiment. Encourage students to draw and write their observations in science journals.

**Rainbow Swirl**

*This is a great activity for a small group of children to observe and discuss together.*

**Lesson Objective:** The learner will demonstrate understanding of color blending by observing and describing scientific phenomenon. .

**Student friendly objective:** I can observe and describe color blending.

**Materials**:

Foil cake pan

Whole milk (not 2% or skim, you need the milk fat to make the experiment work)

Food coloring: red, yellow, blue

Dish soap

**Process**:

Introduce materials to students and ask them what they predict will happen when we mix materials. Record student predictions on chart paper to reference at the conclusion of the experiment.

Cover the bottom of the cake pan with milk, about 1 ½ inches high

Scatter drops of food color on top of the milk (they will just sit as drops, don’t mix or blend them)

Squirt about a tablespoon of dish soap in the middle of the milk mixture and watch as the milk and colors magically swirl and mix together. Prompt discussion about student observations and expand on student discussion using scientific language. Refer back to student predictions on the chart and lead a reflection discussion on student predictions and what actually occurred during the experiment. Encourage students to draw and write their observations in science journals.

**Baking Soda and Vinegar**

*Always a magical combination!*

**Lesson Objective:** The learner will demonstrate understanding of color blending by mixing various primary color combinations in a hands-on exploration.

**Student friendly objective:** I can create colors by blending two primary colors.

**Materials:**

sturdy disposable plates or bowls (1 per child)

small plastic cups (1 per child)

pipettes (1 per child)

food coloring: red, yellow, blue

baking soda (about 1/3 cup per child)

vinegar (about ½ cup per child)

**Process:**

Give each child a cup of vinegar, a plate or bowl with baking soda, and a pipette. Sprinkle drops of food coloring on the baking soda. Let children squirt vinegar onto the baking soda and watch as the baking soda fizzes and the colors mix. Prompt discussion about student observations and expand on student discussion using scientific language. Refer back to student predictions on the chart and lead a reflection discussion on student predictions and what actually occurred during the experiment. Encourage students to draw and write their observations in science journals.

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| **Extending the Learning:** | When appropriate, allow these materials to be placed in a classroom discovery center for exploration during free choice play. Send pictures and explanations of these activities home for families to see. Send these instructions for these activities home for families to try. Have books that discuss color blending and mixing available in the library center. Have color blending materials (transparent colored magnatiles and blocks) at the light table for students to explore in a variety of ways. |
| **Considerations for Learning:**  *possible challenges, management issues, and safety considerations* | *Always remember to discuss safety procedures when conducting science experiments. Be aware of any allergies to specific materials and remind students that scientists use their senses when exploring, but only use the sense of taste when instructed by an adult to do so. These experiments may get messy, so use aprons and clothing covers when needed. Use teacher discretion when deciding whether to do these lessons in small group or large group format.* |