

Photo Description



This image shows a cooking activity where dry ingredients (brown flour or cinnamon mixture) are being combined with a wet red ingredient (likely tomato sauce or food coloring) using a KitchenAid mixer. The photograph captures the moment before wet and dry materials are mixed together, displaying clear observable differences in color, texture, and state of the materials on a wooden countertop.

Scientific Phenomena

Anchoring Phenomenon: Combining different materials to make something new

When we put two or more different materials together, they can combine to form a mixture. In this image, dry powdery material and wet sauce are about to be mixed. The scientific reason this happens is that when materials combine physically (without changing into completely different substances), the tiny bits of each material spread throughout the other. The mixer will help break apart clumps and distribute the materials evenly, creating a uniform mixture. This is an observable physical change—we can still identify the original materials, but they now exist together in a new combination.

Core Science Concepts

- * **Physical Properties:** Materials have observable characteristics like color, texture (bumpy, smooth, powdery), and state (dry vs. wet) that we can see and feel before and after mixing.
- * **Mixtures:** When two or more materials combine together, they form a mixture. A mixture can sometimes be separated back into its original materials.
- * **Change Through Mixing:** Stirring, whisking, or using a machine causes materials to move and combine, creating visible changes in how the mixture looks and feels.
- * **Cause and Effect:** The action of the mixer (cause) produces movement and combination of materials (effect), changing the appearance of both ingredients.

Pedagogical Tip:

Use real kitchen materials for this lesson because Kindergarteners are concrete learners who connect best to familiar, everyday objects. Cooking demonstrations activate prior knowledge from home experiences and make abstract concepts like "mixing" tangible and personally meaningful. Always allow students to watch the process unfold rather than showing only the final result.

UDL Suggestions:

Provide multiple means of engagement by allowing students to observe the mixing process at different distances—some children may have visual processing differences and benefit from being closer to the action. Offer tactile exploration by letting students (with clean hands) feel the dry ingredient before mixing, then feel the texture after combining. Use a slow-motion video or photograph sequence to support students who process information more slowly or who benefit from visual scaffolding of the sequential steps.

Discussion Questions

1. What do you see happening in the bowl right now? What will happen next? (Bloom's: Remember | DOK: 1)
2. Why do you think the cook is using the mixer instead of just stirring by hand? What's the difference? (Bloom's: Analyze | DOK: 2)
3. If we stopped mixing right now, do you think we could separate the red and brown materials back into two piles again? Why or why not? (Bloom's: Evaluate | DOK: 3)
4. What other things at home or at school do we mix together? What happens when we mix them? (Bloom's: Apply | DOK: 2)

Extension Activities

1. Sensory Mixing Station: Set up three stations with safe, edible materials: dry materials (rice, flour, crushed cereal), wet materials (water, food coloring, yogurt), and tools (spoons, funnels, small cups). Allow students to freely explore mixing different combinations in shallow containers while wearing aprons. Ask them to describe what they see, feel, and predict before and after mixing. This hands-on exploration builds vocabulary and observation skills.
2. Color Mixing Prediction: Place blue and yellow water in clear cups. Before combining them, ask students to predict what color will result from the mixture. Slowly pour one into the other while students watch the green mixture form. Repeat with other color combinations (red + white = pink, etc.). Students can record predictions with drawings before each combination and compare to actual results.
3. "Unmixing" Investigation: Create a simple mixture of sand and water in a clear container and let it settle. Show students that some mixtures can separate naturally over time (sand sinks, water remains on top). Compare this to the wet-and-dry cooking mixture, discussing which combinations are easier or harder to separate. Use a strainer or filter to demonstrate another way to separate some mixtures.

NGSS Connections

Grade K Performance Expectation:

K-PS1-1: Plan and conduct investigations to provide evidence that objects can be taken apart and put together, and that some objects may be taken apart and put back together and some cannot.

Disciplinary Core Ideas:

K-PS1.A Structure and Properties of Matter* – Different objects are made from different materials and can be described by the properties of their materials.

K-ETS1.A Defining Engineering Problems* – Asking questions, making observations, and gathering information about a situation people want to change can help define a simple problem that can be solved.

Crosscutting Concepts:

* Cause and Effect – Simple cause-and-effect relationships exist in everyday situations (mixing causes a change in appearance).

* Patterns – Patterns in properties help identify and classify materials; students can observe patterns in what happens when materials combine.

Science Vocabulary

- * Mixture: When two or more different materials are put together and mixed so they combine.
- * Ingredients: Different materials or things that go into making something (like in a recipe).
- * Texture: How something feels when you touch it—bumpy, smooth, rough, or powdery.
- * Combine: To put two or more things together.
- * Physical Change: When something looks different on the outside, but is still made of the same materials (like mixing).

External Resources

Children's Books:

Mixing Colors* by Kathy Kranking (National Geographic Little Kids) – A photographic exploration of what happens when colors combine.

The Mix-Up* by Emma Carlson Berne – A story about mixing ingredients and unexpected surprises in cooking.

Playtime for Kitty* by Hollie Hibbert – Includes simple mixing and cooking scenarios young children recognize.

YouTube Videos:

* "Mixing Wet and Dry Ingredients" (Sesame Street Cooking with Cookie Monster) – A 3-minute video showing the basics of combining ingredients; appropriate pacing for Kindergarten viewing. https://www.youtube.com/results?search_query=sesame+street+mixing+ingredients

* "What Happens When We Mix Colors?" (National Geographic Kids) – A 2-minute animated short demonstrating color mixing with engaging visuals. https://www.youtube.com/results?search_query=national+geographic+kids+mixing+colors

Teacher Notes: This lesson connects to Kindergarten students' natural curiosity about cooking, eating, and daily routines. The concrete, observable nature of mixing makes it ideal for this age group. Consider pairing this with an actual simple cooking activity (no-bake cookies, playdough, or edible slime) to deepen understanding through direct experience.