



In this new series from PBS North Carolina, Ava and friends explore the world of science through hands-on experiments. In the episode “Mix It Up,” Ava and Eleanor explore the invisible force of surface tension by experimenting with milk and soap.

To learn more, visit pbsnc.org/MiniFab.

Milk-Soap Experiment

Materials

- A bowl
- ½ cup of milk
- Dish soap
- Cotton swab
- Food coloring in different colors

Instructions

1. Pour milk into bowl. Be careful not to move the bowl—you want the milk as still as possible.
2. Put one drop of each color in different places in the milk.
3. Put a tiny amount of soap on the end of the cotton swab. Touch a color with the swab and see what happens.
4. See how the colors move when the soap touches them.
5. To clean up, pour the milk down the drain. (Do not drink it.)



Activity courtesy of Science Fun



NC DEPARTMENT OF
HEALTH AND
HUMAN SERVICES
Division of Child Development
and Early Education

Mini Fab Science Lab is made possible with support from the
North Carolina Department of Health and Human Services (NC DHHS) Division of Child Development and Early Education.

Learning Goals

NC Foundations for Early Learning & Development (Pre-K)

Cognitive Development (CD)

- **CD-1:** Children use scientific inquiry and problem-solving skills.
Students observe cause and effect when soap interacts with milk and food coloring.
- **CD-2:** Children demonstrate knowledge of physical science.
Children explore how substances interact and properties change.

Approaches to Learning (APL)

- **APL-2:** Children actively seek to understand the world.
This experiment supports curiosity, prediction and wonder.
- **APL-4:** Children demonstrate creativity and problem-solving.
Experimentation with color allows for creativity and exploration.

Language Development (LD)

- **LD-4:** Children communicate effectively.
Kids describe what happens and reflect on why the colors change and move.

Emotional & Social Development (ESD)

- **ESD-6:** Children develop relationships and social skills.
Working with a partner fosters collaborative thinking, turn-taking and shared excitement.

NC Standard Course of Study: K–3 Alignment—Science

Kindergarten: Physical Science

- **K.P.2.1:** Compare observable physical properties of different kinds of materials.
Students compare the behavior of milk with soap.
- **K.P.2.2:** Classify objects by physical properties.
Children identify and categorize materials.

Grade 1: Forces & Motion

- **1.P.1.1:** Describe how motion occurs when a force is applied.
Soap disrupts surface tension and pushes color away, illustrating motion caused by invisible forces.

Grade 2: Properties of Matter

- **2.P.2.1:** Understand the properties of solids and liquids.
Children observe liquids interacting and changing behavior when combined.
- **2.P.2.2:** Compare different liquids and their interactions.
Different soaps may have different effects; kids can test and compare them.

Grade 3: Forces & Matter

- **3.P.1.1:** Infer how various forces affect the motion of objects.
Soap's effect on milk's surface tension shows how invisible forces cause visible motion.
- **3.P.2.2:** Recognize changes in states or properties of matter.
The behavior of a liquid system changes dramatically under force.



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