

THE STANDARD

Formation of New Substances

Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

DCI

DISCIPLINARY
CORE IDEA

PS1.B • Chemical Reactions

"When two or more different substances are mixed, a new substance with different properties may be formed."

Mix two things and sometimes you just get a blend, like sand in water. Other times something new shows up: bubbles fizz, the cup gets cold, or a solid forms out of two liquids. 5th graders test mixtures and watch the properties. **If the new stuff acts different from what they started with, a new substance formed.**

SEP

SCIENCE &
ENGINEERING
PRACTICE

Planning and Carrying Out Investigations

"Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered."

5th graders don't just watch a demo. They run the test themselves, in a group, and keep it fair. Same amount each time, same cups, only one thing changed. They mix it more than once so a weird result doesn't fool them. **The data they record becomes the evidence.**

CCC

CROSSCUTTING
CONCEPT

Cause and Effect

"Cause and effect relationships are routinely identified and used to explain change."

Here's the thinking 5th graders carry out the door: a change has a cause. The fizzing didn't just happen. It happened **BECAUSE** two certain substances mixed. **They point to the cause (mixing baking soda and vinegar) and connect it to the effect (bubbles and a new substance), then use that link to explain what they saw.**