

Vinegar and Baking Soda

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Grade 5
Core Concept/Science/Dance

Grade 5 Science: Strand 5.2 Properties and Changes of Matter

Standard 5.2.3 Plan and carry out investigations to determine the effect of combining two or more substances. Emphasize whether a new substance is or is not created by the formation of a new substance with different properties. Examples could include combining vinegar and baking soda or rusting an iron nail in water. (PS1.B)

Dance Standard 5.D.CR.3:

Develop a dance study, creating original movement that expresses and communicates a main idea.

Dance Standard 5.D.P.1:

Establish spatial relationships with other dancers while safely using levels, directions, focus, and pathway designs in near-, mid-, and far range movement.

Objective: *Physical changes* are about energy and states of matter. You can cause physical changes with forces like motion, temperature, and pressure. A physical change is when it changes in form but not what it is made of.

Dance Activity: Music: *Happy*

Find a partner; make a shape that is connected, make different shapes that are always connected. This represents elements that make a substance, for example $\text{HC}_2\text{H}_3\text{O}_2$ =Baking soda.

Motion: When you move it around, it is still baking soda. Connect your shape and travel while skipping, again galloping, and next leaping.

Temperature: Make your shape expand and contract. It still has the same substance.

Pressure: Change your shape; it's the same substance.

Chemical changes happen on a molecular level. A chemical change is when two or more elements are combined and they react with each other and change into new substances.

Dance Activity: In this experiment we have: reaction, release of gas, new substance, and change in the temperature.



Reaction: Stay with your partner. When I say reaction everyone spread out galloping, skipping, etc., until you are away from your partner. It is OK to get close to other dancers.

Release of gas: Jump and spin.

New substance: Now find a group. Make groups of 2, 3, or 4. You cannot be with the same partner that you had before.

Change in temperature: Change your levels from high to low, or low to high as you hold your shape as a new substance.