

# Vinegar and Baking Soda

By Angela Challis and Paul Nance



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.