Name: _____ **Date:** _____

Will It React?

Manufacturers of blue jeans use chemicals to dye the jean material blue. This process relies on *chemical reactions* that occur when two or more substances combine to form new substances. Follow the steps below to conduct an investigation, and then write an explanation to determine whether or not a chemical reaction has occurred. You will also test the dye on a piece of material. Below is a checklist describing the main signs of a chemical reaction.

STEP 1

Using the materials listed below, follow the procedure to mix several different chemicals together. After each step, make observations about what happens when you mix the substances together. Refer to the checklist to determine whether a chemical reaction occurred.

MATERIALS:

• resealable plastic sandwich bag • set of measuring spoons • alcohol solution* • squeeze-top bottle • paper towels • baking soda • turmeric powder • calcium carbonate* • timer • paper • pencil • scraps of muslin material • tongs • *safety goggles and nitrile gloves are recommended

*See note in Teacher's Guide.

PROCEDURE:

1. Carefully measure 5 tablespoons of alcohol solution into the plastic bag. Hold the bag upright so the alcohol doesn't spill out.
2. Dry your measuring spoon with a paper towel. Then, measure 1 tablespoon of baking soda into the bag.
3. Seal the bag tightly and shake the ingredients until the baking soda dissolves in the alcohol. Observe any other changes to the mixture.
4. Reopen the bag and add ¼ teaspoon of turmeric powder to it. Close the bag and observe any changes to the ingredients. Record your observations.
5. Measure out a tablespoon of calcium carbonate. Reopen the bag and pour in the calcium carbonate. Tightly seal the bag and gently swirl the ingredients for 30 to 60 seconds. Observe any changes to the mixture. Record your observations. (Caution: Do not open the bag after the ingredients have been mixed. Pressure in the bag can cause the contents to spill out.)

STEP 2

Use evidence from your investigation to support a claim:

➜ Did a chemical reaction occur when you mixed in any of the ingredients? Write a 50- to 100-word summary of your investigation, explaining your answer. Be sure to use evidence to support your claim.

TAKE IT FURTHER:

Test to see if the chemicals you mixed together can be used to dye fabric. Put on nitrile gloves so that the substance won't stain your skin. Carefully open the bag and, using tongs or gloves, immerse a square of muslin material in the dye, letting it soak in. After the material dries, rinse with water to see if the dye holds