

# MYSTERY POWDERS

**Description:** Identify common white powders individually and in mixtures.

**Number of Participants:** 2

**What to Bring:**

1. Both team members are required to wear goggles. These must be brought with you and worn during the event. If you forget them, you must go fetch them and thereby have less time for the event.
2. A team may bring an 8.5" x 11" data chart to assist in answering the questions and during the testing process. No pictures or illustrations are allowed on such a chart. The chart will need to be checked by the judge prior to the students entering the event.

**Competition:**

**Part I: Questions**

1. Each team will be given up to 10 multiple choice questions to answer.
2. Each correctly answered question will be worth one [1] point.
3. Example questions may cover reactions between powders and testing materials listed below, chemical formulas ( $H_2O$  = water), and color and/or appearance.
4. Students will have no more than 5 minutes to answer the questions.

**Part II: Testing**

1. The white powders included for testing will be: powdered sugar; granulated sugar; baking soda; flour; salt; corn starch; plaster of Paris; citric acid.
2. These materials will be provided to assist in testing: white vinegar; water; candle and matches; aluminum foil; clothes pin; iodine solution; black paper; magnifying lens; red & blue litmus paper.
3. **Station 1:** Each team will be given three of the white powders individually and have to correctly identify each white powder. One point will be given for each correctly identified powder.
4. **Station 2:** Each team will be given a mixture of two or three powders, and have to correctly identify how many powders are in the mixture, and name the powders. One point will be given for correctly identifying how many powders are in the mixture, and one point will be given for correctly identifying each of the powders in the mixture.
5. No tasting is allowed. Failure to follow this rule will result in immediate disqualification from the event.
6. A lighted candle will be available for the students to use, if needed.
7. Students will have no more than 5 minutes per station to identify the powders.
8. Bonus points may be awarded for teams that help clean up their area as instructed by the judge[s].

**Scoring:** Teams with the most points will be ranked highest.

**Tie Breaker:** The first team that missed a question or powder identification will be ranked lower.