

Using Chemical Change to ID an Unknown

- Objective
- To be able to identify and control variables to develop a test to identify an unknown power.

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- To be able to explain that a substance *reacts chemically in characteristic* ways and that these characteristics can be used to *identify an unknown substance*.

Demonstration

- How do you know that these two similar-looking powders are really different?
- Iodine changed color in one but not the other.
- Which powder probably reacted chemically with the iodine solution?
- The one that turned purple.
- How do you know?
- Color change is a sign of a chemical reaction.

Activity

- Complete the Activity and fill in your results table on the activity sheet.
- 20 minutes

Results Table

Test Solutions	Baking Soda	Baking Powder	Cream of Tartar	Cornstarch	Unknown
Water					
Vinegar					
Iodine					
Universal Indicator					

Key Concepts

- If two substances react and the temperature of the mixture decreases, the reaction is *endothermic*.
- If two substances react and the temperature of the mixture increases, the reaction is *exothermic*.
- A chemical reaction involves the *breaking of bonds* in the *reactants* and the *forming of bonds* in the *products*.

Key Concepts

- It takes *energy* to break bonds.
- Energy is *released* when bonds are *formed*.
- If a reaction is endothermic, it takes more energy to break the bonds of the reactants than is released when the bonds of the products are formed.
- If a reaction is exothermic, more energy is released when the bonds of the products are formed than it takes to break the bonds of the reactants.