

# Ditto Rockets

## Combustion Reactions

### Introduction

An "uplifting" example of buoyancy currents and hot air.

### Concepts

- Thermochemistry
- Combustion Reaction

### Materials

A piece of dress pattern material ( $8\frac{1}{2} \times 11$  inches works best)

Matches or lighter

### Safety Precautions

*One should wear goggles while performing this experiment since there will be a fire and subsequent ashes produced. Do not perform near any flammable liquids.*

### Procedure

1. Fold the material into thirds while holding it in a landscape pattern.
2. Fold over the top to hold it together in a triangular rocket that sits on the lab table.
3. Light a few portions of the top of the rocket.
4. Clean up any remaining ashes after the rocket has launched.

### Disposal

Discard of ashes in the trash.

### Discussion

The burning of the material will create ashes that are surrounded by hot air. This hot air will create a buoyant effect that lifts the remaining ashes into the air. Be careful of these ashes as they can cause sootiness.

This demonstration could be equated with the fact that one must wait until a hot crucible or other object is cool to mass it. The hotter object will cause a buoyant effect which might reduce the apparent mass on a sensitive balance.

### Connecting to the National Standards

This laboratory activity relates to the following National Science Education Standards (1996):

#### *Unifying Concepts and Processes: Grades K–12*

Evidence, models, and explanation

***Content Standards: Grades 9–12***

Content Standard B: Physical Science, structure and properties of matter, motions and forces, interactions of energy and matter

**Flinn Scientific—Teaching Chemistry™ eLearning Video Series**

A video of the *Ditto Rockets* activity, presented by Jeff Hepburn, is available in *Combustion Reactions* and *Conservation of Energy*, part of the Flinn Scientific—Teaching Chemistry eLearning Video Series.