

# Comet Cones

## Teacher Information

### Background

A comet's core is a ball of water, ice and frozen gases that vaporize when subjected to the slightest amount of solar heating. Scientists think that the ice is mixed with dust and chunks of rock. The ratio of ice to dust is unknown, but some scientists estimate that it is about half-and-half for most comets. Until we pay a visit to a comet's nucleus, we won't know what's typical for these icy visitors from the outer solar system.

Comet cores are much colder and more fragile than ice cream. They are colder than  $-70$  degrees C, the freezing point of carbon dioxide. Frozen  $\text{CO}_2$  (a.k.a. dry ice) is probably an important constituent of many comet nuclei.

### Objective

The students will devise or follow directions to make an edible model of a comet.

### Materials (per student)

one scoop vanilla ice cream  
one zip lock plastic bag  
one paper baking cup  
one piece of wax paper (12" x 12")  
two vanilla wafers  
one ice cream sugar cone  
rolling pin  
two spoons

### Procedures

1. Gather materials; you may want to have a parent volunteer organize materials and take charge of scooping.
2. Have students read the directions as a class.
3. For students developing their own instructions, give them time without the materials to think through the problem.
4. Assign students to small groups or pairs.
5. Share rolling pins and spoons if necessary.
6. Have students write their names on their baking cups.
7. Set a time limit and have students construct their comets.