

# Cooking Up a Comet

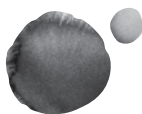
Below is a really easy recipe to create a comet 15 cm in diameter. Your students can be excellent helpers. Call on them to assist with the demonstration.

## Ingredients

- ★ 500 mL of water
- ★ 500 mL of dry ice\* (solid carbon dioxide)
- \*You can find dry ice in most urban centres (look under "Ice" in the yellow pages of your phonebook). We suggest you buy dry ice in pellet or nugget form one day in advance so that it is more malleable the day of your demonstration. Wrap it in newspaper and store it in a cooler. Make sure the cooler is tightly sealed. Also make sure you have enough dry ice to do at least one test run before the demonstration. Remember that dry ice can quickly sublime (change from a solid to a gas).*
- ★ Two tablespoons of sand or dirt
- ★ A pinch of ash
- ★ A few drops of ammonia (use a glass cleaner like Windex)
- ★ A few drops of organic material (dark corn syrup, for example)
- ★ A few drops of food colouring (to turn the mixture very dark)

## Materials

- ★ A cooler
- ★ A large mixing bowl (plastic or metal, but not glass, which may break)
- ★ A plastic bag big enough to line the mixing bowl
- ★ A wooden spoon
- ★ Heavy work gloves
- ★ Two or three heavy-duty freezer bags (Ziploc)
- ★ A meat tenderizer or a rubber mallet
- ★ Paper towels



## How to cook up your comet

- ① Line the bowl with a plastic bag. The bag will help you shape the comet later.
- ② Make sure you have all the ingredients and materials near at hand.
- ③ Pour the water into the bowl lined with the plastic bag.
- ④ Add ash, sand and/or dirt and stir.
- ⑤ Add a drop of ammonia.
- ⑥ Add a drop of organic material (corn syrup) and stir.
- ⑦ Add food colouring till the mixture turns very dark.
- ⑧ Put two or three heavy-duty Ziploc bags inside each other and pour in the dry ice. (Dry ice is carbon dioxide that is frozen at nearly  $-80$  degrees Celsius. To prevent “burns,” wear gloves when handling dry ice and keep them on throughout the demonstration.)
- ⑨ Crush the ice by pounding it with your mallet.
- ⑩ Add the crushed ice to the other ingredients in the bowl while stirring vigorously.
- ⑪ Keep stirring till the mixture starts to solidify.
- ⑫ Lifting the corners of the bag lining the bowl, pack the mixture into a snowball.
- ⑬ Once the ball keeps its shape, unwrap the comet and wow your audience!

