



Earth Bubbles – Extension Activity

If a “fortune-teller” looked at the palm of the Earth, what do you think she would see? After completing the Earth Bubbles, we use the rest of the dry ice to make a few larger bubbles that look a bit like a “crystal ball”. The growing bubble stretches and quivers, surprising the students with its growth and resiliency. This we use as an object lesson for way human population growth is stretching thin the Earth’s resources.

To do this, place a few pieces of dry ice into a bowl with water and then slide a wet and soapy paper towel over the top of the bowl. As the carbon dioxide gas builds up in the bowl, it pushes the soap film into a large bubble that looks like a crystal ball. We usually have three or four students producing these bubbles while we discuss related issues and ideas. Directions and some of the questions that we typically use to facilitate discussion are provided.

A “Crystal Ball” of Population Growth

Safety Alert: Never allow students to touch dry ice without gloves, as it will quickly transfer heat away from the skin and damage tissue. Always wear safety goggles when carefully breaking dry ice into smaller pieces.

This slowly growing soap bubble filled with CO₂ gas is used to represent the expanding human population and the subsequent stresses that we place on the environment.

Procedure:

1. Fold the paper towel into a lengthwise into 3-4 cm wide strip. The strip should be 10-20 cm longer than the diameter of the bucket. If needed you can use two attached towels. Soak the paper towel in the soap solution, remove it, and let the excess drip off.
2. Fill the bowl about half full with water and drop in a couple of pieces of dry ice. Observe as the fog spills over the rim and onto the table.
3. Slide the wet paper towel across the rim of the bowl and try to create a “lid” with the soap film. This may take several tries at first and it helps to wet down the rim at the start. Observe as the crystal ball of carbon dioxide forms as the dry ice sublimates into the gaseous state.

Guiding Questions:

1. If a fortuneteller peered into her ball to see the future of the earth, what do you think she would see?
2. Would she predict a long and prosperous life or would she groan quietly and look away?
3. The population on the earth has doubled in the last forty years, if the crystal ball represents this expanding population, how close do you think we are to popping? What evidence do you have to back up your prediction?