

# Dragon's Breath

OMG- is that "smoke" coming out of your mouth and nose!

## WHAT TO DO

A volunteer will give you some very cold breakfast cereal- but don't worry. Put some in your mouth and exhale like a dragon!

## WHAT'S HAPPENING?

That's not really smoke coming out of your mouth. It's actually a cloud or fog. The breakfast cereal was placed in a bowl of boiling liquid nitrogen, but boiling doesn't mean hot, it just means that the liquid is changing into a gas, and this bowl of boiling liquid nitrogen is actually 322°F *below zero- so cold it can quickly freeze just about anything you put in- including your hands- so keep them away!* The breakfast cereal was already frozen (that's why it's a solid), but it's sure cold now. Fortunately the cereal is mostly air (i.e. it has very little mass) so even though it is very cold at first, all the heat in your mouth warms it up before it can hurt you, but not before it cools your breath to form a cloud. That's what happens when water that is a vapor or gas in your breath (which you can't see) cools and condenses into tiny droplets of liquid water (which you can see). Notice your cloud also evaporates very quickly, turning back into a gas that you can no longer see. This also happens on a cold winter day when you can "see your breath" outside.