Mr Iceman's Dry Ice Experiments for the Kids (& Adults)

All about Dry Ice

First of all, here's the background information and safety lesson on dry ice. Dry ice is frozen carbon dioxide. Instead of melting, dry ice turns directly into carbon dioxide gas but does not melt like real ice.

Dry ice must be handled with care as it is -110 degrees F (-78 degrees C). See Mr Iceman Safety Sheet & FAQ for more details.

It must be handled using gloves or tongs, as it will cause severe burns if it comes in contact with your skin. Never put dry ice into your mouth.

When you drop a piece of dry ice in a bucket of water, the gas that you see is a combination of carbon dioxide and water vapour. So, the gas that you see is actually a cloud of tiny water droplets.

Disappearing Ice

Here's a quick experiment to help children better understand why it's called dry ice. Ask the children, "Why do you think they call this dry ice?" Place a regular ice cube on one plate and a similar size piece of dry ice on a second plate. Keep both plates out of the reach of the children. "Let's try to guess what is going to happen to the ice cube and the piece of dry ice if we leave it on the plate for one hour." Of course, the children are likely to tell you that both pieces of ice will melt, turning into a puddle of water.

Allow the children to view the plates after one hour. They will discover the difference between real ice and dry ice. There should be a puddle of water on the plate where the real ice was, but the dry ice plate will be "dry." Where did the dry ice go? Dry ice is not made from water; it's made from some of the air that we breathe... its frozen carbon dioxide. The dry ice turned into invisible carbon dioxide gas that disappears into the air. Magic!

Burping, Bubbling, Smoking Water

Use the tongs or gloves to place a piece of dry ice in a glass of warm water. Immediately, the dry ice will begin to turn into carbon dioxide gas and water vapour, forming a really cool cloud! This cloud is perfectly safe for the children to touch and feel as long as they do not put their fingers far enough down into the water to accidentally touch the dry ice.

To create the best effect, be sure to use warm water. Over time, the dry ice will make the water cold and the "smoking" will slow down. Replace the cold water with warm water and you're back in business!

Oooh Ahhh Awesome Bubbles

Who would have guessed that you could have this much fun with soapy water and a chunk of dry ice? Fill a tall glass or plastic cylinder with warm water and add a squirt of liquid dish soap like Dawn or Joy. Use gloves or the tongs to place a piece of dry ice into the soapy water. Get ready for a room full of ooohs & ahhhs!

Instead of the dry ice just bubbling in the water to make a cloud, the soap in the water traps the carbon dioxide and water vapour in the form of a bubble. The children will see the bubbles climb out of the cylinder of warm, soapy water and explode with a burst of "smoke" as they crawl over the edge.

Add some food colouring to the water to make the demonstration more colourful. If you want to give the exploding suds an eerie glow, drop a glowing lightstick into the water along with the dry ice. The lightstick will give the bursting bubbles an eerie look.

Floating Bubble

You'll notice that when you add dry ice to water, the cloud of carbon dioxide and water does not go up into the air, but instead falls towards the ground. Why? This cloud-like mixture of carbon dioxide and water is heavier than the surrounding air. You'll use this little piece of science trivia to perform the amazing Floating Bubble trick.

A small fish aquarium works well for this activity. Fill the bottom of the aquarium about an inch deep with warm water (take the fish out first!). Use gloves or the tongs to add a few pieces of dry ice. Of course, the dry ice will begin to smoke turning into carbon dioxide and water vapour.

Using a bubble wand and a bottle of bubble fluid, blow a few bubbles into the aquarium (it's a little difficult so be patient). To everyone's amazement, a few bubbles will appear to float in mid-air in the aquarium. The bubble is really just floating on a cushion of invisible carbon dioxide gas. Of course, the spooky Halloween story is up to you... but I think I heard that the aquarium is the home of a ghost who has been known to play with soap bubbles!

Try a Spooky, Bubbling Beverage

The next time you have a craving for a sparkling beverage, make your own batch using what you know about dry ice. Fill a bowl or pitcher with apple juice and use gloves or tongs to add a few large pieces of dry ice. While the mixture is bubbling and burping, the apple juice is being carbonated by the dry ice. Carbon dioxide gas is mixing with the juice to make a "sparkling" drink. Your local hobby or craft store is sure to have a spooky looking Halloween cauldron that would hold a large batch of apple juice and dry ice. Wait until the dry ice is completely gone before serving the apple juice. It's a spooky carbonated drink.

Lightsticks... the Eeeeeeerie Glow!

Make a trip to your local supermarket or Halloween store to find a supply of Lightsticks. When you bend the lightstick, a small glass tube breaks and the chemicals in the lightstick mix. The result is an eerie glowing light that is safely contained within the walls of the lightstick. Drop a lightstick into your bubbling dry ice potion for a great eerie effect.