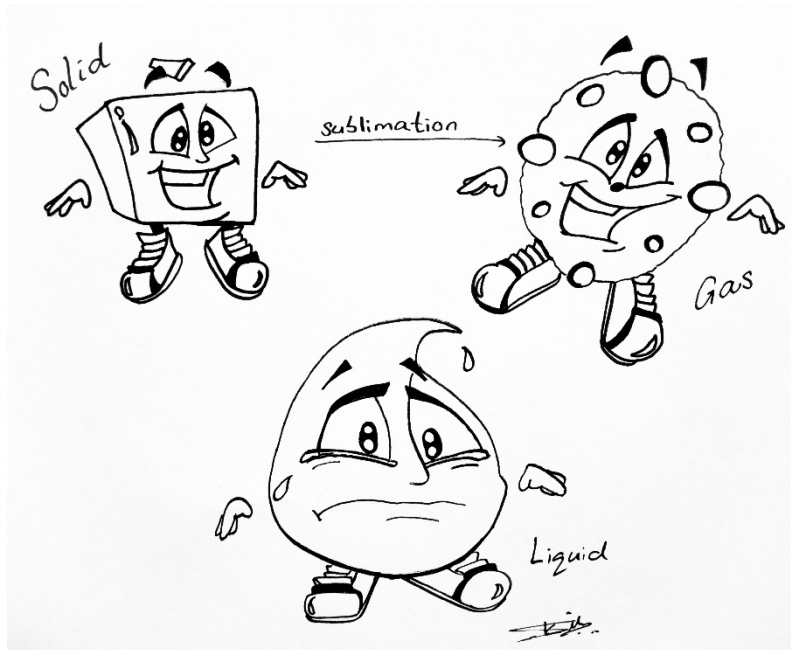


Dry Ice Day

Dry Ice is compressed and frozen carbon dioxide. Dry Ice is liquid if stored at 300psi pressure. From there it gets fired into a container where it instantly turns into something resembling snow. The "snow" is then squished down and pressed together forming solid pellets or nuggets of dry ice. When you pick the Dry Ice up from the store, make sure you wind the window in your car down. CO₂ gas from Dry Ice does not support breathing ;)



At normal pressure Dry Ice **sublimes** at -78°C

At that temperature it turns from a solid directly into a gas without going through any liquid state. This is very useful if you want to keep your picnic lunch cold without also having everything saturated with the water left over from normal ice.

Choose an experiment to write up in your book.

Aim (which experiment did you do?)

Observations (what did you see and hear?)

Conclusion and Discussion (what does this show about dry ice?)

14 Fun Experiments with Dry Ice

Metal Scream

Hold anything metal down on a piece of Dry Ice and listen to the metal scream. I think what's happening is the metal is evaporating a thin layer of gas which pushes the metal up briefly. The resulting vibration results in the noise.

Balloon Popping

Place some pieces inside a balloon and hang it from the ceiling with string. An alternative is to put the balloon in a large container of water - it blows up faster.

Film Canister Popping

Place a piece of ice in a film canister on put the cap on. Point the canister away from people.

Film Canister Engine

Push two holes in the bottom of the canister. Push the holes in at an angle so they are pointing out like a pinwheel firework. Add the ice and warm water and hold the canister in the air by trapping a thread under the lid.

Bung Guns

Put some Dry Ice inside a PET (pepsi/coke) bottle with water. Stop it up with a **RUBBER BUNG**. Then you can either fire the bung into the air or find some way of holding the bottle upside down and the bottle should fly into the air. I advise **against** holding the bottle while firing rubber bungs around.

Jet Power

Add Dry Ice to a water bottle with pop-up drinking nozzle (make sure the nozzle is OPEN at all times!!!). The water/CO₂ vapour will be firing away nicely but then upend the bottle and see what happens to the water inside the bottle.

Magic Water

Mixture of water, a squeeze of ammonia and some universal indicator. It will be a nice blue. Add a small piece of dry ice. Adding more ammonia can make it turn blue again. Alkali like NaOH can be used but the colour transition seems slower. The CO₂ reacts *and* dissolves in the water to make carboxylic/carbonic acid with H⁺ ions wandering around.

Frozen Water

Watching dry ice placed in a beaker of water is fun. You can see the mist rise and water freeze around the dry ice.

Fire Extinguisher

Set something on fire like a candle then hold it in a stream of carbon dioxide vapour from your frozen water beaker.

Mega Fog

Add lots of Dry Ice to a large beaker half full of boiling water still receiving heat. It makes lots of fog that you can shine lasers through. You could try sniffing the stuff and note that it does not support breathing.

Super Bubbles

Add Dry Ice to a beaker of water and detergent... These bubbles also put fires out.

Super Freeze

Add Dry Ice to a beaker of methylated spirits (denatured alcohol). The alcohol does not freeze like water would do so the whole thing becomes a super cooling liquid. Flowers and green leaves will freeze in just a few seconds and can then be broken and snapped apart.

Heavy Air

Put some dry ice in a large container. Blow detergent bubbles into the box and watch them float in mid air. Or take the mist from dry ice in water and pour it onto the top of the super freeze meths. The mist will float.

Super Burn

Place some Dry Ice in the bottom of a burn proof container (like a large crucible). Burning magnesium ribbon is lowered into the heavy CO₂ – Not only is the burning more vigorous, but instead of just white MgO you are also left with black carbon ripped out of the CO₂. This is where trees get their mass from. This also means that a CO₂ fire extinguisher would be a bad choice for use on many metal or battery fires.

