

HEAT DEMOS

- Extreme Expansion
 - Making Hydrogen from Hydrochloric Acid + Zinc $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2(\text{g})$
 - Making Oxygen from Hydrogen Peroxide (with the catalyst Yeast) $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2(\text{g})$
 - Hydrogen + Oxygen $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$
 - Propane + Oxygen Balloon $\text{C}_3\text{H}_8(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 3\text{CO}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g})$
- Multi-Jet Oxy Propane Melting Glass
- Burning Alcohols
 - Isopropyl $\text{C}_3\text{H}_8\text{O}$
 - Methyl CH_3OH
 - Ethyl $\text{C}_2\text{H}_5\text{OH}$
- Burning Wax $\text{C}_n\text{H}_{2n+2}$
- Tyndall's Experiment
- Ping Pong Ball in boiling water
- Bimetallic Strip
- Red Hot Steel
- Hot Marble in cold water
- Silver & Black Cans cooling down hot water
- Extreme Cold: *Nitro Cream (see Liquid Nitrogen below)*
- 3 Bowls of hot, cold, and lukewarm water
- Regelation of Ice
- Ice Bomb
- Yellow & Blue water mixing to green
- Boiling water next to an ice cube
- Radiating Heat through Glass
- Radiating Heat through a Vacuum
- Temperature in a Vacuum
- Triple Point in a Vacuum
- Extreme Crush of a Vacuum in an emptying container
- Extreme Crush of a Vacuum - cooling an aluminum soda can that had boiling water in it
- Rain - invert, then squirt flask that had boiling water to create vacuum, hence fountain of rain
- Race of Conduction - 3 drops of wax in succession on a metal rod
- Race of Conductors - 3 drops of wax on 3 different metal rods
- Hand Boilers
- Drinking Bird
- HYPO Snowfall – sodium thiosulfate
- Homemade Thermometer
- Homemade Barometer from Blown Glass
- Expanding Pendulum
- Weights of hot and cold air on homemade balance
- Weights of hot and cold water on laboratory balance
- Stress Friction on Hangar
- Boiling Water in a paper cup from an open flame
- Water Balloon - put a match to it
- Heat of Vaporization of Water
- Heat of Fusion of Naphthalene
- Specific Heat of different objects cause different rise in temperature

- Sublimation of Dry Ice
- Salt Water (just a pinch) Boils greater than 100°
- [Homemade Blinker from Bimetallic Strip](#)
- Egg pulled into bottle from vacuum
- Hero's Steam Engine

- Liquid Nitrogen
 - Cream
 - Hot Water
 - Lettuce
 - 4 eggs
 - Pour Hot Water into Flask:
 - 1) NITRO to 2) hot water
 - 1) NITRO to 2) soapy
 - Pour NITRO in Thermos:
 - Marshmallows:
 - eat little marsh
 - break big marsh
 - Lettuce
 - Ping pong w/pinhole
 - Chalk Hovercraft
 - Bimetallic strip
 - Pour Nitro over Egg:
 - broken in pan ('fried')
 - whole hammered
 - Pour NITRO in Big Bowl:
 - Balloons
 - NITRO DOTS
 - Explode bottle: barrel
 - EQUIPMENT:
 - thermos, gloves, tongs, paper towels
 - hammer
 - lab coats & goggles
 - flask
 - balloons
 - big bowl, whisk, slotted spoon
 - mat, cloth insulator
 - plastic cups & spoons
 - small water bottle