Gas Laws

1. Bromthymol blue (Acid-base demonstration)

Blow into a straw (exhale CO2) to make solution acidic

(blue to yellow color change)

1. Air Pressure - (14.7 lb/in2)
   1. Crushing Can – boil water in aluminum can; invert over cold water

Vacuum created in can will cause can to crush from air pressure

* 1. Break stick with newspaper (36 in. x 36 in = 10 tons of pressure)
  2. Water balloon in Erlenmeyer flask – oil on side of balloon
  3. Drink “pop” from fully stoppered bottle
  4. Barometer (32 feet tall with water) Have students blow water up a tube.

1. Bell Jar
   1. Balloon expanding – explosion is “quiet” without air sound won’t carry
   2. Shaving cream expanding
   3. Cold boil of water – talk about or show with a syringe
   4. Marshmallow Man – shrivels and expands
2. Hydrogen gas generator
   1. Fill mylar balloon with air and hydrogen and “explode”
   2. Exploding egg (burn until mix of hydrogen and oxygen – then explode)
3. Nitrogen Oxides
   1. Diffusion tubes
   2. Penny in nitric acid to make smog
4. Methane Bubbles with glycerin
5. Liquid Nitrogen
   1. Balloons
   2. Rubber bands (Space Shuttle Challenger Accident “O-ring”)
   3. ball – crack
   4. banana peel and frozen chocolate covered bananas
   5. liquefy and solidify nitrous oxide compounds
   6. “pop” rubber stopper off of a bottle as gas expands
   7. cryogenic freezers (bioethics)

MATERIALS:

Marshmallows Mylar Balloons Aluminum Cans

Chocolate syrup Plastic Table Cloth Full bottle of pop

Balloons Eggs Liquid Nitrogen

Tooth picks Paint stir sticks Bananas

Shaving creme