**LIQUID TO GAS**

**GOAL:** Teach children that liquid propane transitions into a gas at certain temperatures and that gas takes up much more space inside the tank than in liquid form.

**AGES:** Appropriate for all ages

**MATERIAL LIST:**
- Warm water
- Box of Alka-Seltzer
- 2 quart sized plastic storage bags
- Safety goggles

**WHAT TO DO:**

1. Gather warm water, a box or two of Alka-Seltzer, two quart-sized plastic storage bags, and safety goggles. Be sure to have enough goggles on hand for all of the children participating in the exercise and for yourself. Everyone should put on their goggles before the experiment begins.

2. Fill the plastic bag about 1/3 of the way with the warm water, add two Alka-Seltzer tablets to the water, and seal the bag. Watch as the bag fills the rest of the way with gas and expands.

3. Let the kids feel how full the bag is with water and gas. Explain to them that’s what happens inside of a propane tank. The propane starts out as a liquid, but when it starts to boil (bubble like the Alka Seltzer), the liquid is replaced by a gas whereas the bag fills. Stress the importance of not being able to fill the tank/bag too much, as it would explode.

4. Then find out what happens if there is too much gas inside the bag. Make sure all of the children are wearing their safety goggles and are standing a safe distance away from the experiment. Open up the bag, drop several more tablets in the water, and reseal the bag. Set the filled bag on a flat surface and let the tablets fill the bag up with gas until it bursts.

5. Explain that the pressure valves on propane tanks are what keeps the tanks from exploding. For example, when there was too much pressure and liquid inside the plastic bag, it burst open. The valves make sure the right amount of propane is inside the tank.

**BRINGING IT ALL TOGETHER:**

Allowing the kids to feel the bag after it has been filled with gas the first go-around is important so they can understand that the bag is actually filled and that gas is occupying space. At that point, they can correlate the pressure-filled bag to a pressure-filled propane tank.

By showing the kids that having an unstable amount of liquid and gas in a container isn’t safe, it exemplifies how a propane professional should be the one in charge of handling the amounts of propane in the tanks.