



## SANTA IN A BOTTLE

### SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything while doing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a CHOKING HAZARD. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

### INGREDIENTS

- Hardboiled Egg
- Glass Jar (Make sure the mouth of the glass jar is slightly smaller than the egg.)
- Matches

### INSTRUCTIONS

**STEP 1:** Have an adult ignite five matches and immediately place the matches into the glass jar or chimney.

**STEP 2:** Quickly place the egg or Santa on the opening of the glass jar and observe. Describe the egg by its observable properties. Explain how the air inside the glass bottle can be used as a model to describe that matter is made of particles too small to be seen.

### EXPLANATION

The fire inside the glass bottle heats the air inside, causing it to expand, increasing the air pressure. Once the fire goes out, due to the lack of oxygen, the air inside the glass jar cools and compresses, causing the air pressure inside to decrease. The higher pressure outside of the glass jar pushes the egg or Santa into the glass jar or down the chimney.



### SCIENCE BACKGROUND

Matter is anything that has mass and takes up space. Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. Matter of any type can be subdivide into particles that are too small to see, but even then the matter still exists and can be detected by other means.

### I CAN STATEMENT

- ✓ I can plan and conduct an investigation to describe and classify different kinds of matter by their observable properties.
- ✓ I can develop a model to describe that matter is made of particles too small to be seen.

### NEXT GENERATION SCIENCE STANDARDS CONNECTION

2 – Structure and Properties of Matter | Patterns

5 – Structure and Properties of Matter | Scale, Proportion, and Quantity