

Sublime Lab

INTRODUCTION:

Dry Ice is composed of the elements Carbon and Oxygen. It is the solid phase of the gas carbon dioxide (CO₂). It is a unique compound because it sublimes under normal atmospheric pressure and conditions. This means it does not change to the liquid phase when it goes from a solid to a gas (unless it is under pressure). Today, you will have the chance to experiment with this matter.

Remember, lab safety for yourself and other is the most important concern in the classroom. This matter is generally safe as long as you do not misuse or mishandle it (*meaning use your goggles at all times, wear gloves and do not do anything unsafe to you or others*).

MATERIALS:

- Balance, flask, plastic cups, plastic squeeze bottle, balloon, 2 film canisters, thermometer, penny, tongs, candle, and **GOGGLES**.

CHEMICALS:

- Dry Ice - Carbon Dioxide (CO₂)

Experiment Options:

- Place in water (warm vs. cold), use the balance to measure mass, inflate the balloons, put into a container (be careful), use the thermometer, see if metals react with it, what happens when heated, or anything else that is safe and will allow you to experiment with the matter.

What You Need to Do:

- **Before you start this lab, put on your gloves and goggles**
- **First**, observe and **list 3 unique characterizes** about a piece of dry ice. **Sketch a picture into your notebook**.
- **Second**, use any of the items at your table to experiment with a piece of dry ice. You will do **4 different experiments**. Make sure you **sketch** each of the experiments you are conducting. **NOTE:** At least one of the four experiments must result in **collection of data (quantitative)**. Possible **quantitative measurements** could be: temperature change over time, mass of the dry ice over time, time for a certain amount to sublime, volume of balloon over time, etc). Make sure you record this data into your notebook.
- **Third**, Give each experiment a unique and creative **title**.
- **Fourth**, **Describe** how you conducted or carried out each experiment (3-6 steps). Your procedures should allow someone else to repeat the experiment and obtain the same results.
- **Fifth**, **Explain** what happened, what you **learned**, or **discovered** with each experiment (4-6 sentences for each of the four experiments) and the **chemistry involved** in the experiment.
- **Finally** **Clean up** after you have done at least 4 experiments.