

Objective: In this activity you will duplicate the conditions necessary to form a cloud and precipitation. You will observe their formation and behavior.

Background: Clouds form when warm saturated air cools to the dew point. At this point water vapor will begin to condense into tiny particles of dust called condensation nuclei. If the cloud droplets become too large to remain suspended in air, they will fall as precipitation.

Materials: Each group will need 1 beaker (the mouth needs to be smaller than the petri dish), 1 petri dish, 3 small birthday candles, matches, paper towels, warm colored water, ice.

Part I

Procedure:

1. Place open paper towels on the lab table.
2. Place the petri dish on the towel.
3. Carefully light one candle.
4. Drip 2 or 3 drops of wax near the center of the petri dish, blow out the candle, then place the bottom of it in the melted wax before it cools. Hold until it is set so that the candle sits upright by itself.
5. Repeat steps 3 and 4 with the other 2 candles.
6. Put about 50 ml of warm colored water into the petri dish.
7. Light the candles again, place the beaker over the candles.
8. Observe very closely. Get down on your knees so that the jar is at eye level and put your face close to the glass. Record your observation.

Observations:

1. What happens to the candles shortly after placing the beaker over them?
2. What happens to the water in the dish?
3. What do you see floating around the inside of the beaker?

Part II

Procedure:

1. Place ice cubes on top of the beaker.
2. Observe **VERY** closely. You need to be at eye level the beaker. Record your observations.

Observations:

1. What is forming inside the beaker?
2. Describe the circulation pattern that you see.
3. What causes this formation?
4. Watch carefully for the formation of water droplets. How many water droplets can you see?
5. Name the process by which these water droplets form.
6. Which direction is the cold air going?
7. Which direction is the warm air going?
8. What supplied the condensation nuclei?
9. What happens where the two air masses are meeting?
10. Where in the jar is there an area of low pressure?

Part III

Procedure:

1. Remove the ice cubes and place them in the sink.
2. Remove the beaker, Wash it and return it to the cabinet.
3. Pour the colored water down the drain.
4. Remove the candles and all wax from the petri dish and dispose of properly.
5. Wash the petri dish and return it to the cabinet. Wash the lab area.