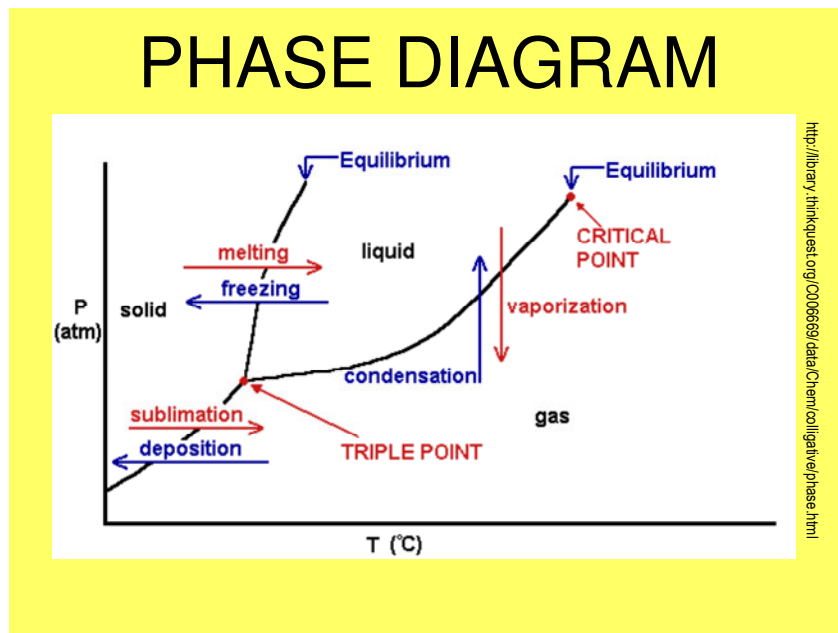


# Phase Diagram POGIL

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Model 1



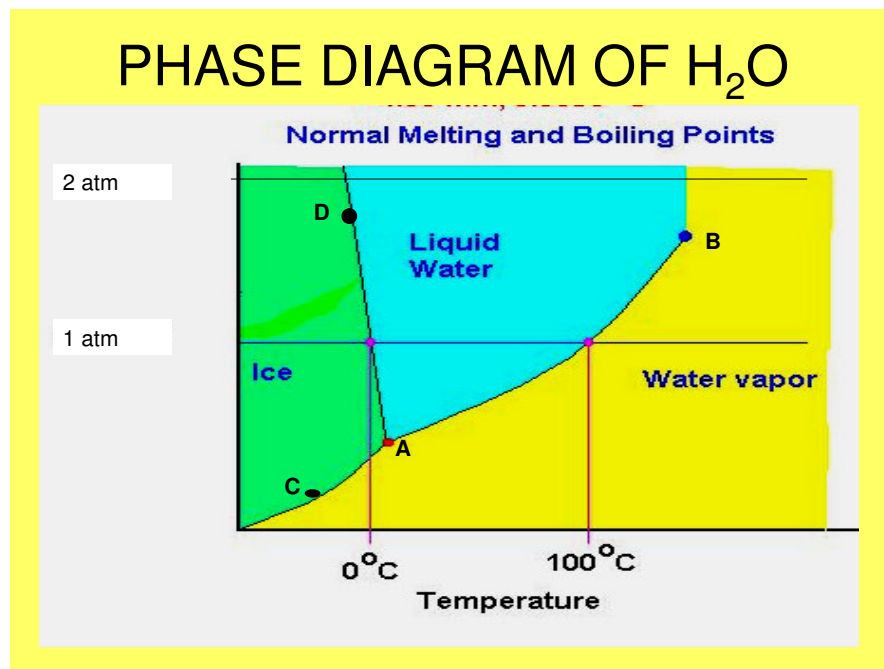
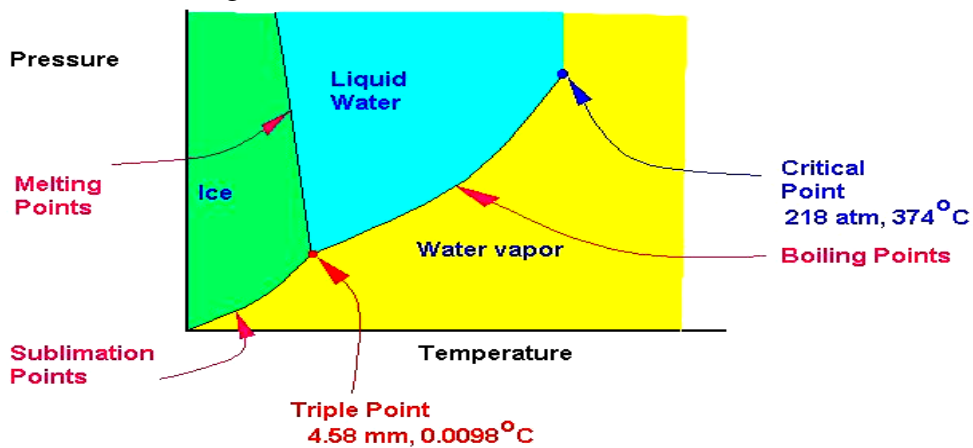
A phase diagram is a graphical way to summarize the conditions under which equilibria exist between the different states of matter. It also allows us to predict the phase of a substance that is stable at any given temperature and pressure.

### Critical Thinking Questions

1. What Label is on the x-axis?
2. What Label is on the y-axis?
3. List the three phases of matter that are on the diagram.
4. At which point do all three phases on the diagram meet?
5. In your own words, define what you think the triple point is.
6. The line extending from the triple point to the critical point stops. What does this mean in terms of phase change?
7. In your own words, define what you think the critical point is.

## Model 2

Phase Diagram for Water



### Critical Thinking Questions

- Identify the following points: A, B, C, D
- If the line AD represents the melting/freezing line for water, what would the AB line represent? What would the AC line represent?

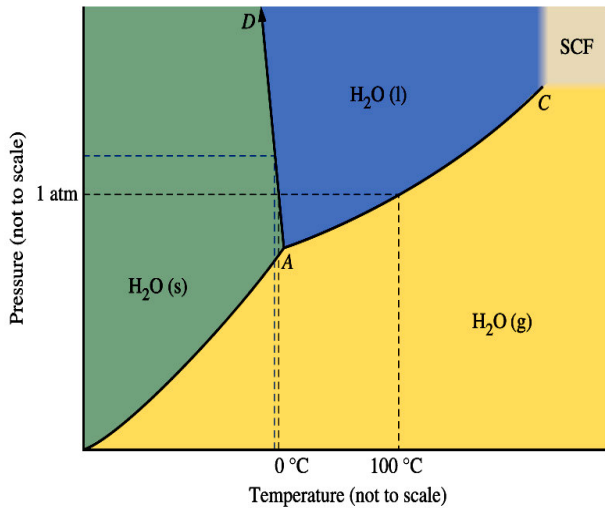
10. Given the phase diagram above, what phase would water be in if it had the following properties:

a. 50 °C, and 0.5 atm pressure

b. -50°C, and 0.5 atm pressure

c. 125 °, and 1.0 atm pressure

### Model 3



11. In the diagram above, what do (s), (l), and (g) represent?

Using the phase diagram of the liquid above, describe any changes in phase present when H<sub>2</sub>O is:

12. kept at 0°C while the pressure is increased from 1 atm to 5atm (vertical line)

13. Kept at 1.00 atm while the temperature is increased from 0 °C to 125 °C. (horizontal line)