

Topic: **Bonding / Intermolecular Forces / States of Matter**

Your group will be working with the following six stations: **1, 5, 8, 13, 14, and 17.**

Take notes on what you see in each particulate diagram and answer the following questions regarding each one.

- a. What state of matter does the diagram represent? Justify your answer.
- b. Does the diagram represent an elemental substance (or substances) or a compound substance or substances?
- c. Does the diagram represent a pure substance or a mixture?
- d. What type(s) of intramolecular forces are present in the diagram?
- e. What type(s) of intermolecular forces are present in the diagram?

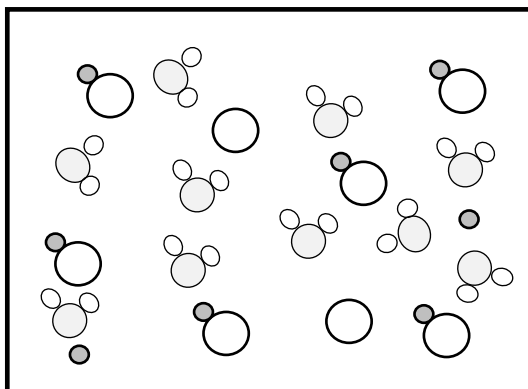
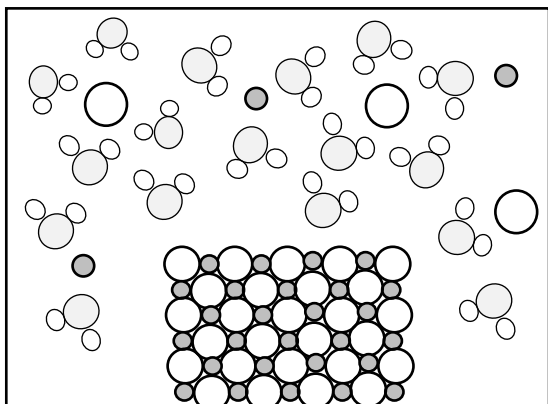
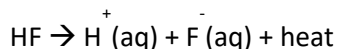
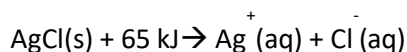
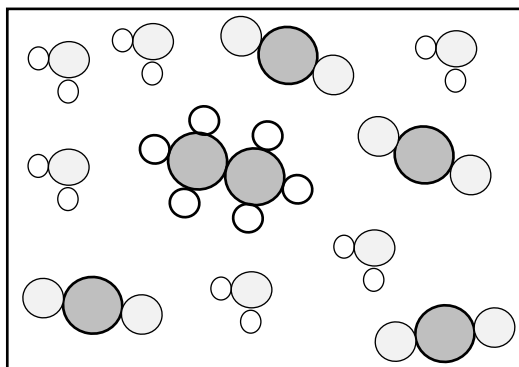
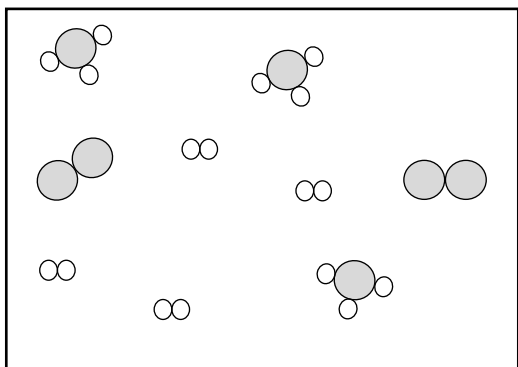
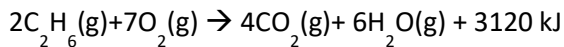
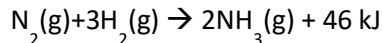
Topic: **Reactions / Stoichiometry**

Your group will be working with the following five stations: **3 (a & b), 6, 10, 12, and 16.**

Take notes on what you see in each particulate diagram and follow the directions given at each station.

Topic: **Equilibrium**

Your group will be working with the diagrams below **and** the following eight stations: **2, 4, 7, 9, 11, 15, 18, and 19.**



Given the four reactions shown above along with the particulate diagrams showing their equilibrium state, determine whether each disturbance below would shift the equilibrium right, left, or have no effect. Then, find the diagrams at the station numbers listed above that would result if the disturbances were made. Match the station numbers that apply to each disturbance. There may be more than one station that satisfies each disturbance, and a particular disturbance may have no effect on an equilibrium system. Give any **and all** answers that apply.

- |                                       |                                         |
|---------------------------------------|-----------------------------------------|
| a. Temperature is increased.          | g. Aqueous potassium fluoride is added. |
| b. Volume is decreased                | h. Nitrogen gas is removed              |
| c. Oxygen gas is added.               |                                         |
| d. Solid sodium chloride is added.    |                                         |
| e. Pressure is decreased.             |                                         |
| f. Aqueous sodium hydroxide is added. |                                         |