Reactions and Rates 4
Also uses ***Salts & Solubility*** and ***States of Matter***

Clicker Questions

LeChatlier's Principle

Trish Loeblein

PhET

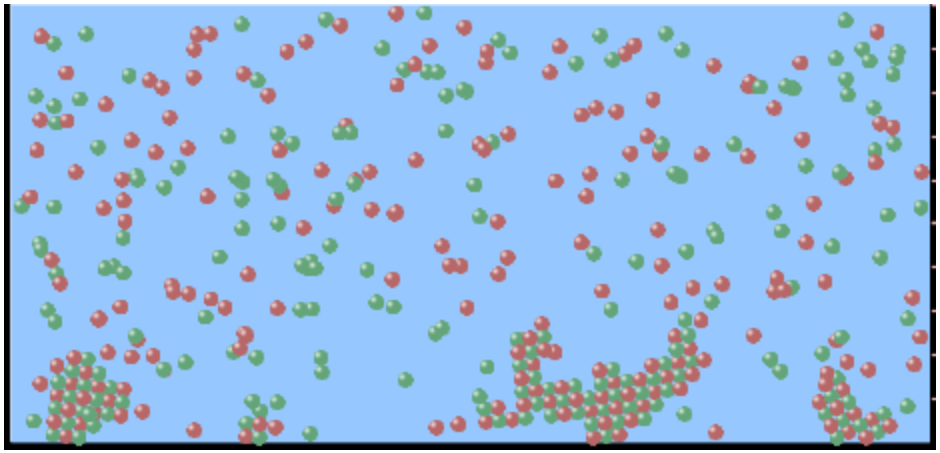
Learning Goals

Students will be able to:

- Explain how to make equilibrium systems change and predict what changes will happen.
- Compare and contrast salt-solution, phase, and chemical equilibriums.

If you add water to this salt solution, what will happen?

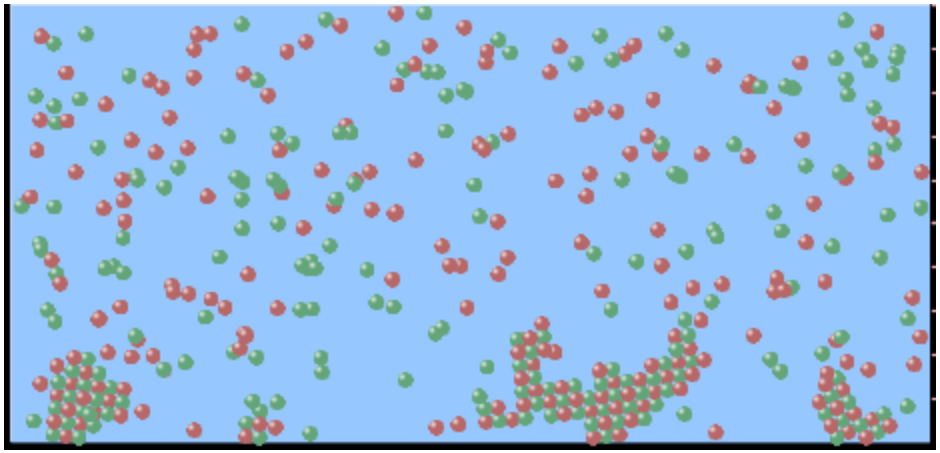
$$NaCl(s) \rightleftharpoons Na^{+}_{(aq)} + Cl^{-}_{(aq)}$$



A. **The system will shift to the right**
B. **The system will shift to the left**
C. **LeChatlier's principle doesn't apply to physical systems**

If you increased the air pressure above this salt solution, what will happen?

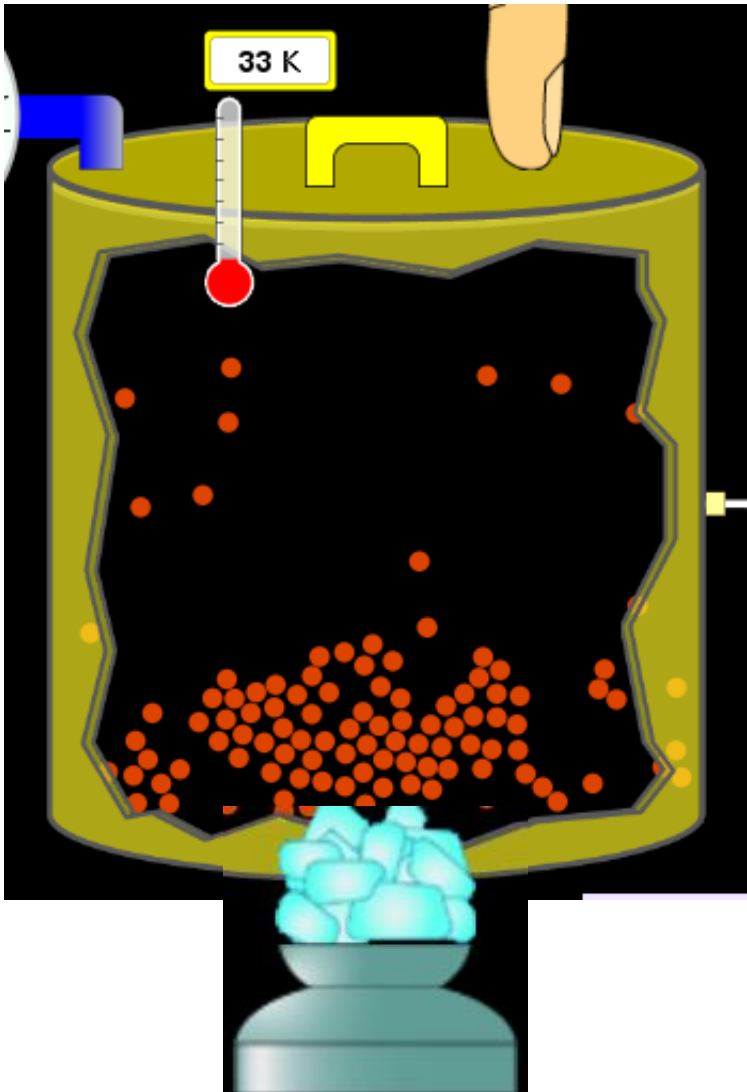
$$NaCl(s) \rightleftharpoons Na^{+}_{(aq)} + Cl^{-}_{(aq)}$$



A. **The system will shift to the right**
B. **The system will shift to the left**
C. **This system would not be effected by pressure changes.**

If you cooled the container, what will happen? $Ne_{(l)} \rightleftharpoons Ne_{(g)}$

A. **The system will shift to the right**
B. **The system will shift to the left**
C. **This system is not effected by temperature**



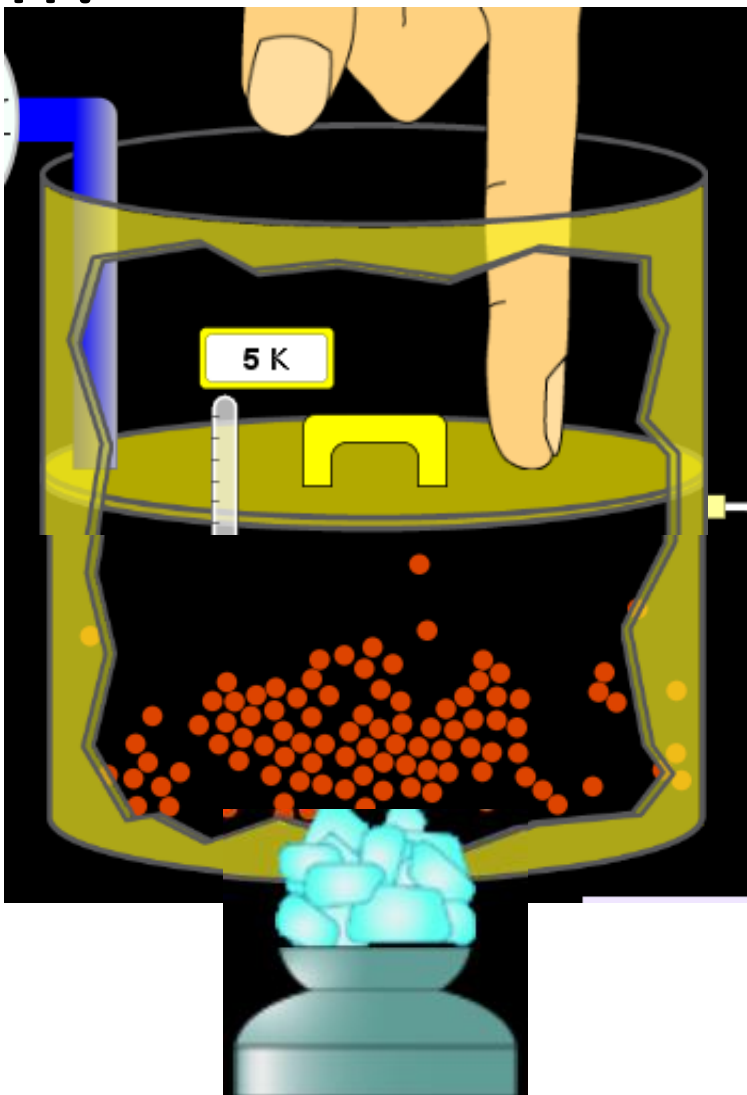
If you made the container smaller, while keeping the temperature constant, what will happen?

$$Ne_{(l)} \rightleftharpoons Ne_{(g)}$$

A. **The system will shift to the right**

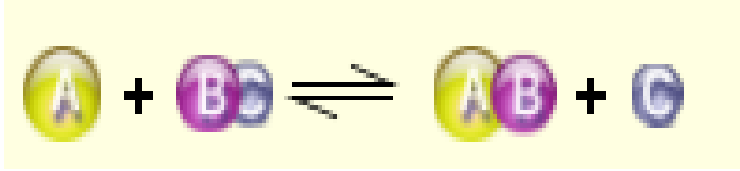
B. **The system will shift to the left**

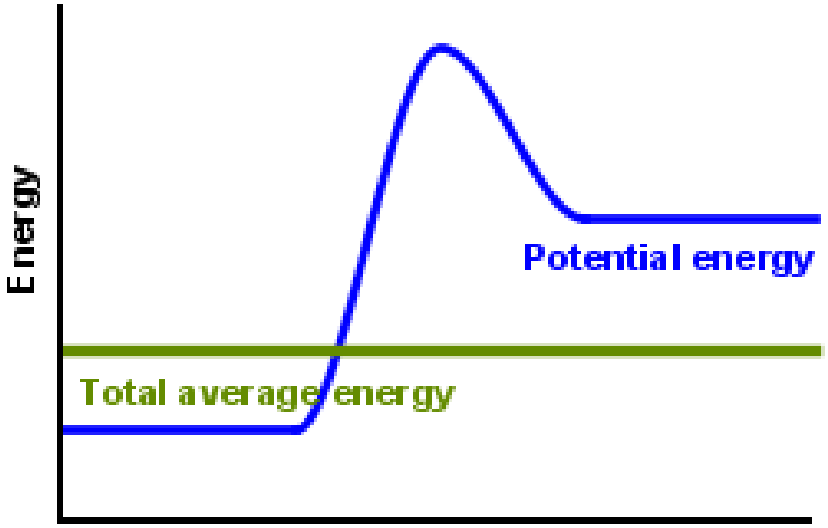
C. **This system would not effected**

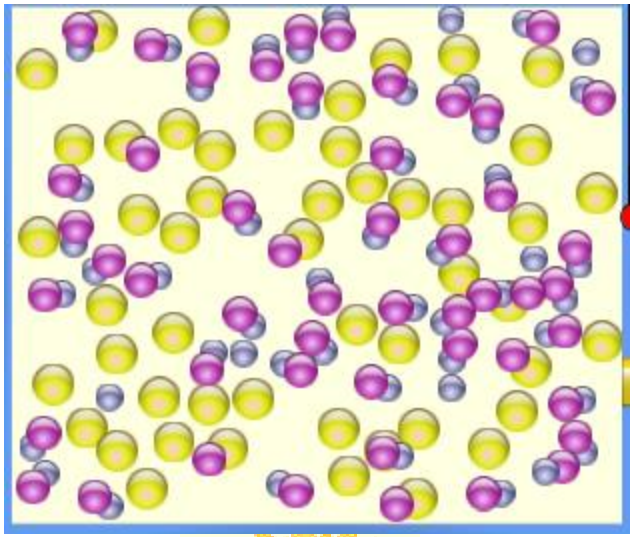


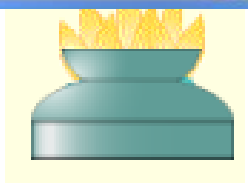
What would happen if you added energy using the heater ?

A. The system will shift to the right
B. The system will shift to the left
C. Both reactants and products would have more energy, but the amounts would not change much

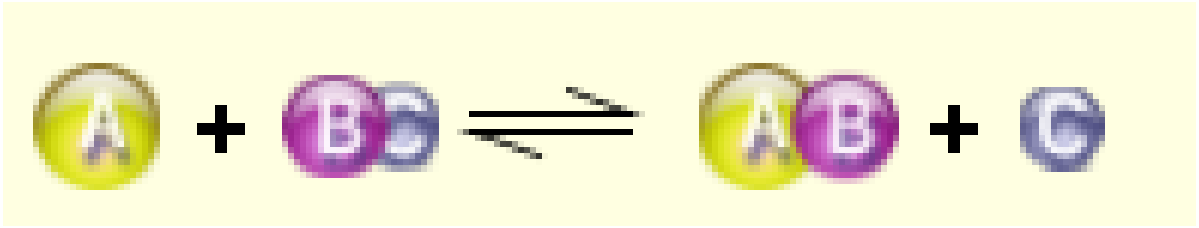


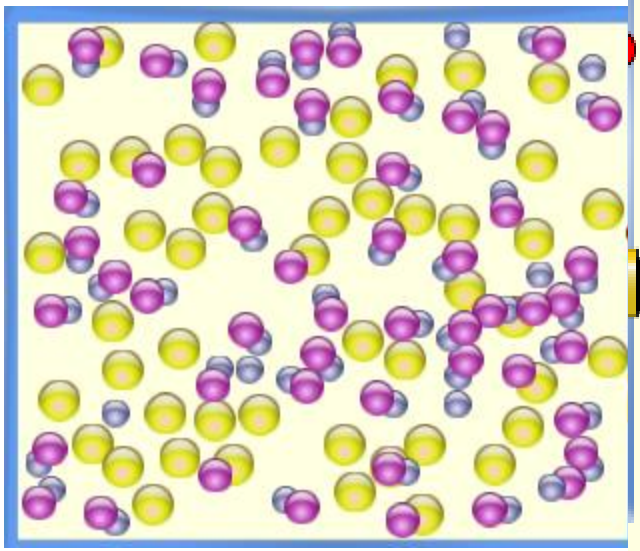


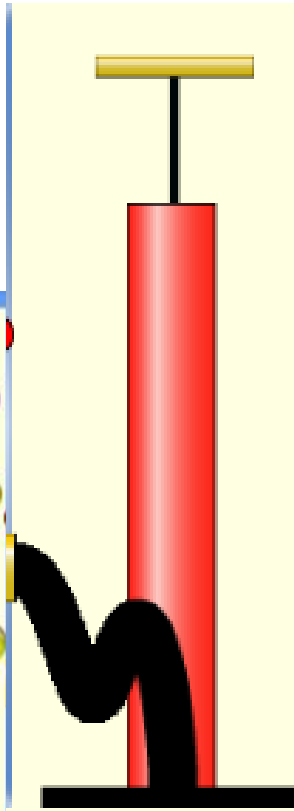


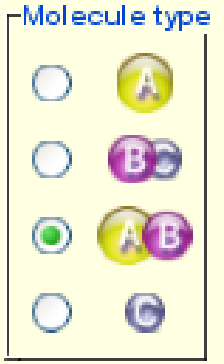


What would happen if you added  ?









A. The system will shift to the right

B. The system will shift to the left

C. The only change would be the amount of 

What would happen if you added energy using the heater ?

A. The system will shift to the right
B. The system will shift to the left
C. Both reactants and products would have more energy, but the amounts would not change much