Solutions and Colligative Properties

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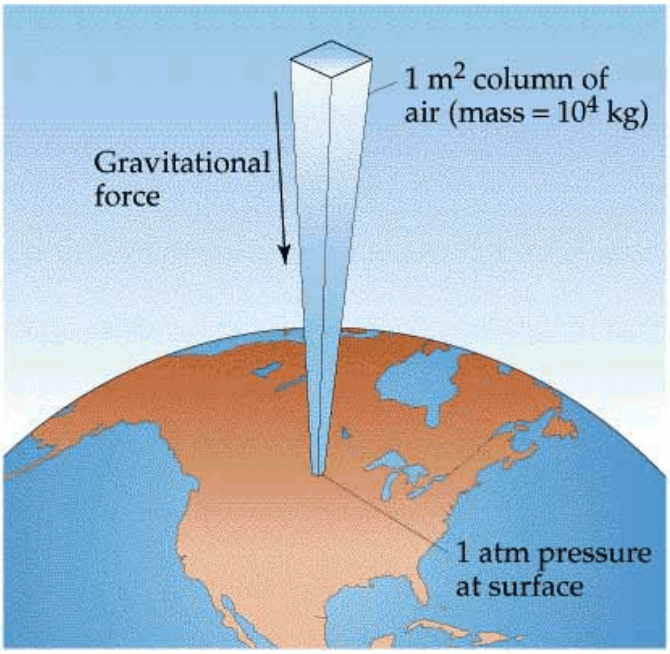
Factors Influencing Boiling Point

- Why does water boil at 96˚C in Orem rather than 100˚C?
- What factors determine the temperature at which a liquid boils?
  - Atmospheric Pressure

Solutions and Colligative Properties

Factors Influencing Boiling Point



Solutions and Colligative Properties

Factors Influencing Boiling Point

- Why does water boil at 96˚C in Orem rather than 100˚C?
- What factors determine the temperature at which a liquid boils?
  - Atmospheric Pressure
  - Intermolecular Forces
- What could you do to make the boiling point of water increase?
  - Increase atmospheric pressure
    - Decrease elevation
    - Pressure cooker
  - Increase Intermolecular Forces
    - Create a solution
      - Solute - substance being dissolved - Salt
      - Solvent - substance doing the dissolving - Water

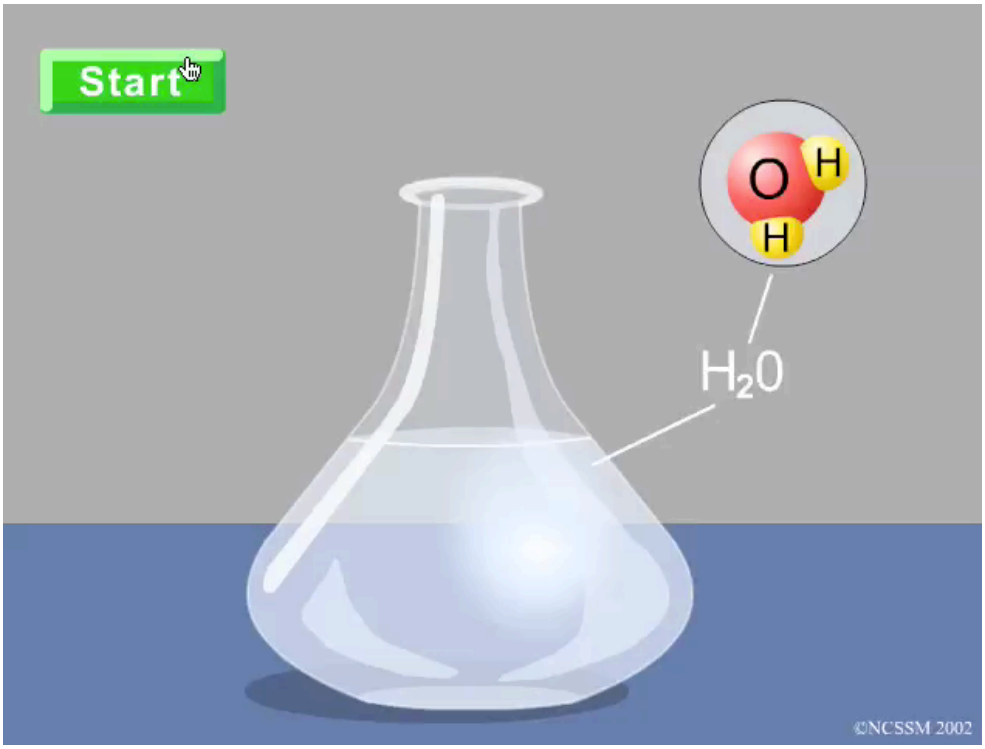
Solutions and Colligative Properties

Solubility

- **Solubility** is a measure of a substance's ability to dissolve into another substance (water)
- Aqueous Solutions
  - Solution in which water is the solvent
  - In order for a solute to dissolve in water, the polar water molecules must be able to attract the particles in the solute
    - If it dissolves in water - it's polar
    - If it doesn't dissolve in water - it's non-polar

Solutions and Colligative Properties

Solubility - Dissolving Salt



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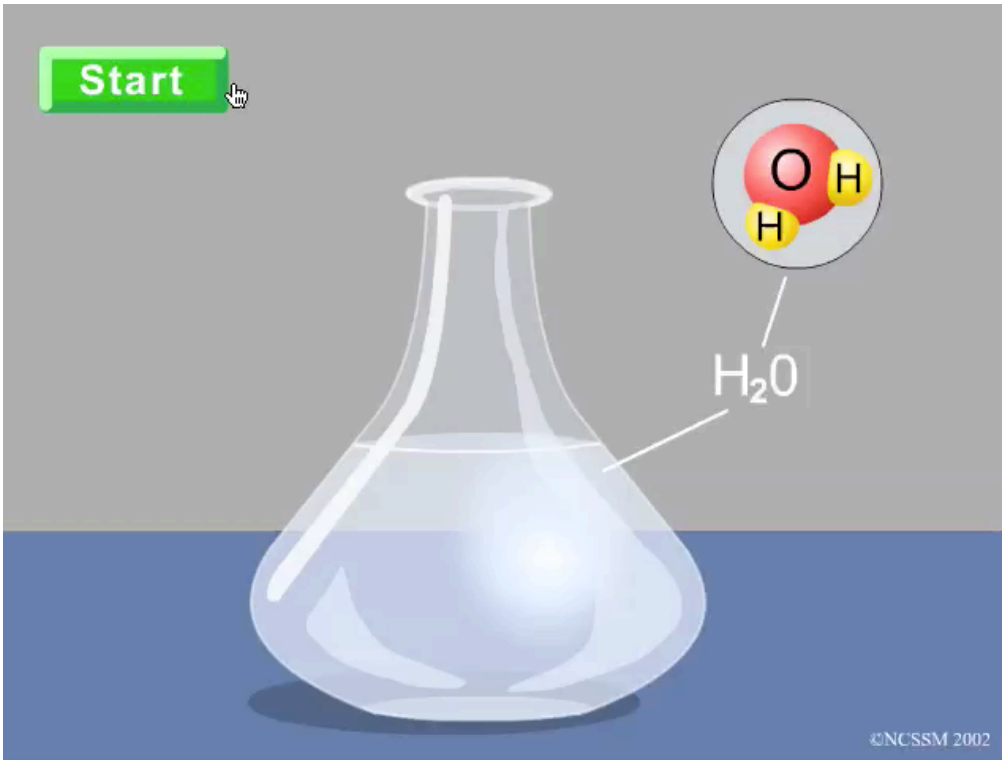
Solubility - Dissolving Sugar



Solutions and Colligative Properties

Definitions and Important New Concepts

- Colligative Properties - Properties of solutions determined by the number (and not type) of solute particles in solutions.
- Boiling Point Elevation
  - If the solute dissolves, it is strongly attracted to the water
  - These stronger attractions make the IMF's harder to break
  - The boiling point increases
- Freezing Point Depression
  - If the solute dissolves, it is strongly attracted to the water
  - These stronger attractions make it harder for the water to get together and form structure
  - The freezing point decreases