**Purpose** To investigate solubility of solids based on the temperature of the solvent.

**Materials** 1 - 250 ml beaker or cup ½ Teaspoon of Hot Cocoa mix

Hot Plate or stove 100 ml of water

### Procedures

### Use only the materials listed and devise a quick experiment demonstrating the relationship of solubility to temperature involving solids. You can also watch the video on Study Place: “*Factors Affecting the Rate of Solubility with Riesen*”.

1. Write your procedures below and then test them:

### Calculations and Data

1. Record your observations … specifically regarding the amount of cocoa dissolving (solubility of a solid) versus the temperature of the water (solvent).

2. How did the cocoa taste?

### Conclusions

1. What relationship did you discover between solubility and temperature for solids?

2. Justify your conclusion in #1 with evidence.

### ANSWERS

### Calculations and Data

1. Record your observations … specifically regarding the amount of cocoa dissolving (solubility of a solid) versus the temperature of the water (solvent).

*The hotter the water, the more cocoa that dissolved.*

2. How did the cocoa taste?

*Seriously??? Cocoa always tastes good (at least when hot).*

### Conclusions

1. What relationship did you discover between solubility and temperature for solids?

*There is a DIRECT relationship between the solubility of a solid and the temperature of the solvent. In other words, as temperature increases, so does solubility of most solids.*

2. Justify your conclusion in #1 with evidence.

*At room temperature, very little cocoa dissolved in the water. In fact, it powdered on the water’s surface. However, as temperature of the water increased, the cocoa dissolved more and more in the water.*