Title: Latent Heat

**Objectives:** Students will observe and describe the energy changes associated with a change from liquid to solid.

**Instructions:** Each room contains a couple of reusable hand warmers. Each of the hand warmers is filled with a solution (sodium acetate) that normally solidifies at approximately 50°C (120°F). This material has a tendency to supercool (remain liquid below its melting point) until it is provided with a trigger to start the crystallization process. In these hand warmers, flicking a small metal disk will cause the sodium acetate to begin to solidify.

1. Note the temperature of a hand warmer before and after the disk is flicked. What happens to the temperature?

2. The hand warmers maintain a temperature of nearly 50°C for an extended period of time, sometimes several hours if they are kept in an insulated coat pocket. Where is the energy coming from and how do they stay hot that long?

3. The instructions say that the hand warmers can be reused after placing them in boiling water for a few minutes. What does this accomplish?

I personally participated in the activity and wrote the response in my own words:

Signature:_____________________