



Endothermic Reactions




Overview

How often have you seen a movie or TV show where the mad scientist mixes two chemicals together and they blow up, leaving the scientist with a smoke-stained face and bunch of broken test tubes? That's because we are used to reactions being exothermic or releasing energy. But of course there are other less dramatic reactions. These reactions are called endothermic and they absorb energy. We can't really see the effects of these reactions but we can measure them with a temperature sensor.

Equipment

- einstein™ tablet, MiLAB
- Temperature sensor (-40 °C to 140 °C)
- Vinegar
- Baking soda
- A glass

Experiment procedure

1. Connect the Temperature sensor to your einstein™ Tablet+™.
2. Launch the MiLAB program 
3. Make sure that only external Temperature sensor is selected.
4. Tap .
5. Set the Sampling rate to 10 samples per second.
6. Set the Duration to 1 minute.
7. Fill the glass halfway with vinegar.
8. Put the temperature sensor in the glass.
9. Select play  to begin recording data.
10. Add the baking soda to the glass.
11. Follow the temperature changes.

The Science

Note how the temperature drops. That is because the reaction creates a product with higher potential energy than the two original ingredients, this energy is absorbed from the environment causing the lower temperatures.

