<table>
<thead>
<tr>
<th>Title:</th>
<th>The Heat is on! Or Where did the heat go?</th>
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<tbody>
<tr>
<td>Grade:</td>
<td>6th grade Science</td>
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<tr>
<td>Topic:</td>
<td>Energy and its Transformation</td>
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</tbody>
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| Standard & Benchmarks: | **Standard 6:** Physical, Earth, and Space Sciences: NATURE OF MATTER AND ENERGY: Understand the nature of matter and energy, forms of energy (including waves) and energy transformations, and their significance in understanding the structure of the universe  
**Benchmark 6.6.1:** Compare how heat energy can be transferred through conduction, convection, and radiation  
*I can statement:* I can describe and compare how heat energy can be transferred through conduction, convection, and radiation and provide a real world example of each. |
| Outcome: | Choice of:  
1. Write a story, draw a picture, or create a collage about one real-life experience of conduction, convection, and radiation.  
2. Demonstrate one experiment on conduction, convection, or radiation.  
3. Videotape yourself demonstrating one experiment on conduction, convection, or radiation.  
Share product in small groups or whole class. |
| Time Recommended: | One- 40 minute period for investigation (on computer), One - 40 minute period for designing the experiment, scripting and videotaping, or writing (classroom or outside assignment) |
| Materials needed: | **Safety Issues:** Safety Equipment as needed. Emphasize that an adult must assist student with all phases of the experiment.  
**Experiment 1**  
- 2 slices of cold butter  
- A metal knife  
- A plastic knife  
- A glass of warm/hot water from the faucet (not boiling)  
**Experiment 2**  
- Wooden ladle  
- Plastic ladle  
- Metal ladle  
- Boiling Water  
- Hot plate  
- Pot - that is shorter than the ladles.  
- Thermometer  
- Glove  
**Experiment 3**  
- 2 ice cubes (strongly dyed with food coloring - dark blue works well)  
- fresh warm water |
| **• tongs**  |  |
| **• a ruler** |  |
| **• thermometer** |  |
| **• 250 ml beaker (may substitute a similar clear glass container)** |  |
| **• salt (about 70 grams)** |  |
| **• stirring rod** |  |

**Experiment 4**
- Water
- Food Coloring
- Pearlized shampoo, liquid soap, etc.
- Aluminum pie pan
- Stirrer

**Experiment 5**
- Shiny metal container
- Dull metal container
- Dull black container
- Shiny black container
- Warm water
- Heater (space heater)

**Skills** – use of camera

**Equipment (beside computer)** – Videocameras, Heater (space heater), Hot plate

**Vocabulary:** Conduction, convection, radiation

**Hwn vocab and pronunciations:**

**Options:**

**Additional Information:** **Homework** – scripting and videotaping