

3<sup>rd</sup> Grade

Title of Lesson: Heat Transfer and Energy

Theme: Physical Science

Unit Title: Heat Energy

Performance Standard(s) Covered

S3P1. Students will investigate how heat is produced and the effects of heating and cooling and will understand a change in temperature indicates a change in heat.

d. Use thermometers to measure the changes in temperatures of water samples over (hot, warm, cold) time.

Content (key terms and topics covered):

Heat

Heat Transfer

Molecules

Gas

Liquid

Solid

Energy

Temperature

States of Matter

Learning Activity (Description in Steps)

Materials:

Cups

Thermometer

Food coloring

Timer

Microwave

## Procedures

1. Students were split into two groups and each group participated in a different experiment. My group was asked about molecules and heat to see how much they know and if they understand the concept. Earlier in the week I showed a video about heat and molecules and had them demonstrate with their hands the movement of molecules in relation to heat.
2. After the explanation, I explained the experiment and had them write down their predictions of what would happen to their food coloring as it spreads in hot, warm, and cold water.
3. We had a cup with hot water, warm water, and cold water. I had some students record the temperature, one student use the timer to record the spread of the food coloring.
4. We then wrote down and discussed the observation.
5. There are no safety precautions for this lesson. Just be sure to put the food coloring in myself to keep it from spilling on them, and that I pour all the water out to minimize the amount of mess.
6. The group with Mrs. Wheeler experiment was to help them read a temperature.
7. Start with cold water; she let them record the temperature.
8. She then would add hot water to their cups and have them record the temperature.
9. There was a discussion to determine their understanding of heat transfer.
10. Safety precautions were to make sure that Mrs. Wheeler distributed the hot water to their cups to make sure they did not spill the cup.

## Notes

For changes I would use different liquids such as oil, or juices. Another change for Mrs. Wheeler's experiment I would switch between adding cold water, hold water, and maybe ice. Other than that I took these experiments from the best lessons and combined them because the focus of each experiment is similar and short enough. I decided to choice this lesson plan because although there were funnier ones this was the most successful as far as outcome.