Heat—Lesson Plan Two

Investigating Heat Conduction

Standard VI: Heat, light, and sound are all forms of energy. Heat can be transferred by radiation, conduction, and convection. Visible light can be produced, reflected, refracted, and separated into light of various colors. Sound is created by vibration and cannot travel through a vacuum. Pitch is determined by the vibration rate of the sound source.

Objective 1: Investigate the movement of heat between objects by conduction, convection, and radiation.

Indicator b: Describe the movement of heat from warmer objects to cooler objects by conduction and convection.

Indicator e: Design and conduct an investigation on the movement of heat energy.

Procedure

A. Literary Reading

Materials:

1. Literacy Reading—Heat Transfer (From State Science Teacher Resource Book, 2006 page 6-16)
2. Heat Transfer Examples (From State Science Teacher Resource Book, 2006 page 6-18)
3. Heating Unit
4. Pan
5. Water

Directions:

1. Review the important parts about heat transfer.
2. Read just about ***Conduction*** on page 6-16.
    a. Discuss what conduction means from the reading.
    b. Show some examples of it from page 6-18.
    c. You may want to have a single stove unit on with water in it showing the heat transfer from the burner to the pan of water that heats the water in turn.

B. What's Warm and What's Cool? Activity

Materials:

1. Worksheet, "What's Warm and What's Cool?"
2. Cardboard
3. Metal
4. Cloth
5. Styrofoam
6. Wood
7. Glass
8. Plastic

Directions:

1. Follow the Directions on the Activity Sheet.
2. Answer the questions as you go.

C. Cool Water and Warm Water Switch

Materials:

1. Worksheet "Cool Water and Warm Water Switch"
2. Three plastic clear glasses
3. One glass with cold water
4. One glass with hot water
5. One glass with warm water

Directions:

1. Follow the Directions on the Sheet
2. Answer the questions as you go.

D. Amazing Melting Blocks

Directions:

1. Watch a youtube video of what happens when ice is put on two surfaces. One cube will melt a lot faster than the other one. Click on the URL below and then scroll down a bit. On the left hand side, click on the 2nd video down. https://search.yahoo.com/yhs/search?p=melting+blocks&ei=UTF-8&hspart=mozilla&hsimp=yhs-004&vm=r
    a. With what they know about "What's Warm and What's Cool" Activity, have the students discuss why they think the ice melted in one faster that then other.
    b. Why would it melt faster when they are in the same room temperature?

2. Watch a second youtube video of the explanation by the instructor as to why one ice cube melts faster than the other one. Click on the URL below and then scroll down a bit. On the left had side, click on the first video down. https://search.yahoo.com/yhs/search?p=melting+blocks&ei=UTF-8&hspart=mozilla&hsimp=yhs-004&vm=r
    a. Have a discussion of why the metal surface would make the ice melt faster then the ice that is on the wood surface.
    b. Have the students think of real world situations where something like this happens every day.