Lesson Plan

Subject area: Science
Grade level: 5

TOPIC: Heat Transfer - Radiation

OBJECTIVE: Following an investigation and group discussion TSWBAT write a paragraph of at least 5 sentences using information gathered during the inquiry investigation, including define radiation as one of three types of transfer of heat, explain that radiation does not require contact of the two objects for heat to be transferred, name the three types of heat transfer, explain that radiation transfers heat through electromagnetic waves, and give at least one example of radiation.

MATERIALS:
Teacher: transparency showing three methods of heat transfer, overhead projector, lighter or matches
Per Student: observation sheet, large marshmallow, metal fork, goggles
Per Group: one candle, one paper plate, one clothes pin, one thermometer

I. PROCEDURES

A. Beginning of lesson:

1. Classroom management step (to have students ready to learn, in listening position, where they need to be): "Give me five: eyes on me, ears listening, mouths closed, hands still, and feet quiet." Acknowledge those students who comply quickly.
2. Statements to initiate or set the stage for the lesson; motivation; review: Place the transparency on the overhead. Ask students to name the two kinds of heat transfer they have already investigated (conduction and convection). Tell them they will now investigate a third kind of heat transfer.

B. Instruction Steps:

1. Ask students how the picture of the girl standing in front of the fireplace could show heat transfer. (The heat from the fire moves out of the fireplace into the room.)
2. Have students recall the last time they stood in front of a fireplace or bonfire. Students will orally answer the following discussion questions: How close did you have to stand to feel the heat from the fire? How could heat reach your skin without the fire actually touching it? ** (To include the Mo/MH inclusion student, I will have Joe stand and be the "fire." As he walks around the room, the rest of the class will feel the heat the fire produces. Again, I will emphasize that a person can feel this heat by radiation. If Joe is not present in class, I will have a kinesthetic learner be the fire.)
3. Share with the students that they did not have to touch the fire to feel the heat. Heat travels in electromagnetic waves. This type of transfer of heat is called