Heat Transfer

Summary

Students will use materials provided to demonstrate radiation, conduction and convection.

Time Frame

1 class periods of 60 minutes each

Group Size

Small Groups

Materials

light source (flashlight, spotlight, desk lamp)
beakers
heat source (alcohol burner, hot plate, candle),
beakers
water
food color
metal tweezers
wax or color crayons
thermometer
paper towels (there are many other materials you could use and students may suggest some others)

- student sheet
(attached)

Background for Teachers

This activity can be done as an introductory activity or during a unit on energy transfer.

Student Prior Knowledge

Students should have some knowledge of radiation, convection or conduction or have some way to find out (textbook, notes, Internet).

Instructional Procedures

Group students in lab groups of 3-4 students. Show them the materials that each group will have available.
Allow time for students to develop their ideas and demonstrate them. There are many ways they could choose to demonstrate heat transfer. If you wish to see each groups work, ask them to show their models to you to initial before going on to the 3 way transfer activity.
Allow time for students to develop the 3 way heat transfer and then ask them to explain it to the class.
Give students an opportunity to fill in the table for analysis and write a conclusion.

Assessment Plan

Scoring Guide

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1. Students correctly demonstrate 3 types of heat transfer……..4
2. Student create and demonstrate three individual heat transfers…….4
3. Students create and model a 3 way heat transfer……4
4. Students correctly fill out table:

	Radiation	Conduction	Convention
Definition	Heat travels through space as an infrared wave.	Heat travels from one object to another when they touch.	Heated substances rise, cool ones sink.
How you demonstrated	Answers will vary		
What medium did it travel in?	air	May vary	Air or water
An example from real life	Sunlight, lights in a room	Pan on a stove	Heat rising up a chimney
Important because	It is how heat travels from the sun to us.	It is how we cook food and sometimes heat homes.	Keeps air and water moving on Earth. Spreads heat around a home.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

Utah LessonPlans