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AESC 4920S

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Best Lesson Plan

Grade Level: Third grade

Title of Lesson: Heat and energy

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.

- b. Investigate how insulation affects heating and cooling.

Essential Question: Does an insulator facilitates or prevents the movement of energy? Does a conductor facilitates or prevents the movement of energy? Do molecules mover faster in hot water or cold water?

Objective: From this lesson, the students will be able to see and understand the differences between a conductor and an insulator. They will also understand the behavior of molecules at different temperatures.

Key Words and Terms:

Molecules

Heat

Energy

Insulation

Insulator

Temperature

Conduction

Conductor

Learning Activity

Abstract:

At the beginning of class, the students will write down their observations about the current temperature of the spoons. They will also write their predictions of what will happen to the temperature of the spoons when they put them inside hot water and cold water. They will be divided into 4 groups and each group will be given three spoons that are made of different materials. Each group will have three cups of hot water and three cups of cold water. Each student will put a spoon into each cup that contains hot water and touch each spoon. Next, they will write down their observations of the temperature change of the spoons. Then, they will repeat the same steps; however, they will be placing the spoons in cold water this time.

Materials Needed: 4 groups

3 spoons made of different materials: 1 wood, 1 metal, 1 plastic (for each group)

6 foam cups (for each cup)

Cold water to fill the cups

Hot water to fill the cups

-I made sure that I had 4 spoons made of wood, 4 spoons made of metal and 4 spoons made of plastic two days before the class. I also made sure to have 24 foam cups. I also called my teacher the week before the experiment to ask her if she could please provide me the hot and cold water.

Safety Concerns:

Safety precautions should be taken when doing the experiment with hot water to prevent students from having any accidents with the hot water. Thus, be careful when pouring the hot water in the cups and make sure to not fill the cup all the way up to prevent spills.

Procedure:

1. Before the experiment is started, each student will touch the three spoons and will record their observations about the current temperature of the spoons. Then, they will write down their predictions about how they think the temperature will change when they put the different spoons in hot water and cold water
2. While each student is writing down their observations, I will be filling up all the cups with hot water.
3. Once all the students are done writing their observations, I will assign each student to put one of the spoons into one of the cups with hot water.

4. Once all the spoons are in the cups, I will wait two minutes until I tell them to touch the spoons.
5. While the students are waiting, I will ask them questions related to heat, molecules, conduction, and insulation.
6. After the two minutes have passed, I will give the opportunity to each student to touch each of the spoons and record their observations of how the spoons temperature has changed.
7. While everyone is writing down their observations, I will change the water in the foam cups to cold water.
8. Once all the students are done writing their observations, I will assign each student to put one of the spoons into one of the cups with cold water.
9. Once all the spoons are in the cups, I will wait two minutes until I tell them to touch the spoons.
10. While the students are waiting, I will ask them questions related to heat, molecules, conduction, and insulation
11. After the two minutes have passed, I will give the opportunity to each student to touch each of the spoons and put their observations of how the spoons temperature has changed.
12. After everyone is done, I will have a class discussion about how spoons' temperature changed and why they changed and why the temperature changed was more obvious in the hot water than the cold water.

Notes and Tips:

Help students stay focus on the topic and keep them from playing with the spoons. Make sure to assign roles before starting the experiment.

References:

Georgia Performance Standards science book