Hot Chocolate

Heat Energy Transfers (Lessons 5-7)

You are sitting outside on a chilly fall day watching a soccer game. Your Mom buys you a cup of hot chocolate. You set it down and forget about it. When you remember it's there, you take a sip and it's cold. What caused the hot chocolate to cool off?

TEACHER NOTE:

Use this assessment after teaching Lesson 5

EVALUATION GUIDELINES:

When evaluating student answers, consider whether they include the following element in their written explanations:

- A cup of hot chocolate cools off because the heat energy in the hot liquid is transferred to the cooler surroundings.

Baking Cookies

Heat Energy Transfers Cluster (Lessons 5-7)

Farleigh and Kersten love to cook. They get together nearly every weekend to bake cookies.

One weekend they went to a cooking store to check out cookie sheets. They saw many different brands and noticed that they all had a new kind of label. In addition to lots of other information, each label read:

"Good conductor"

What does that new label mean? Why would they want a cookie sheet with that label?

TEACHER NOTE:

Use this assessment after teaching Lesson 6.

EVALUATION GUIDELINES:

When evaluating student answers, consider whether they include the following elements in their written explanations:

- Good conductors are designed to transfer heat quickly and evenly.
- Having a cookie sheet that transfers heat well would help ensure that the cookies bake properly.

What to Wear?

Heat Energy Transfers Cluster (Lessons 5–7)

On cold winter days, Ms. Johansson recommends that her children wear clothes that are good insulators.

What does that mean? Why does she recommend this?

TEACHER NOTE:

Use this assessment after teaching Lesson 7.

When evaluating student answers, consider whether they include the following elements in their written explanations:

- Insulators are designed to slow down heat energy transfers.
- Kids' bodies are warm and they do not want to lose their heat to the cooler surrounding air, so wearing clothes that insulate them slows down this process.

Would this recommendation be good for hot days too? Why or why not?

This is not a good recommendation for hot days, because kids want to cool down and let their heat energy move from their hotter bodies to the relatively cooler surrounding air.

6. (Lesson 6) True or False? If false, rewrite the statement to make it true.

   Heat energy transfers through all materials at the same rate. _____ *false*

   Heat energy does not transfer through all materials at the same rate. Materials vary in their ability to conduct or transfer heat energy..

7. (Lesson 6) The transfer of heat energy through materials is called:

   a. *conduction*

   b. insulation

   c. refrigeration

8. (Lesson 6) Water is considered to be a _____ conductor of heat.

   a. *good*

   b. bad

9. (Lesson 7) Which sentence **best** describes insulation?

   a. the transfer of heat energy through materials

   b. the cooling of warm materials over time

   c. *the slowing down of heat energy transfers*

10. (Lesson 7) True or False? If false, rewrite to the statement to make it true.

    An insulator is a good conductor of heat energy. _____ *false*

    It is a poor conductor because it does not allow heat energy to pass through it easily.