Cookie Energy – Interpretation Guide

Darwin, the dog, is watching your cousin bake cookies. Your cousin takes some hot cookies out of the oven and puts them on a rack to cool down. He tells you that you can eat one in 15 minutes. Your friends Katya, Sal, Roger and Luis are discussing what will happen to the thermal energy in the cookies while they cool off.

Katya says – "Energy from the hot cookies will transfer to the air in the room." **Kara correctly describes the transfer of energy to the air.**

Sal says – "Energy from the hot cookies evaporates into the room."

Roger says – "Energy leaves the hot cookies but it does not go anywhere."

Luis says – "There is no energy transfer, the hot cookies just cool off."

Circle the idea that makes the most sense to you and explain why.

Students who agree with Sally, Roger or Lezlie might be thinking that cookies can cool off without losing energy or they may be thinking that when energy leaves the cookies it just goes away. These students could be encouraged to represent the energy story with energy cubes. This will prompt them to think carefully about how the number of energy units in the cookies would change and where those energy units would go.

Darwin notices that while the cookies are cooling down the temperature of the kitchen does not change much at all. He wonders how it is possible for the temperature of the cookies to change so much while the temperature of the kitchen does not change.

Explain how this is possible. (Use diagrams, bars, words and/or the Energy Tracking Lens to tell the energy story).

All of the energy that leaves the cookies would go into the surroundings. This energy spreads out as it moves into the kitchen so the temperature of the kitchen does not increase very much at all.

Students can be encouraged to consider if the air temperature would get warmer if the hot cookies were placed inside a Styrofoam 'mini-room.'

Focus on Energy: Preparing Elementary Teachers to Meet New Science Standards.
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