



Modeling Energy Transfer

Name _____ Date _____ Period _____

MATERIALS

- 2 Black Tiles
- IR Thermometer
- 2 Ice Cubes
- Paper Towels

STEP 1 : OBSERVATIONS

Observations: _____

Which tile *feels* warmer? **TILE A** **TILE B**

Predictions for higher temperature: _____

Predictions for the *actual* temperature of each tile: **TILE A:** _____ °C **TILE B:** _____ °C

STEP 2: TEST PREDICTIONS

Flip the tiles over and **TILE A:** _____ °C **TILE B:** _____ °C

Did your prediction match the actual temperatures of each tile? Circle one: **YES** **NO**

Temperature measures: _____

Try to explain your results by...

STEP 3: ICE MELTING PREDICTION

Prediction (explain your thinking): I predict that _____

STEP 4: ICE MELTING OBSERVATIONS

Record your observations: _____

Temperature of the tiles after 2 minutes: **TILE A:** _____ °C **TILE B:** _____ °C

Summarize the results of all your observations so far in the table below.

	Tile A	Tile B
Feeling		
Temperature (before ice)		
Relative rate of ice melting		
Temperature (after ice)		
Other observations: Specify		

What can you conclude about the average kinetic energy of Tile A and Tile B before the ice was placed on them? _____

What do you think happened to the kinetic energy of the particles in Tile A compared to Tile B after the ice was placed on them? _____

Refine your explanation (about the tiles you made in question 9) in light of these new observations. _____

STEP 5: EXPLANATION

Now share your ideas with your group. As a group, think about how the difference in melting time can be explained in terms of the behavior and interaction of the particles that make up the tiles and the ice. The model you develop should explain your observations.

Use the questions below as a guide for developing your model. Represent your model using a set of particulate drawings that describe the interactions between ice particles and tile particles. A written explanation should be included.

How do the particles that make up the ice interact with the particles that make up the tile? _____

How does the behavior of the particles that compose the tile change when the temperature of the tile changes? _____

Consider the role that energy plays in your model. How is energy transfer represented in your model? _____
