LINKING ACTIVITY 1 "FEEL THE HEAT" CONDUCTION

"Feel the Heat" is an activity that addresses the nature of heat transfer through conduction. The purpose of the game is for students to experience the direction of heat transfer and the correlation between the temperature of molecules and the movement of molecules.

A Note for the Teacher

This activity can take place either in the classroom or outside. You may need to create sufficient space in the classroom by moving desks around, or if there's not enough classroom space, you may wish to go into a hallway or outdoors. This activity takes approximately 15–20 minutes.

YOU WILL NEED

Enough small objects—e.g., counters, marbles, coins, wrapped candies—for each student to have three of them

Procedure

1. Divide students into two equal groups. The students in Group 1 represent cold water molecules, and the students Group 2 represent hot water molecules.
2. Give each student in Group 1 one counter (or whatever object you are using) and each student in Group 2 five counters.
3. Have the students form two lines (Group 1 and Group 2) facing each other.
4. Remind students that hot molecules move a lot, while cold molecules do not move very much, and that heat flows from warmer (faster) to cooler (slower) molecules until they are all have the same amount of energy. Explain that the number of objects they are holding represents the amount of energy they have.
5. Tell the students in Group 1—cold water—that they must move slowly, by placing one foot in front of the other, heel to toe.
6. Tell the students in Group 2—warm water—to move at regular speed by taking normal steps.
7. Have the students move about randomly; when they bump into each other, they transfer energy: The student with the larger number of counters has to give one to the student with

fewer counters. If their energy is the same—if they have the same number of counters—there is no transfer of energy.

8. Students should adjust the speed of their movements based on the number of counters they have, representing the amount of energy transferred through conduction.
9. The activity ends when all students have the same amount of energy—i.e., three counters each—and are moving at the same speed.

Sense-Making Discussion: Conduction

Conduct a discussion about the similarities and differences between what students did in this activity and their experience with the *Galactic Gloop Zoo* game.

- What do the objects in the activity represent?
- What is the relationship between the number of objects each of you had, at the beginning and at the end of the activity, to the speed of your movement?
- Describe the process of conduction you experienced in the activity.