Physics – Thermodynamics Inquiry Names:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Go to <https://goo.gl/7gxzM7>

Click the play button on the picture. Ask for help if the lab simulator does not open.

**Part 1.**

1. Check the “Energy Symbols” box.
2. Press the pause button at the bottom of the simulator.
3. Click and drag the iron and the brick onto the racks.
4. Click on one bucket. Use the up arrow on your keyboard to dial the bucket to full heat. Repeat for the other bucket.
5. Move the three thermometers, one on each block, and one in the air.
6. Your setup should look like this:



1. Press play.
2. Between the bucket and the block above it, which direction is the heat energy moving?
3. Between the block and the surrounding air, which direction is heat moving?
4. After some time, compare the temperatures of the blocks and the air. Which is hotter?
5. In general, heat moves from a hot/cold (circle one) place to a hot/cold (circle one) place.
6. Press pause.
7. Click on each bucket and use the down arrow on your keyboard to move each bucket to full cool.
8. Press play.
9. Between the bucket and the block above it, which direction is the heat energy moving?
10. Between the block and the surrounding air, which direction is heat moving?
11. After some time, compare the temperatures of the blocks and the air. Which is hotter?
12. Click “Reset All”

**Part 2.**

1. Press pause.
2. Match the setup from step 6 in part 1.
3. Press play, and watch the thermometers on the blocks.
4. Do the blocks gain temperature at the same rate? If not, which gains faster?
5. Do the blocks absorb heat at the same rate? If not, which gains faster?
6. How many energy particles can the brick hold? How many can the iron hold? (You may have to pause to count these.)
7. Which block is at a higher temperature?
8. Press pause.
9. Move the iron block into the water.
10. Move the thermometer from the air so that its touching the water.
11. Watch the energy particles and the thermometers as you press play.
12. What happens to the energy particles? Which direction do they travel (into the water or into the iron?)
13. What happens to the thermometers? After some time, which is hotter, the iron or the water?
14. Keep watching. Where do the energy particles start to go?
15. What happens to the temperature as the particles leave?

**Part 3.**

1. Click “Reset All”
2. Press pause.
3. Check the “Energy Symbols” box.
4. Place the bucket of water on one rack, and the brick on the other.
5. Attach a thermometer to the brick and place a thermometer in the water.
6. Click on each bucket and use the arrow keys on your keyboard to dial each up to full heat.
7. Press play.
8. Watch the temperature of the water. What happens to the water when the temperature stops going up?
9. Which has the higher maximum temperature, the brick or the water?