Quiz Pod: Kinetic Theory of Matter 2 Name _____

Kinetic Theory of Matter 2 STUB

1. Kinetic Theory in Gasses [6 points total]
This question involves drawing gas molecules moving inside of a balloon.
For full credit, the following conditions should be met:
- number of molecules should not change between the pictures
- the motion of molecules must be somehow indicated
- despite speed of molecules, they still must fill the whole space
- motion of molecules must be random, not directed

1a) Imagine someone blows up a balloon.
Draw the air molecules inside of this balloon:

1b) Someone then bring the balloon into a room that is way too hot. The heat has been turned up dramatically. Everyone in the room is sweating.
Draw the air molecules inside of this balloon now:

1c)
What happens to the balloon macroscopically?

1d) Someone then brings the balloon outdoors. It is a cold and frigid day.
Draw the air molecules inside of the balloon now:

1e) What happens to the balloon macroscopically?

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2. [4 points]
The following is a story about a steak:
Someone puts a raw steak on the grill until it is cooked. After eating dinner, the lazy person lets it sit in the room for a long time. Then, he realizes he needs to put the rest back into the refrigerator. Later, he takes it out of the refrigerator, and heats it up in the microwave.

Write a corresponding story that is about 4 sentences long and tells the same story from the point of view of the molecules inside of the steak:

3. [5 points] Kinetic theory in solids.
I have a solid piece of metal, and I *heat it up*:
3a) how does it change macroscopically?

3b) relate this macroscopic change to the microscopic behavior of molecules.
[you can answer with text or a diagram]

Now, I take the same solid and I *cool it down*:
3c) how does it change macroscopically?

3d) relate this macroscopic change to the microscopic behavior of molecules.
[you can answer with text or a diagram]

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4. [5 points] Kinetic theory in liquids:
You have a bowl of water.
Some of the water molecules are moving *faster* than others.

What happens to the *faster* water molecules when the reach the surface of the water?

There is also water vapor molecules in the air.
What might happen to a *slower* water vapor molecule when it bumps into the surface of the water?

Draw this in a diagram: