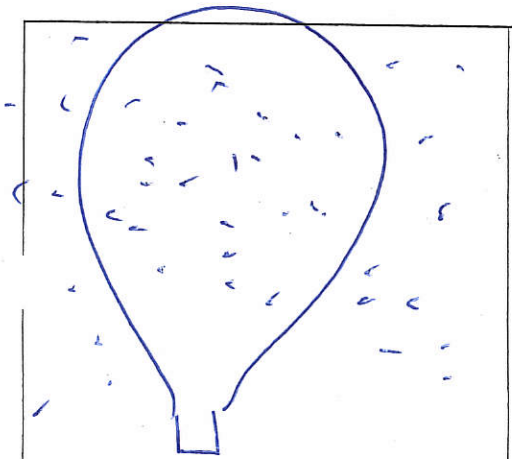
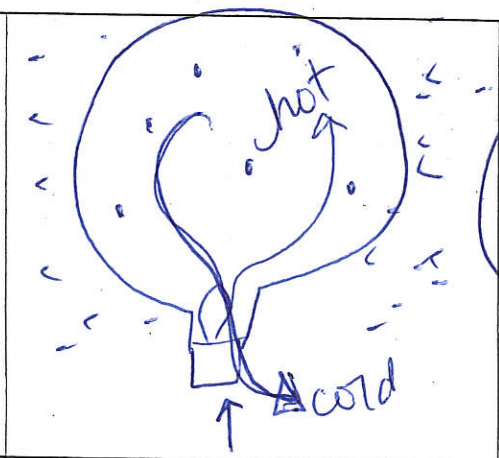
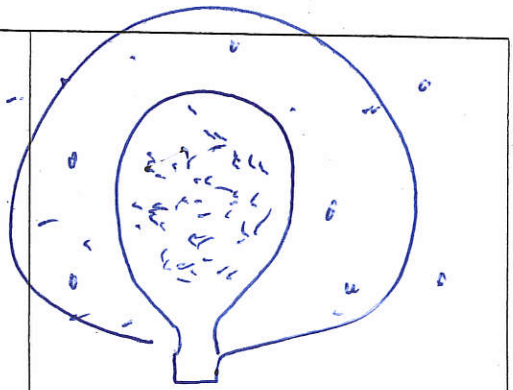
Name:_____ Period:_____ Date:_____ EN___

WEATHER WATER TANKS

Temperature is one factor that affects the density of a fluid (a liquid or a gas). The same fluid is less dense at a higher temperature than it is at a lower temperature. The means there are fewer atoms or molecules in the same amount of the fluid when it is hotter. Fewer atoms or molecules means less mass. For example, imagine you're in a hot air balloon. All the passengers are in the basket waiting to take off, but nothing is happens. At last, the pilot turns on the burner (located above your head, near the mouth of the balloon). There's a loud rushing sound and a huge flame comes from the burner. The balloon starts to rise. Up it goes, higher and higher! Why? The balloon rises because hot air is less dense than cold air. When the air in the balloon was heated by the burner, the hot air inside it became less dense than the cooler air of the atmosphere around it. Hot air (less dense) is lighter and rises up, while heavier cool are (denser air) remains below.

Draw a diagram below of the balloon on the ground, rising and landing. Add notes to explain what is happening in the diagram. Be sure to identify the type of energy transfer used here!!! (Conduction, convection, radiation)

		
Balloon on the ground. density of air inside = outside	Balloon rising. air inside density is less than outside - air is heated by Radiation (flame) - convection, cold air sink and exit balloon	Balloon descending. density inside > outside

Materials Per Group: water tank, red food coloring, blue food coloring. Hot water and cold water, 2 droppers

Procedure:

1. Gather the materials listed above at your table.
2. Add 250 mL cold water to a beaker and add 3 -4 drops of blue food coloring.
3. Add 250 mL hot water to a beaker and add 3 -4 drops of red food coloring.