

Density vs. Temperature

DEMO 1 – Lava Lamp

a) A flask full of hot water (red) is placed on top of a flask filled with cold water (blue).

Prediction : _____

Observation: _____

Diagram of observation:

RED STAYS
ON
TOP



Explanation (Why did this happen)?

will vary

b) A flask full of cold water (blue) is placed on top of a flask filled with hot water (red).

Prediction : _____

Observation: _____

Diagram of observation:

BLUE TRIES
TO GO DOWN,
AND RED TRIES
TO GO UP (THEY
MIX)



Explanation (Why did this happen)?

will vary

DEMO 2 – Galileo's Thermometer

Observations: Draw a diagram of the thermometer

What will happen when the heat lamp is turned on?

Prediction : _____

Observation: _____

Diagram of observation:

temp should go up,
so more bulbs sink (as
water becomes more dense)

Explanation (Why did this happen)?

What is the temperature reading? _____

As temperature increases, density decreases,
because the particles have more energy.

DEMO 3 – Sphere & Ring

a) A sphere is heated up and put through the ring

Prediction : _____

Observation: _____

Diagram of observation:

sphere will not fit
through ring

Explanation (Why did this happen)?

warmer = particles further
apart so volume increases

b) The same sphere is cooled and put through the ring

Prediction : _____

Observation: _____

Diagram of observation:

sphere fits through
ring

Explanation (Why did this happen)?

colder = particles closer
together = smaller volume

Assignment:

1. Explain the why *increasing* temperature decreases **density** in terms of the KMT. (i.e. explain what is happening **TO THE PARTICLES**)

H.W.

2. Explain the why *increasing* temperature increases **volume** in terms of the KMT. (i.e. explain what is happening **TO THE PARTICLES**)

H.W.