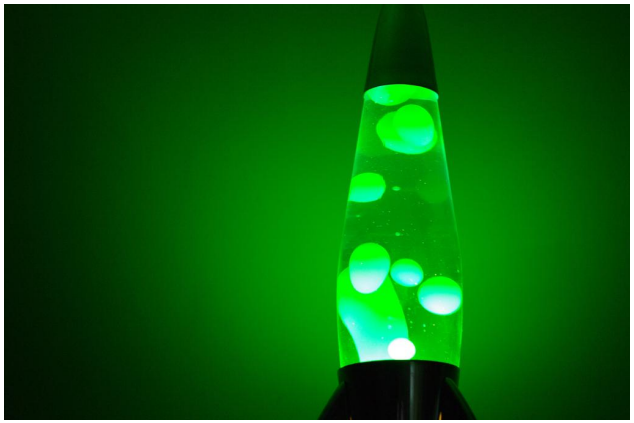
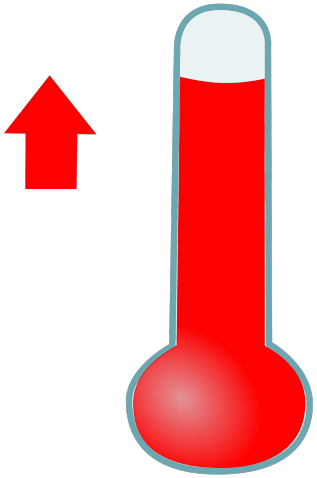


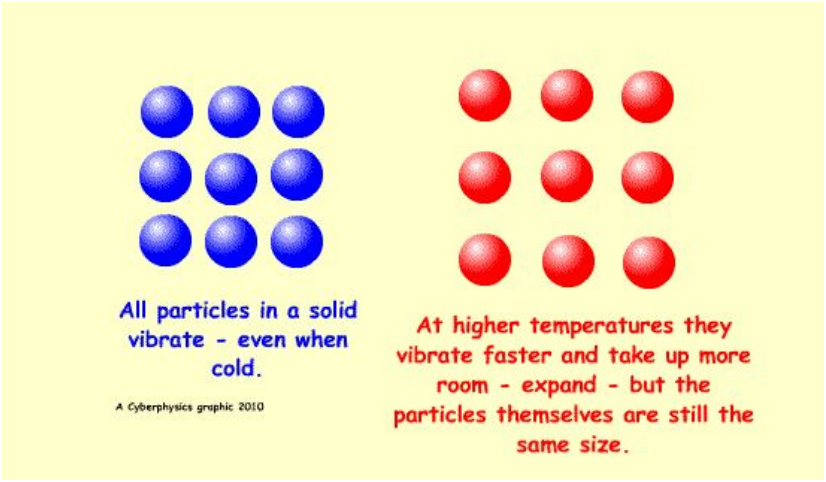
Temperature, Volume, & Density

How does temperature affect the particles of matter?

As the temperature increases, the particles are affected in 2 ways:

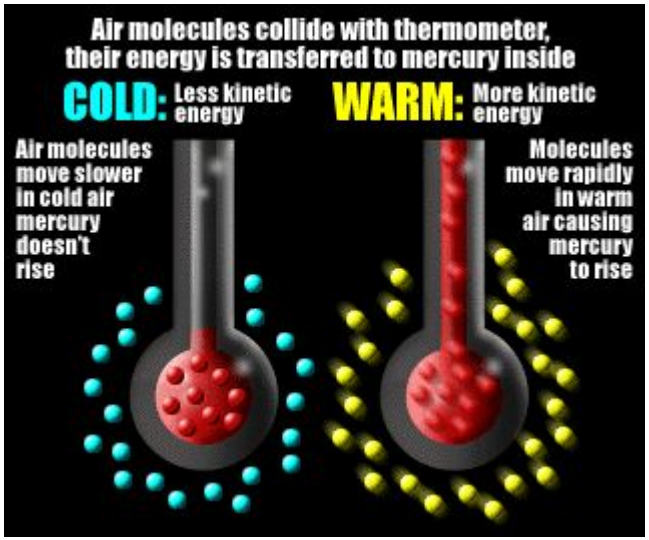
- Particles move faster
- Particles expand (move farther apart)





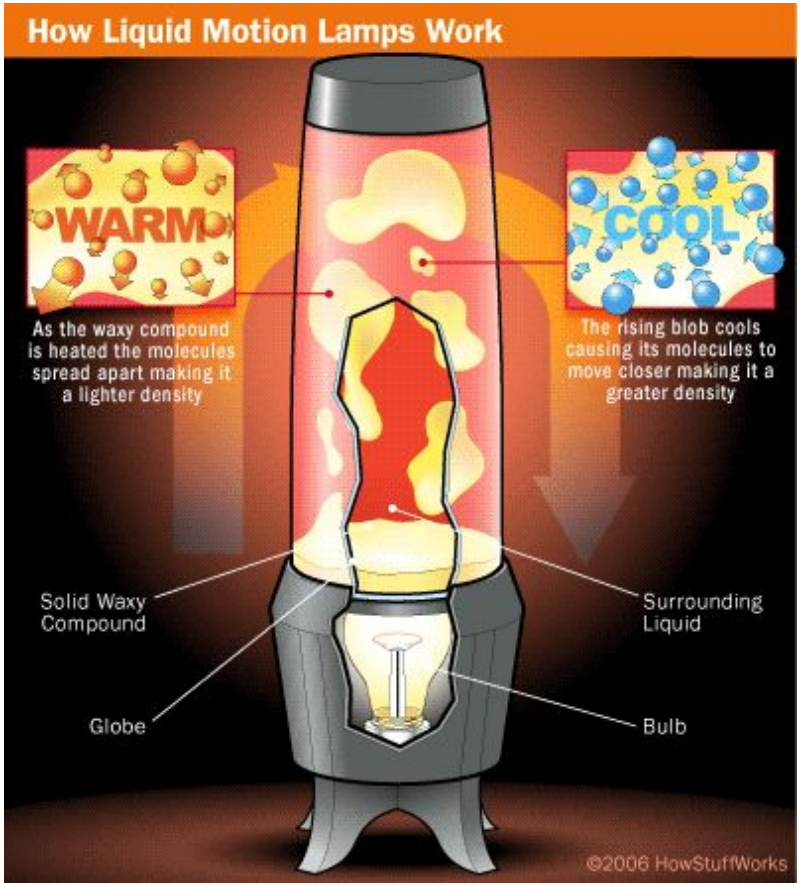
As the temperature decreases:

- Particles move slower
- Particles contract (get closer together)



How do expanding particles affect the volume?

- As the substance is heated and begins to expand, the volume will increase.
- As the substance cools and begins to contract, the volume will decrease.



How does the volume affect the density?

If the mass of an object stays the same,
increasing the volume will make the density:

Lower

decreasing the volume will make the density:

Higher

Mass = 30 grams
Volume = 5 mL
Density = 6 g/mL

Mass = 30 grams
Volume = 6 mL
Density = 5 g/mL

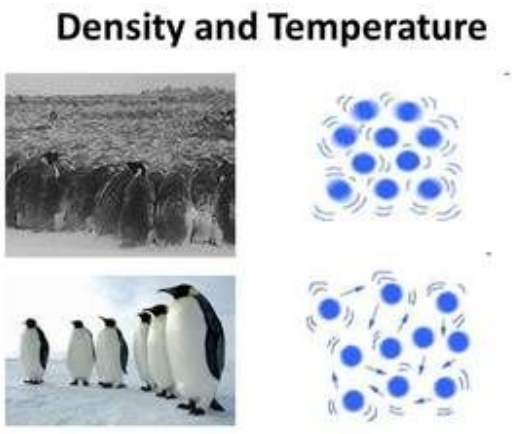
So how does temperature affect the density?

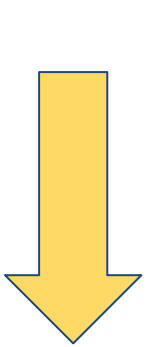
As temperature increases, so does the volume. As the volume increases, the density goes down.

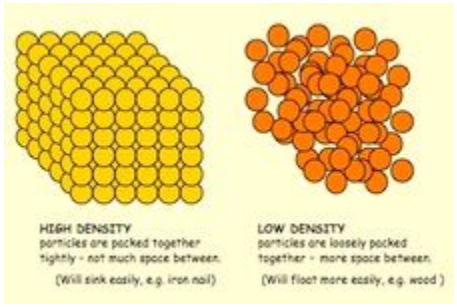
Therefore:

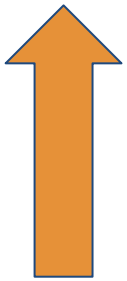
As Temperature goes up, density goes down.

As Temperature goes down, density goes up.









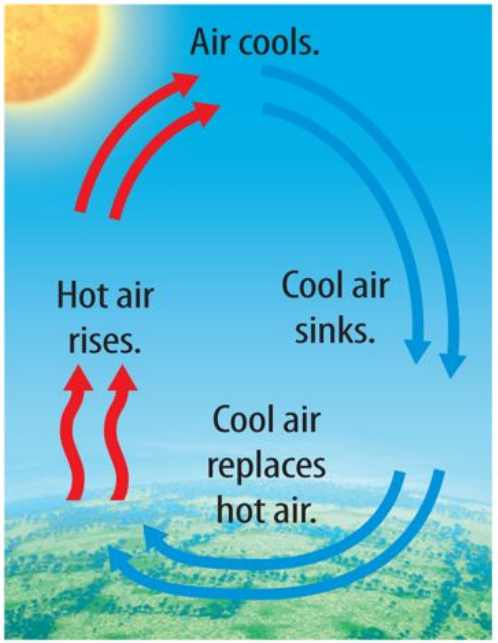
Think/Pair/Share:

In a two story house what floor would be warmer? Why? Discuss with your table group then write your answer on your paper.

You will check your answer on the next slide.

Check your answer below:

This is why warm air rises, because it is less dense than cold air.



Brainpop: Temperature

Click the link for the Brainpop-take the quiz at the end for review!

Login: wcdavisms

Pw: brainpop