

Name: _____

Block: _____

STUDY GUIDE INVESTIGATIONS 1-4

1. T (T/F) Air takes up space
2. T (T/F) Air has mass.
3. F (T/F) Air is not matter. *calculate density*
4. F (T/F) Air is mainly composed of oxygen
5. T (T/F) Air can be compressed.

Solution C has a volume of 100 mL and a mass of 200 g. What is the density of the solution? Use the formula for density to answer this question.

- a. 0.5 mL/g
- b. 0.5 g/mL
- c. 2 g/mL

$$\frac{200g}{100mL} = 100 \overline{)200} \begin{array}{r} 2 \\ -200 \\ \hline 0 \end{array}$$

2g/mL

6. What is the formula for density?

$$D = \frac{m}{V}$$

7. 6. Wind moves from areas of _____.

- a. High pressure to areas of low pressure
- b. Low pressure to areas of high pressure
- c. High convection to areas of low convection

8. Solution B has a volume of 40 mL and a mass of 80 g.
Solution A has a volume of 25 mL and a mass of 100 g.
Which solution is more dense?

Show your work or no credit

SOLUTION A:

$$\frac{100\text{g}}{25\text{mL}} = 4\text{g/mL}$$

SOLUTION B:

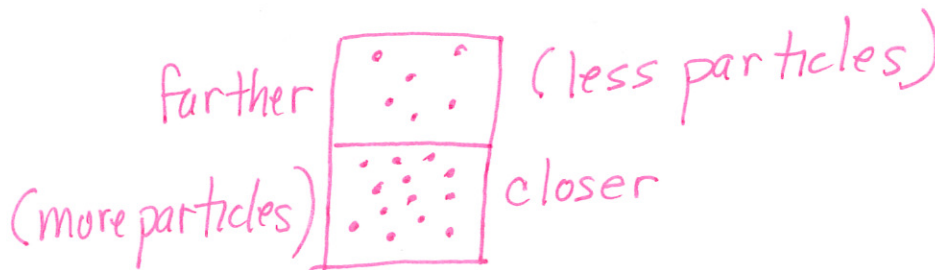
$$\frac{80\text{g}}{40\text{mL}} = 2\text{g/mL}$$

Circle the most dense : A or B

9. Explain why the liquids in question 9 won't layer in the opposite order (hot on the bottom and cold on the top)

top	more
bottom	less

Liquids layers because less dense liquids layer at the top
and more dense liquids layer at the bottom.

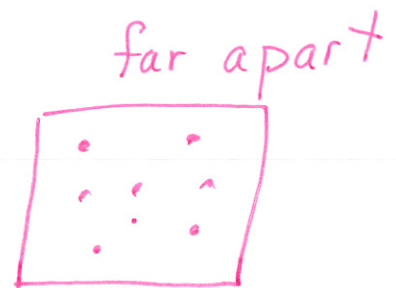


10. A student layered hot water and cold water in a cup and didn't want them to mix right away so she put the cold water on the bottom. Why did she put the cold water on the bottom?

- a. The particles in the hot water expanded, less dense and will layer above the cold water.
- b. The particles in the cold water are closer together, more dense and will layer below the hot water.
- c. The cold water should go in the bottom because heat rises.

11. What happens when particles of a substance heat up?

- a. The particles expand and move slower.
- b. The particles slow down and have more collisions.
- c. The particles move faster and are farther apart.



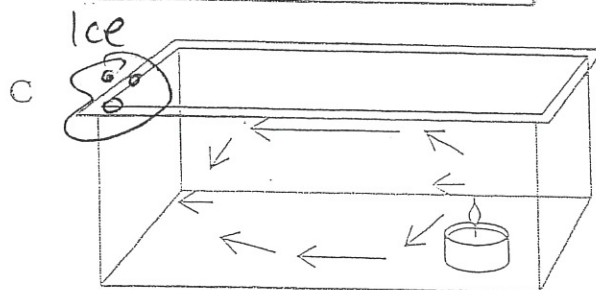
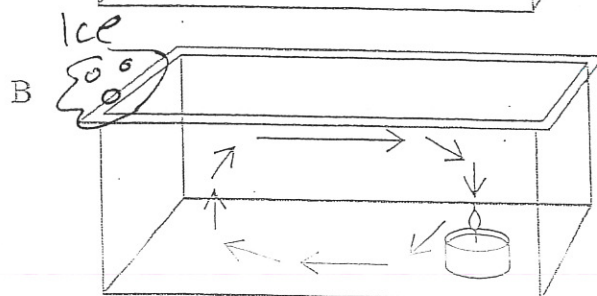
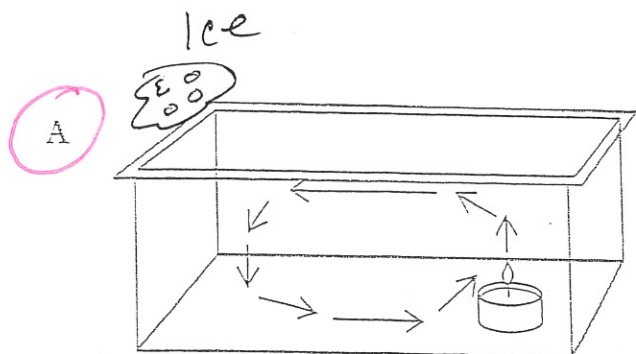
12. Convection can happen in what kind of materials?

- a. Liquids only
- b. Gases only

c. Fluids *Liquid or gas*

13. Remember the chamber with the smoke.....

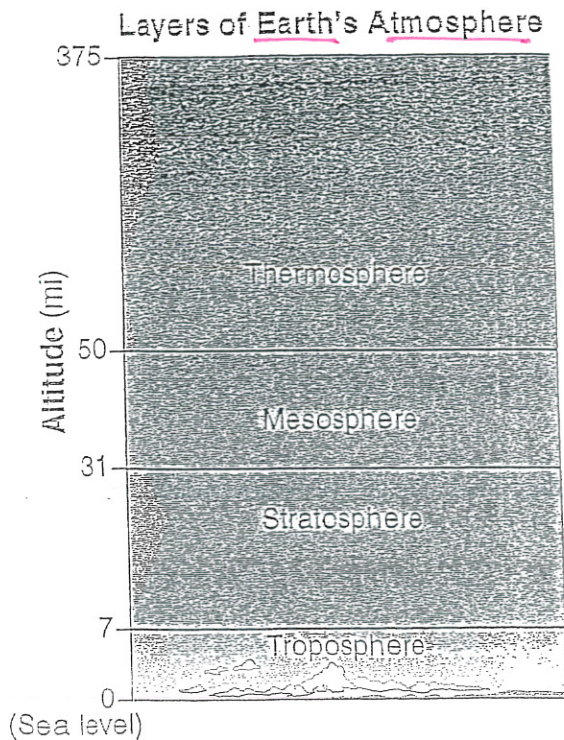
Which of the following illustrations best depicts (describes) the air movement inside the chamber.



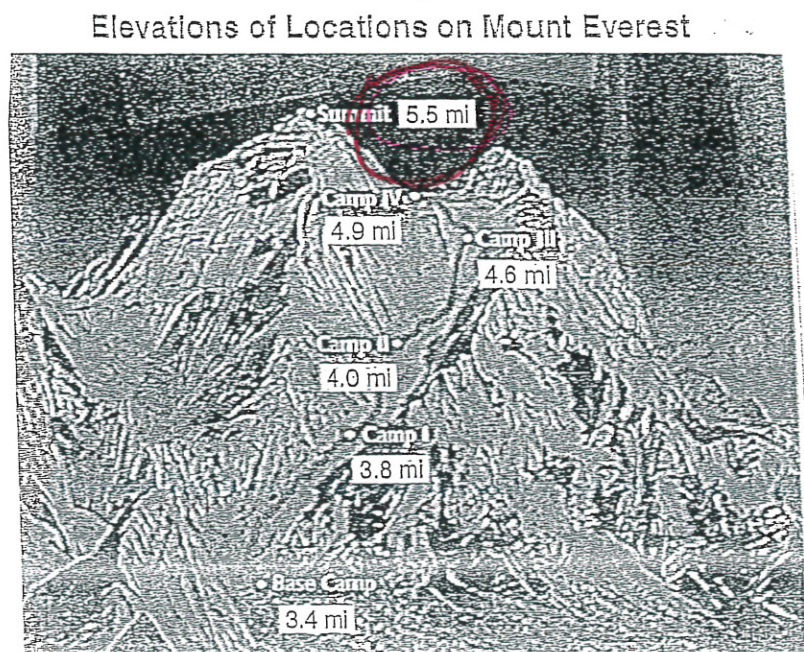
hot = top
(rise)

cold = bottom
(sink)

14. Look at the both diagrams. The first represents the Layers of Earth's Atmosphere. The second represents elevations for different levels of Mt. Everest. The locations represent camps where people rest while climbing to the top (summit) of the mountain.



(Not drawn to scale)



Identify the layer where weather happens at the top (summit) of Mt. Everest.

- a. Thermosphere
- b. Mesosphere
- c. Stratosphere
- d. Troposphere

Troposphere

15. What happens when the climbers move up in elevation?

As you go up the mountain, air pressure increases or decreases? (circle one)

