

The properties of mixtures and fluids can be explained by the particle model of matter.

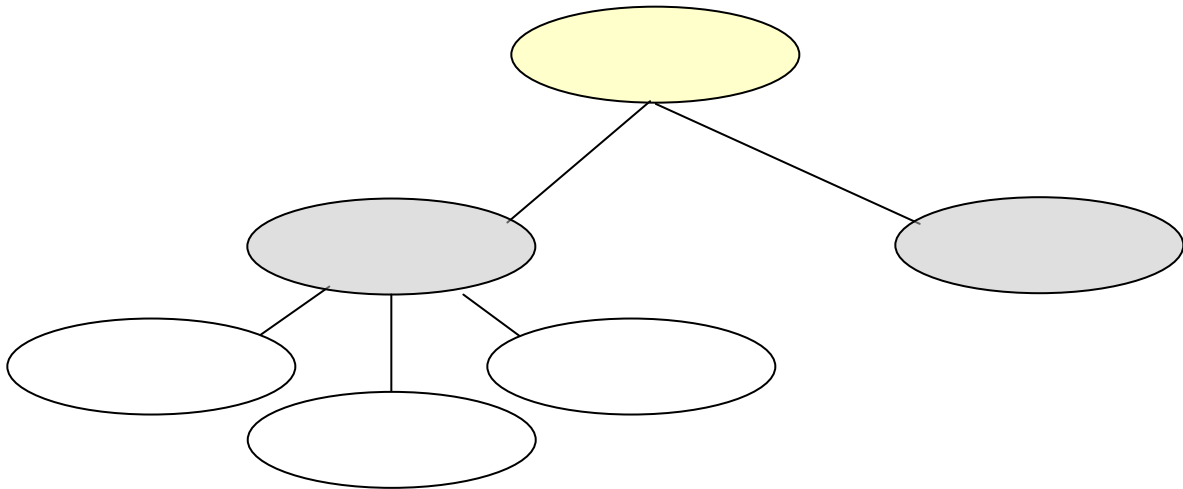
Student Name _____

Class _____

Pure substances and Mixtures

1. Use the following words to complete a visual organizer, showing the relationships between and among the words provided. Use each word only once.

**Pure Substances, Matter, Solutions, Mixtures,
Mechanical Mixtures, Suspensions and Colloids**



2. Mixtures can be made with solids, liquids or gases. The kind of mixture or solution that is referred to as **homogeneous** is a mixture or solution which ...
- is clear with each part visible
 - is cloudy with many parts visible
 - appears as a single substance**
 - all the parts are visible all the time
3. For some fluids, **paper chromatography** is a test that determines whether a substance is a ...
- mixture or a colloid
 - mixture or suspension
 - colloid or suspension
 - pure substance or a mixture**
4. An insulating foam is sprayed into cracks to seal them. The gas and liquid together make a ...
- colloid**
 - suspension
 - mechanical mixture
 - solution
5. At school we use coffee filter paper to investigate the process of paper chromatography. The filter paper is called a ...
- chromatogram**
 - chromatograph
 - filtrate
 - pH indicator

Concentration and Solubility

6. When a substance, such as sugar, dissolves in water, the particles **intermingle**. This is possible because the particles of sugar ...
- A. are pure
 - B. have strong attractions to each other
 - C. have spaces between them**
 - D. are vaporized
7. In **concentrated** solutions, there are large amounts of ...
- A. empty spaces
 - B. diluted particles
 - C. solvent in the solute
 - D. solute in the solvent**
8. **Concentration** amounts can be stated in many different ways. 50g per 100ml is one common way. Another way is to express it as a **percent**, like they do in juice containers. If an apple juice Tetra Pak had 20 grams of apple juice per 100ml, the concentration would be ...
- A. 2%
 - B. 8%
 - C. 20%**
 - D. 80%
9. When comparing concentrations of different solutions, it is necessary to compare the concentrations in the same volume. Which of the following solutions would have the **highest** concentration?
- A. 5.6g per 10ml**
 - B. 12g per 25ml
 - C. 25g per 50ml
 - D. 50%
10. The difference between a **saturated** and **unsaturated** solution is that an unsaturated solution can dissolve more ...
- A. solvent
 - B. solute**
 - C. particles
 - D. spaces
11. Solubility is the maximum amount of solute that you can add to a fixed volume of solvent at a given ...
- A. depth
 - B. time
 - C. temperature**
 - D. place

Factors Affecting Solubility

12. Solubility is affected by a number of **factors** including all of the following, EXCEPT ...
- A. temperature
 - B. agitation**
 - C. type of solute
 - D. type of solvent
13. Water is referred to as the **universal solvent**, because it can dissolve so many different substances. To identify a solution that contains water as the solvent, chemists use the term ...
- A. aqueous**
 - B. agitated
 - C. watery
 - D. evaporated

14. A common solution in which the solute is solid and the solvent is liquid is ...
 A. antifreeze
 B. air
 C. rubber cement
D. saltwater
15. For most common solid or liquid substances, solubility increases as temperature increases. This is NOT the case with ...
 A. alcohol
B. gases
 C. ethanol
 D. water

The Particle Model and the Behavior of Mixtures

16. **Diffusion** occurs when the particles of a solute ...
 A. are heated, disperse and are then cooled very quickly
B. fill the spaces between the particles of the solvent
 C. are dissolved by a change of state that occurs in the solvent
 D. attach to particles of the solvent and then particles of the solute
17. Dissolving occurs when a solute and a solvent are added together and they mix together appearing to be one substance. The factors that affect the **rate of dissolving** are ...
 A. type of solute, type of solvent, temperature
 B. agitation, temperature, solubility
C. temperature, size of pieces, agitation
 D. type of agitation, temperature, type of solvent

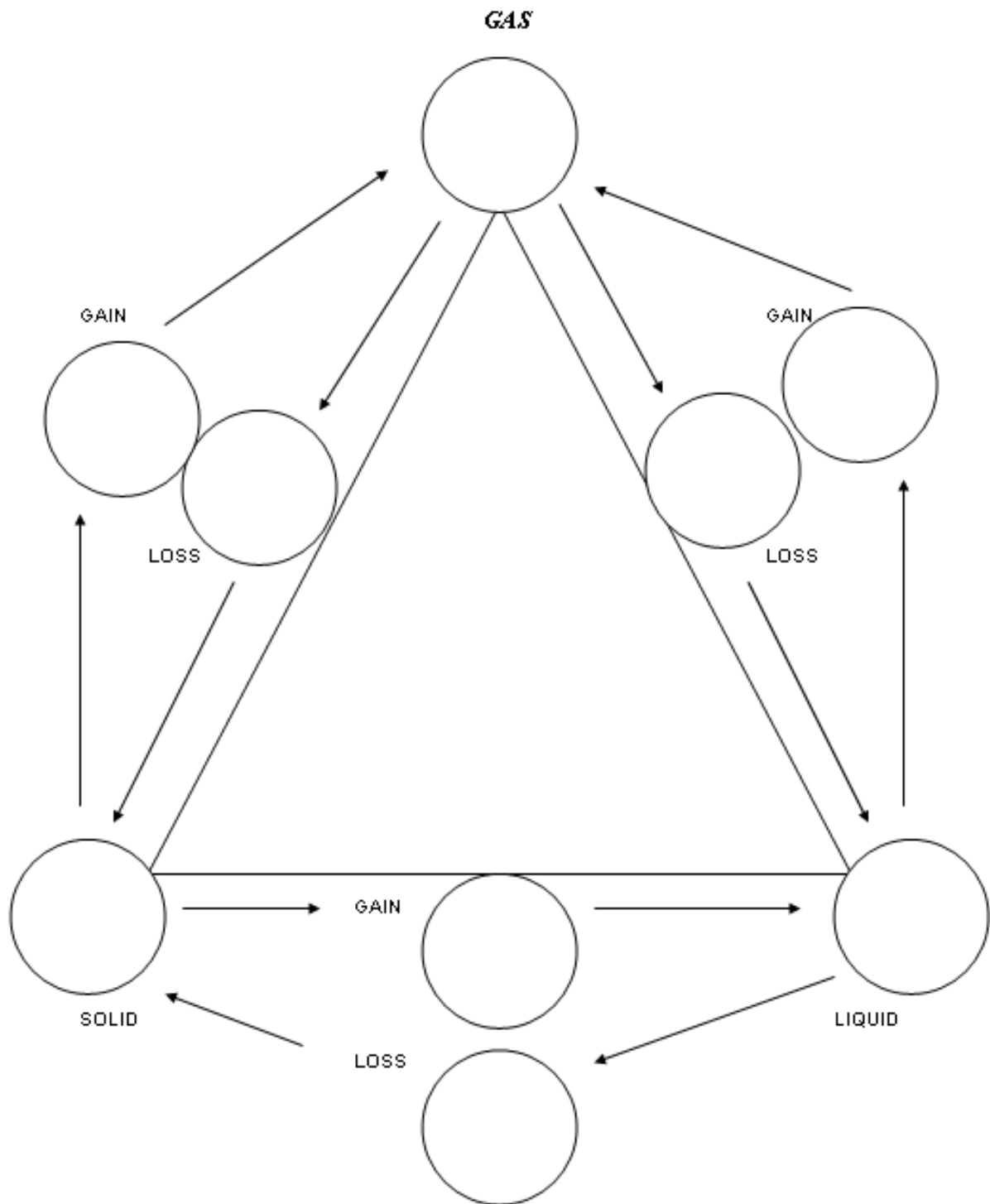
18. The 4 main points of the **Particle Model** are as follows:

1. _____
2. _____
3. _____
4. _____

19. To make particles dissolve faster, this occurs. It is an action describing 'rapid stirring' _____

20. When thinking about factors that affect the rate of dissolving, the factor which takes into account the exposed surface area is the _____.

21. Illustrate the CHANGES in STATE using the PARTICLE MODEL and what occurs when Energy is Gained or Lost by the particles.



ANSWER KEY

The properties of mixtures and fluids can be explained by the particle model of matter.

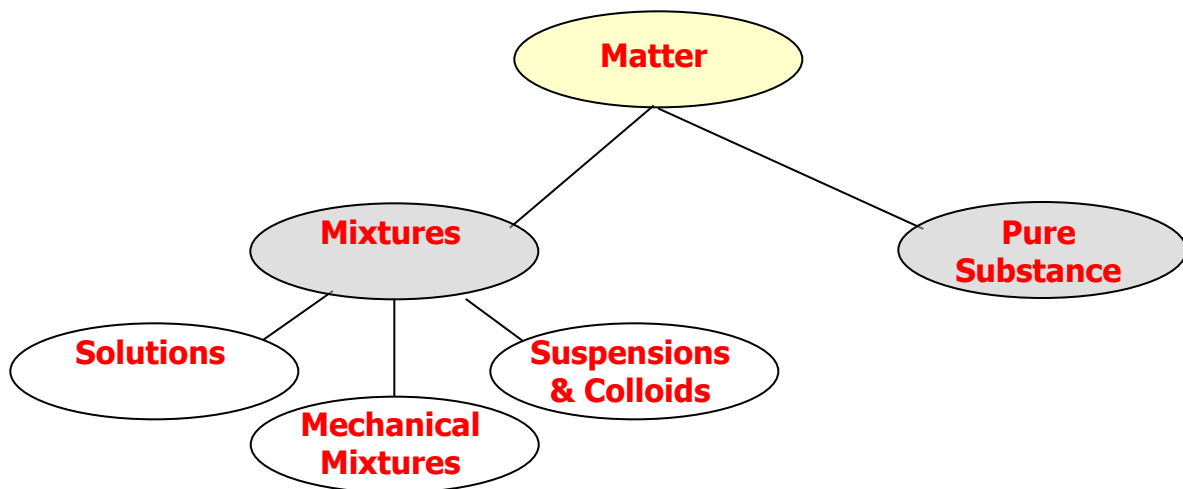
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- A. type of solute, type of solvent, temperature
 - B. agitation, temperature, solubility
 - C. temperature, size of pieces, agitation**
 - D. type of agitation, temperature, type of solvent
18. The 4 main points of the **Particle Model** are as follows:
- 5. All matter is made up of tiny particles**
 - 6. The particles are always moving (have energy)_**
 - 7. The particles have attractions to other particles**
 - 8. The particles have space between them**
19. To make particles dissolve faster, this occurs. It is an action describing 'rapid stirring' **agitation** ____
20. When thinking about factors that affect the rate of dissolving, the factor which takes into account the exposed surface area is the **size of the pieces** _____ .

21. Illustrate the CHANGES in STATE using the PARTICLE MODEL and what occurs when Energy is Gained or Lost by the particles.

