Lect 3 : Chp 4: Heterogeneous / Homogenous Mixtures & Solutions – 1pt ec printing

Phases of matter: _____:
atoms and/or molecules packed very close together. Hard, dense, fixed location. Crystalline solid v. amorphous: Crystalline atoms and molecules are in geometric patterns that repeat. Amorphous solids they are in random order and can be somewhat flexible like glass or rubber.

Phases of Matter: _____
Atoms and molecules are more spaced out and now can move. The material can be slightly compressed into a smaller space. They don't have a defined shape, but take the shape of their container.

Phases of Matter: _____ Atoms and molecules are far apart. Atoms and molecules move freely
The gas can be compressed significantly Assumes the shape of the container

Matter Review: Anything that has mass and occupies (takes up) space.

HOMOGENEOUS: **_____**:
elements or compounds which CAN'T be physically separated

HETEROGENEOUS: **_____:**
These CAN be physically separated

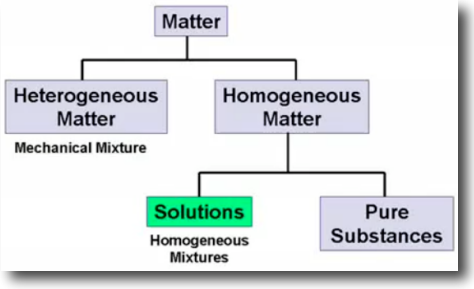
Some examples:
1. Soil:_____ 2. Oxygen: _____

3. Carbon Monoxide: CO :_____ 4. Sugar water: _____

Additional Terms to Know:	_____: The most basic different types of matter. You can't break it down into other substances. _____**:**The smallest distinguishable unit of an element. _____**:**2+ more atoms bonded together.

Elements, Compounds, Mixtures:
If there is only 1 atom type or molecule type in a given space we call it a _____
If there are 2 or more atom types or molecules in a given space we call it a _____.

Elements: _____**be broken down into simpler** or other substances. For example: you can do whatever you want to pure copper. You can't find a simpler version of copper. You can do whatever you want to pure sulfur. You can't find a simpler version of sulfur.	**Compounds:** Compounds are substances composed of _____ _____ in **fixed and definite** proportions (ratios). You can mess with compounds to turn them back into elements. You can have a pure compound, where in a contained space it's only made up of that one compound, for example, pure water H_2O, pure carbon dioxide CO_2, etc.	**Mixture:** You get a mixture when you combine at least _____ pure elements, at least **two** pure compounds, or at least 1 _____ element and 1 pure compound into the same space.



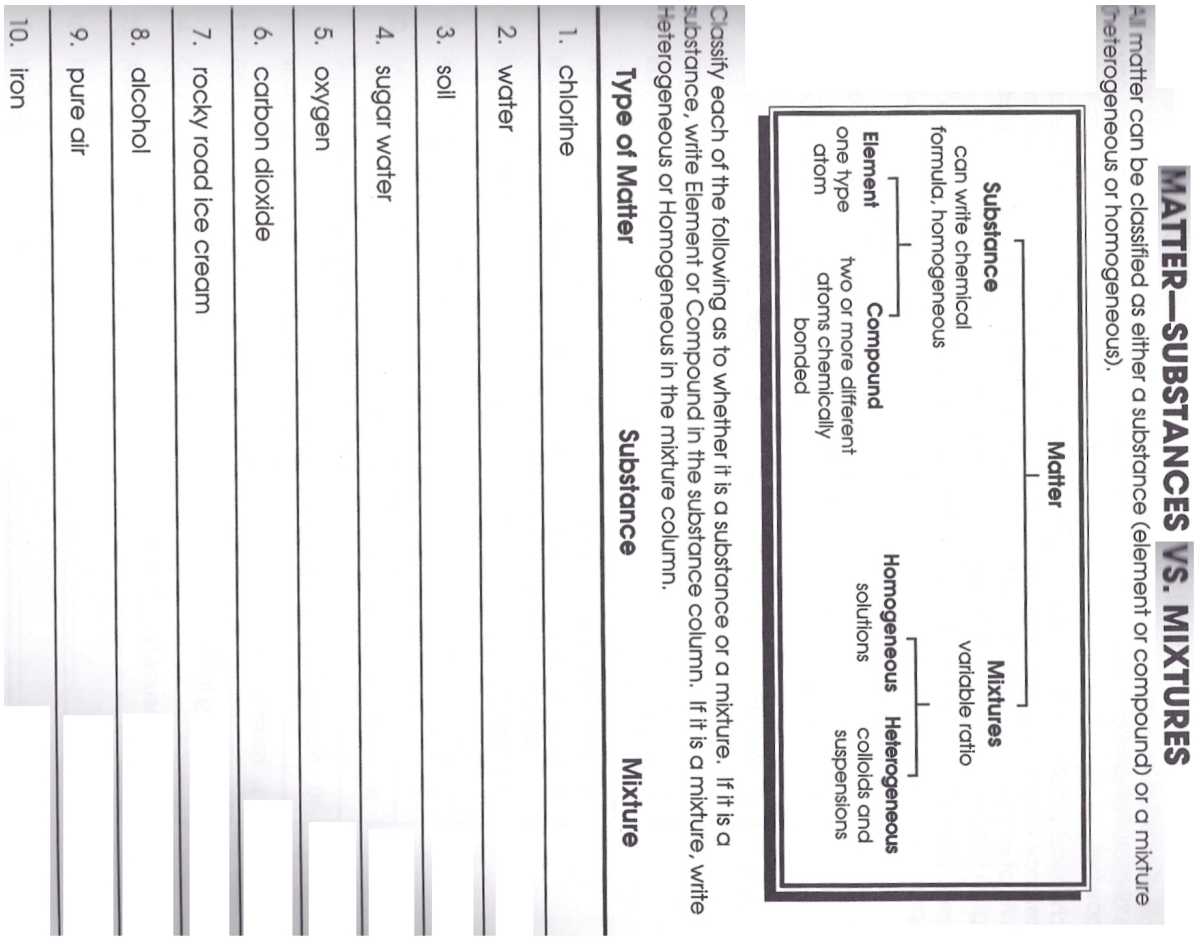
_____ **Mixtures:** A homogeneous mixture is a **uniform mixture** where you can't otherwise tell that there are multiple phases. If it's gases it's homogeneous. If it's solids you have to look at it. Steel is a mixture of iron and carbon, but you wouldn't know. A box of copper and steel nuts you can tell apart.
Homogeneous Liquid Mixtures: If it's a liquid mixture and you can see through it it's homogeneous. Tea is a homogeneous mixture. Milk is not.
_____**Mixtures:** If you can clearly tell that there is **more than one thing** in a container it's heterogeneous. If there is a liquid that you can't see through it's heterogeneous. If you can tell there is an easy way to separate things then it's a heterogeneous mixture.

Ways of Separating Mixtures: _____: pour off liquid leaving solids.
_____evaporate off a material that boils more quickly (**Volatile)** than the one it's mixed with.
_____**:** Solids are separated from a liquid by pouring both through a porous material.

Homogeneous:	**Heterogeneous**
Can you look through it? _____	Can you look through it? _____
Can you see solid objects? _____	Can you see solid objects? _____
Can you see a lot of bubbles? _____	Can you see a lot of bubbles? _____
Is it clear? _____	Is it clear? _____
Yes, no, no, yes means it's a homogeneous solution	No, yes, yes, no means heterogeneous
KoolAid, water, salt water are examples	Milk, Orange Juice, mud are examples

Solutions:	**Aqueous solutions:**	**Solvent & Solute:**
Homogeneous: Heterogeneous: **Homo-**same, similar **Hetero**-Different Homogeneous solution is all the same Heterogeneous solution has different parts	Aqua means _____ These are solutions in water Like dissolving sugar in water makes an aqueous sugar solution. Dissolving salt in water makes an aqueous salt solution	The chemical that is the majority of the mass and **is dissolving another** compound is the _____ The compound making up the smaller share of the mass and is **being dissolved** is the _____

Determining Solubility: The amount of a substance that can dissolve in a certain amount of liquid at a specific temperature (because temp effects solubility). 100g water at 25C can hold 36 g of NaCl (salt). If water has that salt much it's called _____If water has less than 36g of salt/100 g of water it's called _____If you heat the water, dissolve more than 25g, and then cool it down it will be _____



MATTER—SUBSTANCES VS. MIXTURES

All matter can be classified as either a substance (element or compound) or a mixture (heterogeneous or homogeneous).

Classify each of the following as to whether it is a substance or a mixture. If it is a substance, write Element or Compound in the substance column. If it is a mixture, write Heterogeneous or Homogeneous in the mixture column.

	Type of Matter	
	Substance	Mixture
1. chlorine		
2. water		
3. soil		
4. sugar water		
5. oxygen		
6. carbon dioxide		
7. rocky road ice cream		
8. alcohol		
9. pure air		
10. iron		