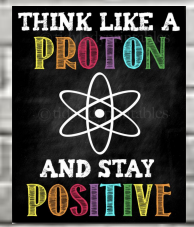
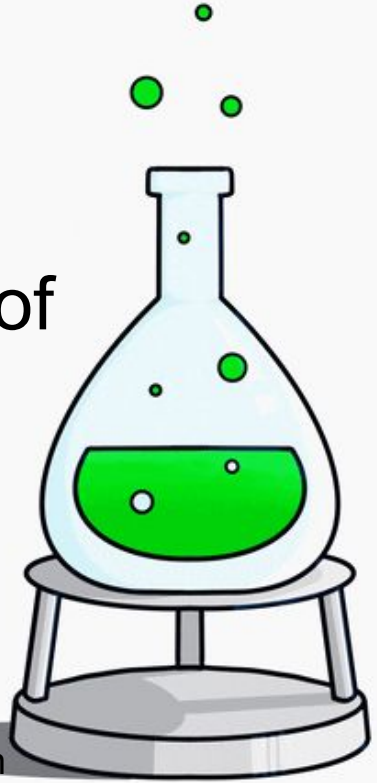
October 29, 2020

Welcome to science class!



Thursday, Oct. 29, 2020

I can explain the differences and similarities among the various types of mixtures.



I can differentiate between compounds and the types of mixtures -homogeneous and heterogeneous. (Wed. 10/28)

I can classify matter as element, compound, or mixture. (Tues.10/27)

I can describe the properties of matter and explain how the properties can be changed. (Mon. 10/26)

ZOOM MEETING EXPECTATIONS

MICROPHONE

When you enter the virtual meeting, mute yourself (if you aren't already). You can unmute yourself when it is your turn to speak.

ETIQUETTE

Always be polite and respectful, pay attention to the speaker, and use the digital platform and its features appropriately.

CONTRIBUTIONS

When you have something to contribute to the discussion, type it in the chat box OR use the "raise hand" button for the teacher to give you permission to unmute yourself so that you can speak.

SOUND

If you can, wear headphones so you can hear better. Try your best to find a quiet place, free from distractions.

QUESTIONS

When you have a question, type it in the chat box OR use the "raise hand" button so that you can unmute and ask your question.

Announcements

- **Physical Science textbooks are ready to be picked up at the school. This is the book for the rest of the year. Get yours as soon as possible.**
- **Zoom Students!**
  Pick up Zoom material for Q2
  7:30am-4pm @ TMS

Whether understanding atoms, exploring energy, or mastering multiplication, there is a sim for every learner. Perfect for in class or at home, our app delivers all PhET HTML5 sims (over 85 sims) in one easy-to-use package.

This new 2.0 version of our app will be offered for **FREE through October 31**.

PhET sims can always be accessed for free on our website, but the Android app adds convenience and all proceeds support more HTML5 sims.

Search for: **phET**

The OS App for Apple products is available for $.99.

ESSENTIAL QUESTIONS

- How can you classify matter?
- What is a substance?
- How do mixtures differ from substances?
- How do atoms of different elements differ?

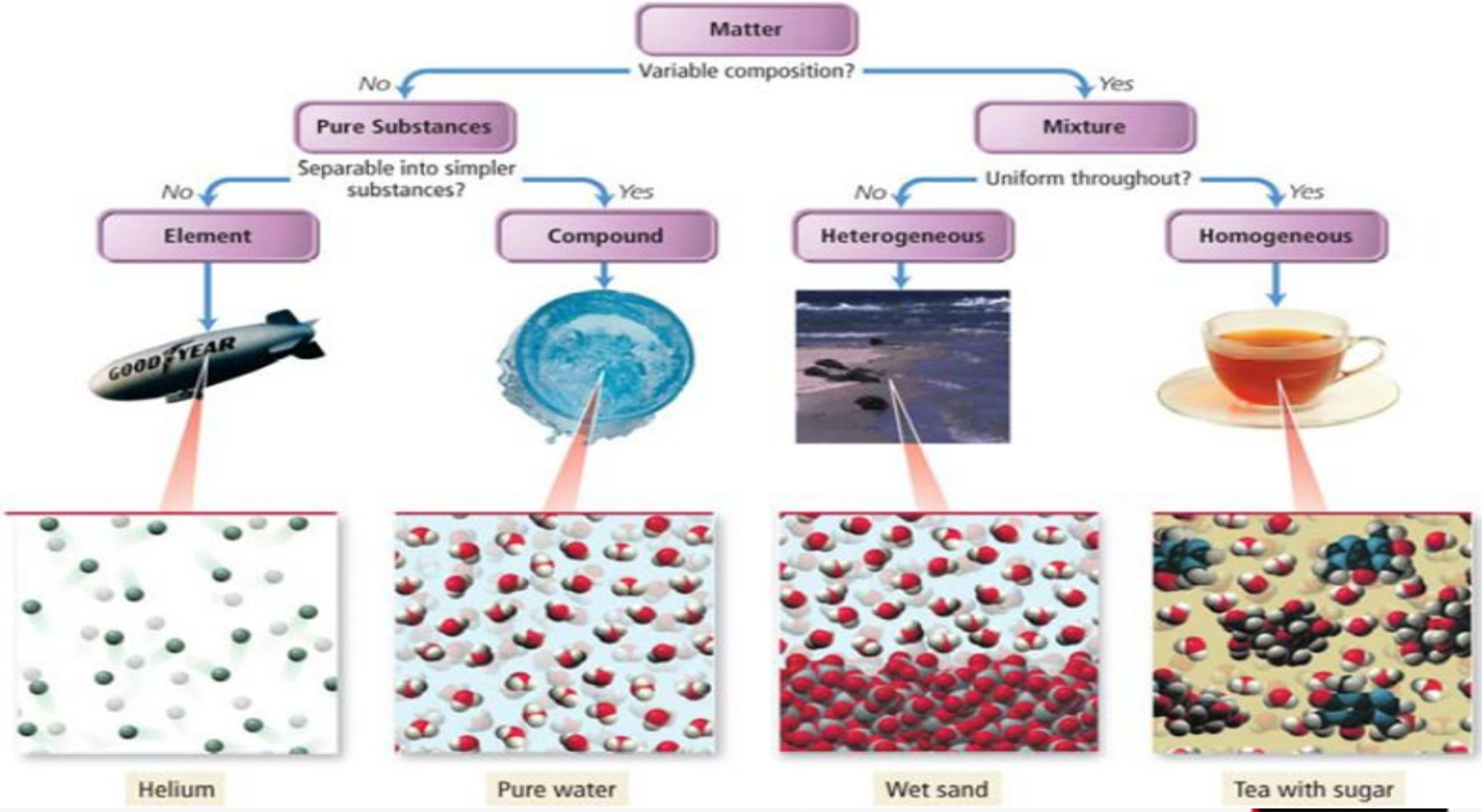
 Identify specific samples of matter as elements, compounds, or mixtures based on their known properties. DOK 2

 Categorize "models" of matter as elements, compounds, or mixtures. DOK 3

VOCABULARY

- Matter
- Mass
- Weight
- Energy
- Atoms
- Elements
- Molecule
- Compound
- Proton
- Neutron
- Nucleus
- Electron
- Homogeneous
- Heterogeneous
- Substances
- Solutions
- Evaporation
- Precipitation
- Melting
- Freezing
- Boiling
- Transpiration
- Condensation
- Sublimation
- Deposition
- Phase
- Solid
- Liquid
- Gas

Conservation of MASS


Matter
Variable composition?
No
Yes
Pure Substances
Mixture
Separable into simpler substances?
Uniform throughout?
No
Yes
No
Yes
Element
Compound
Heterogeneous
Homogeneous
GOODYEAR
Helium
Pure water
Wet sand
Tea with sugar

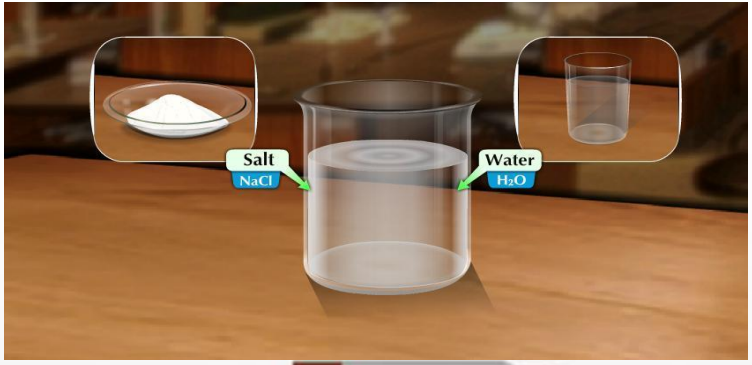
Mixtures

* When two or more pure substances come together but don't combine to make a new substance.
  * Each pure substance retains its own properties!

Mixtures

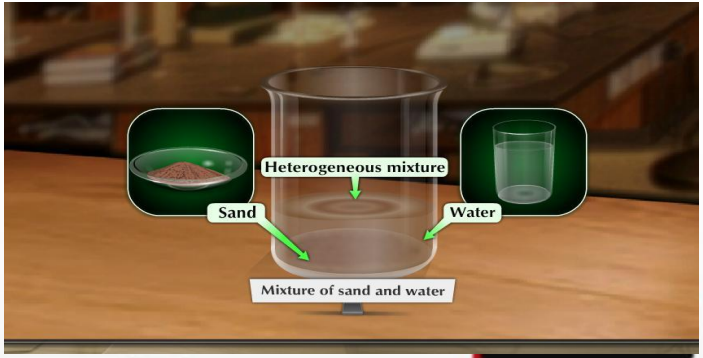
Homogeneous Mixture

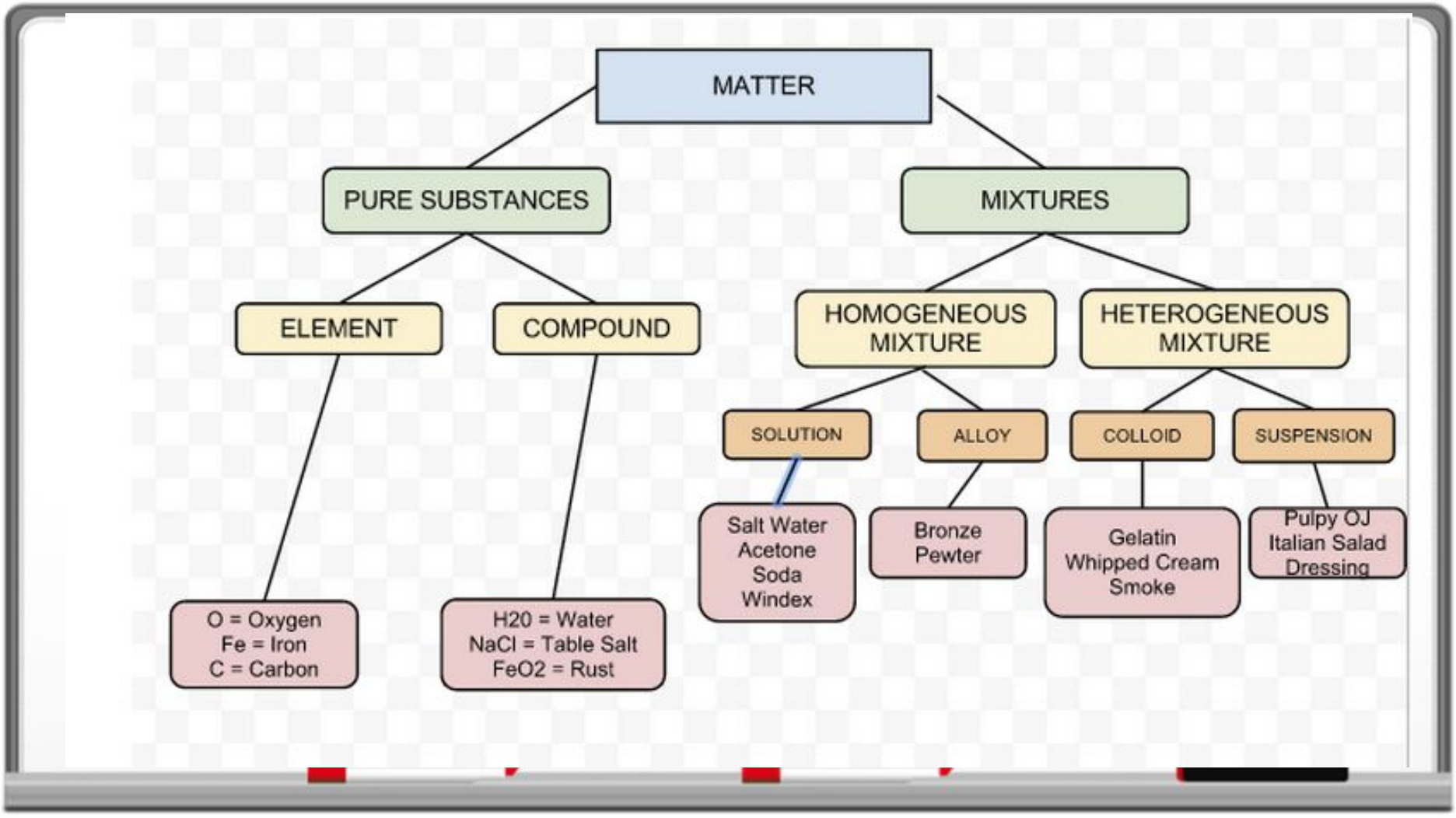
* mixture where you can't see the different elements or compounds that make it up.
  * Examples = air, salt water



Heterogeneous Mixture

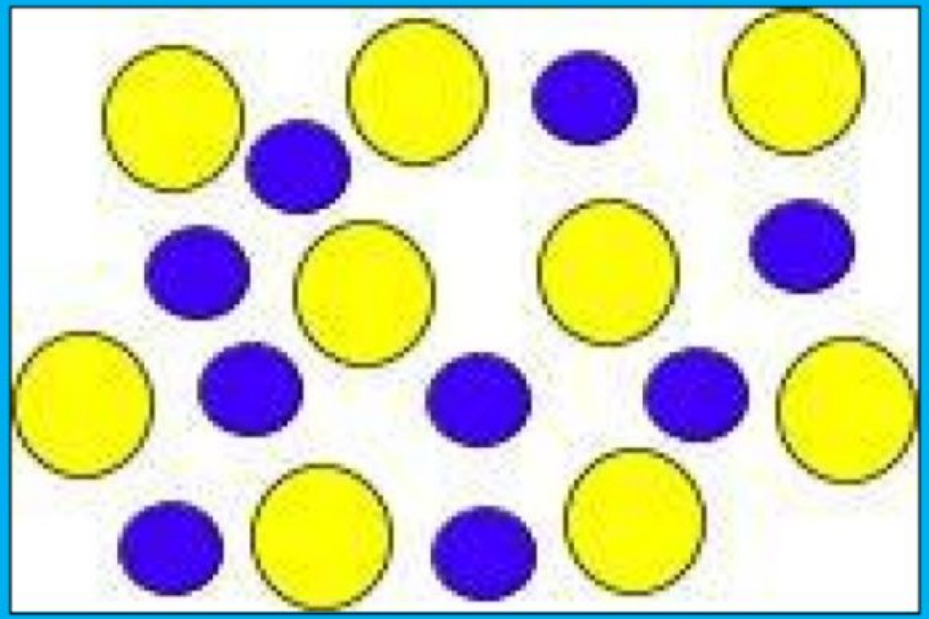
* mixture where you can see the different parts that make it up.
  * Examples = toy box full of toys, sand and water




MATTER
PURE SUBSTANCES
MIXTURES
ELEMENT
COMPOUND
HOMOGENEOUS MIXTURE
HETEROGENEOUS MIXTURE
SOLUTION
ALLOY
COLLOID
SUSPENSION
O = Oxygen
Fe = Iron
C = Carbon
H20 = Water
NaCl = Table Salt
FeO2 = Rust
Salt Water
Acetone
Soda
Windex
Bronze
Pewter
Gelatin
Whipped Cream
Smoke
Pulpy OJ
Italian Salad
Dressing

Mixtures

- A **mixture** is a combination of 2 or more substances that are **not** chemically combined.



Examples of Mixtures

chicken noodle soup

pizza – yes, that would be Yoda…

salad

<u>Properties of Mixtures</u>:

- Each substance in a mixture keeps its identity
- You can physically separate them

- They also contain elements, compounds, or both
- And they can be formed using any ratio of components

Mixtures may be homogeneous or heterogeneous

- The prefix “homo” indicates the same
- **Homogeneous mixtures** have the same appearance and properties throughout the mixture

- The prefix “hetero” indicates difference
- **Heterogeneous mixtures** consist of visibly different substances

Homogeneous mixture - a mixture in which substances appear evenly distributed throughout (uniform).

Solutions are homogeneous mixtures.

- Examples-
  - Salt water - mixture of...
  - Soda - mixture of...
  - Steel - mixture of...
  - Brass - mixture of...

Solutions

- A **solution** is a mixture that appears to be a single substance, but it is actually composed of **2 or more substances** that are distributed evenly amongst each other.
  - **SOLUTIONS ARE HOMOGENEOUS**

carbon dioxide is dissolved in water

sugar & Kool-Aid powder are dissolved in water

salt is dissolved in water

Solution - Homogenous mixture composed of only one phase (solid, liquid, or gas)

In liquid solutions...

solute - part that gets dissolved

Ex. - salt

solvent - part "doing" the dissolving

Ex. - water



Concentration - the amount of solute in the total amount of solution.

- If something is very concentrated, it means there is a lot of solute in the solution.

Alloy - a solid solution composed of two or more elements

- Steel = mixture of carbon and iron
- Brass = mixture of zinc and copper
- Bronze = mixture of aluminum and copper



<u>Heterogeneous Mixture -</u> A mixture of two or more substances that is NOT uniform in composition

- Have larger parts that are different from one another and are unevenly mixed.
- Examples -
  - Rocky road ice cream
  - Sand
  - What else...???

There are two types of special heterogeneous mixtures called **suspensions** and **colloids.**

Suspensions

- A **<u>suspension</u>** is a mixture in which particles of a material are dispersed throughout a liquid or gas, but are **large enough that they settle out**.
  - **SUSPENSIONS ARE HETEROGENEOUS**

muddy water

Italian dressing

Suspension - mixtures with larger particles that are suspended in the liquid but settle out over time ... Think “Snow Globe!” The particles will settle out and collect. You can filter out the particles in a suspension. (ex. muddy water, dust in air, pulp OJ)

Colloids

- A **colloid** is a mixture in which the particles are dispersed throughout but are **not** heavy enough to settle out.
  - **COLLOIDS ARE HOMOGENEOUS**

Colloids have properties of both solutions & suspensions.

mayonnaise

milk

Colloid - mixtures with tiny particles that are suspended in liquid and stay suspended, scatter light, cloudy... You cannot filter a colloid. (ex. shaving cream, mayo, no pulp OJ)

Colloids

Milk

Whipped Cream

Fog

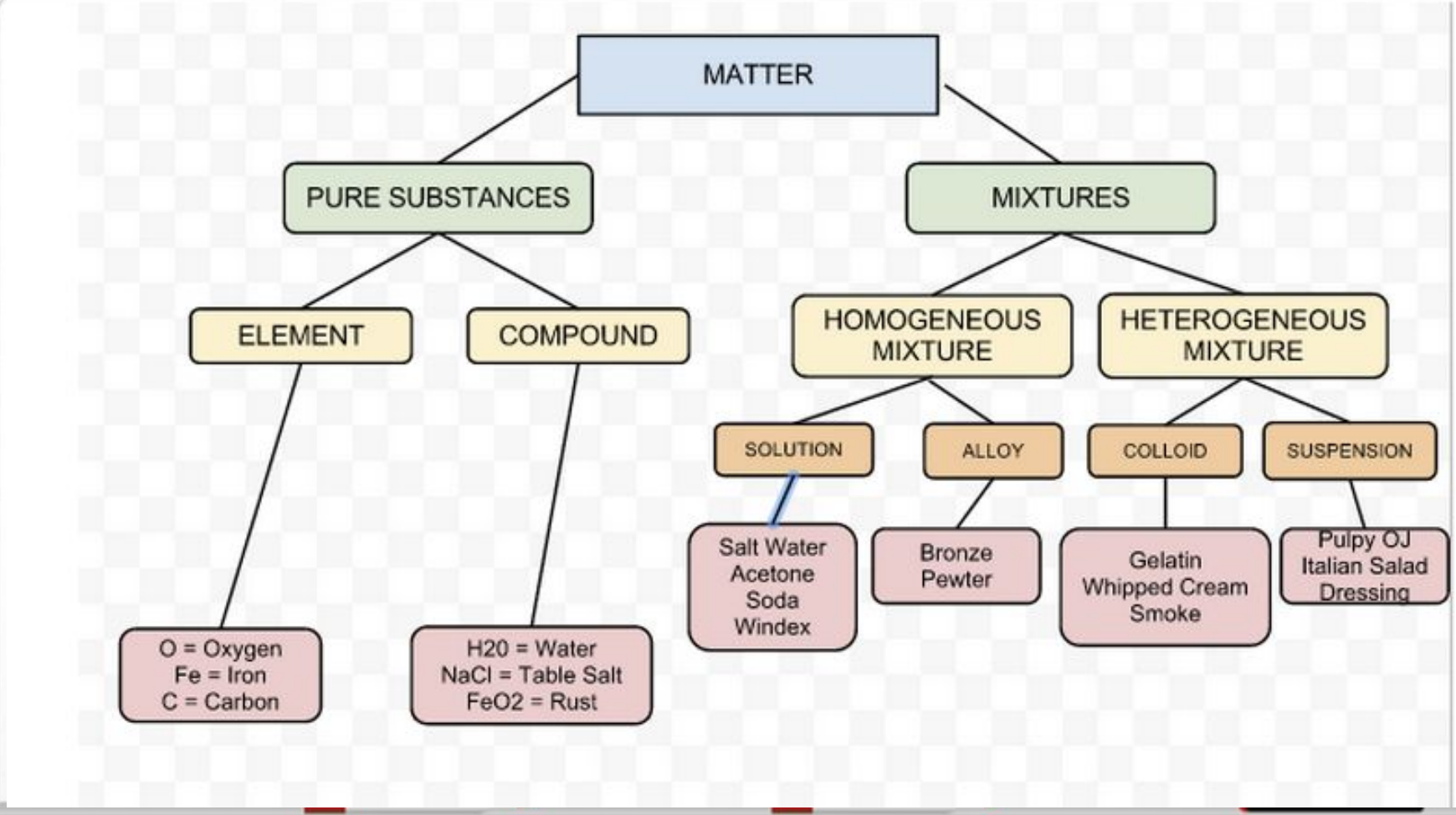
Smoke

Different Types of Mixtures

* **Solution** - mixture where one of the substances dissolves in the other.
  * The substance that dissolves is called the ***solute***. The substance that does the dissolving is called the ***solvent***.
* **Suspension** - mixture between a liquid and particles of a solid.
  * particles are dispersed throughout the liquid
* **Colloid** - mixture where small particles of one substance are evenly distributed throughout another substance

Different Types of Mixtures

Solution	Suspension	Colloid
Homogeneous	Heterogeneous	Homogeneous
Clear	Cloudy	Cloudy
Small Particles	Large Particles	Intermediate Particles
Does not separate into layers	Separates into layers	**Does not** separate into layers
Can't filter particles	**Can** filter particles	**Can't** filter particles
Does not scatter light	Scatters light	Scatters light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Head to:
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Exit Ticket

Explain how the types of mixtures differ.

Give an example where this will be useful in everyday life.

Matter for Students - October 27

Due: October 28th

https://docs.google.com/presentation/d/1CATwX2JPRq7aVPPTDv6eE10ddEgPOxGdlUr0yVdfsvY/copy?usp=sharing

Click the link, make a copy, complete the assignment, email it to mrs.yazzie2021@gmail.com or kimetsitty@gmail.com