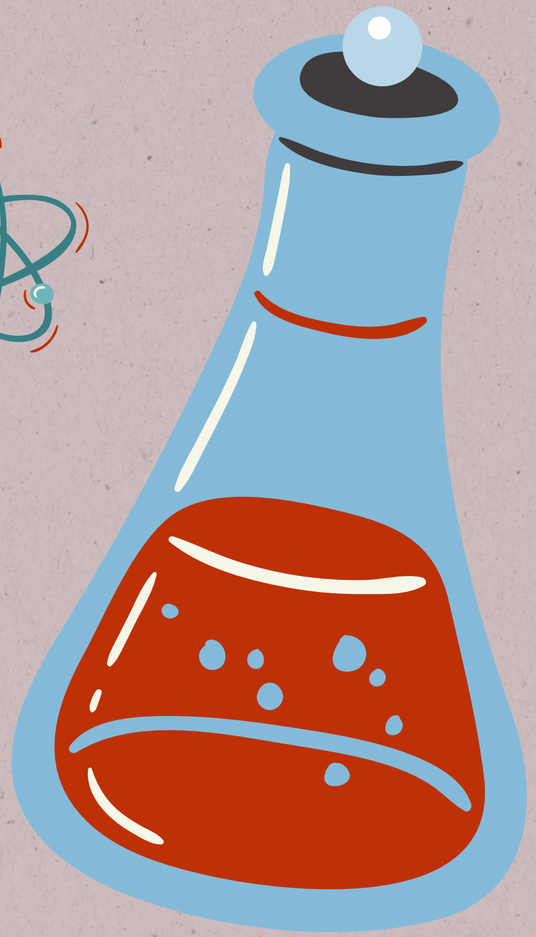
ELEMENTS ARE PURE SUBSTANCES

An element is a pure substance and is **made of only one type of atom**; it cannot be broken down any further.



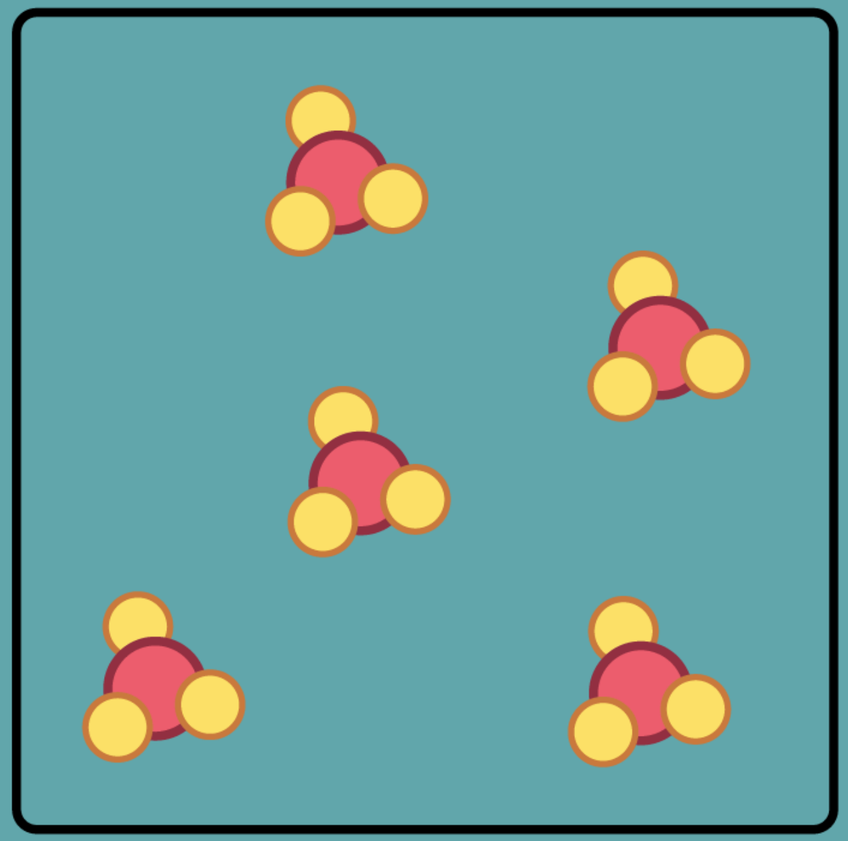
15

P

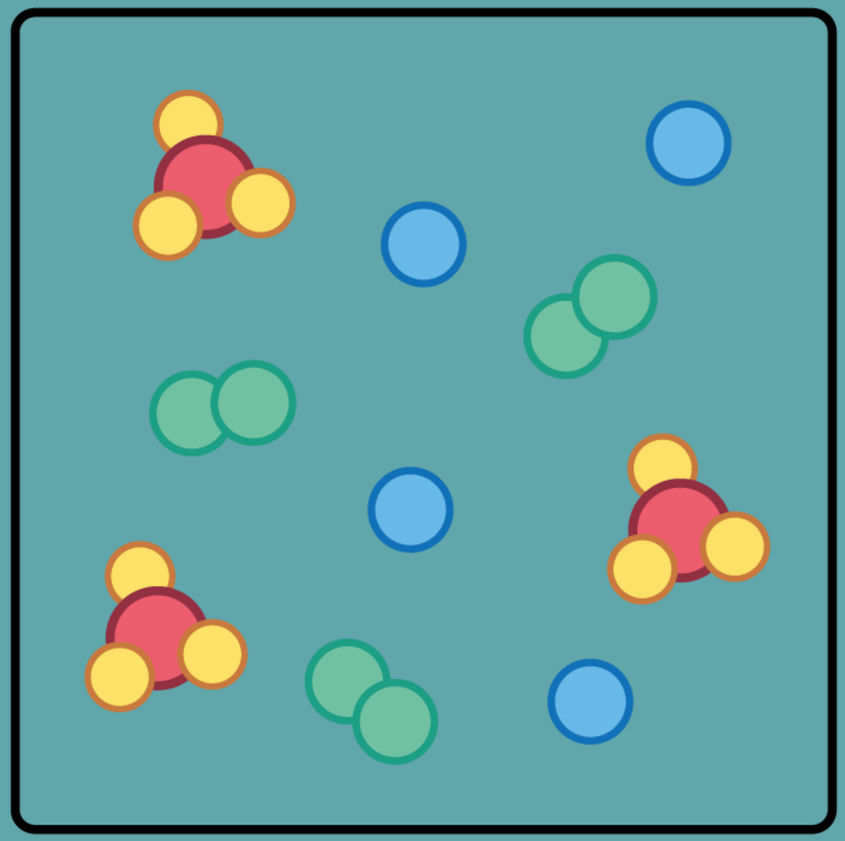
Phosphorus

30.973762

IDENTIFY THE MIXTURE AND THE PURE SUBSTANCE.
EXPLAIN YOUR THINKING PROCESS TO SOMEONE NEXT TO YOU.



1.



2.

write the definition when you see this star on the slide!

PURE SUBSTANCES & MIXTURES

Understanding the difference between the two terms

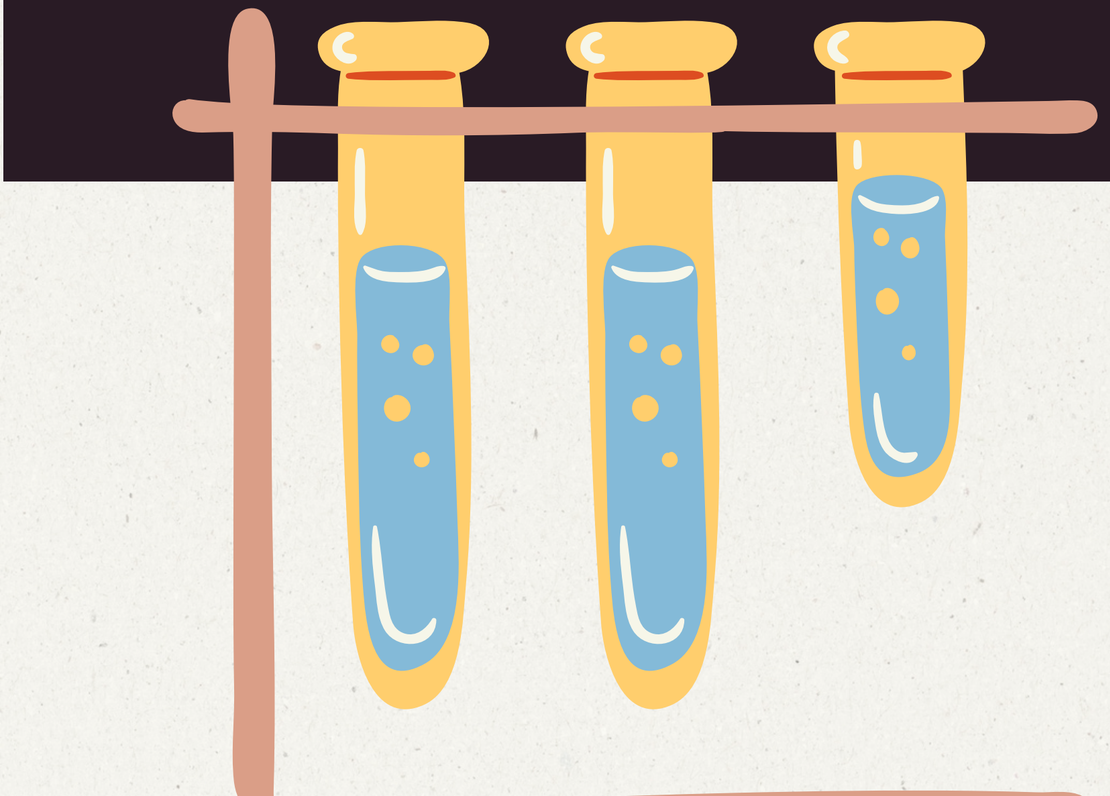
LEARNING OBJECTIVE

Develop models to describe the atomic composition of simple molecules and extended structures.

I CAN...

- compare and contrast molecules, compounds, elements, and mixtures
- understand the difference between a pure substance and a mixture
- identify a specfic mixture called a solution

PURE SUBSTANCES



SUGAR CUBES

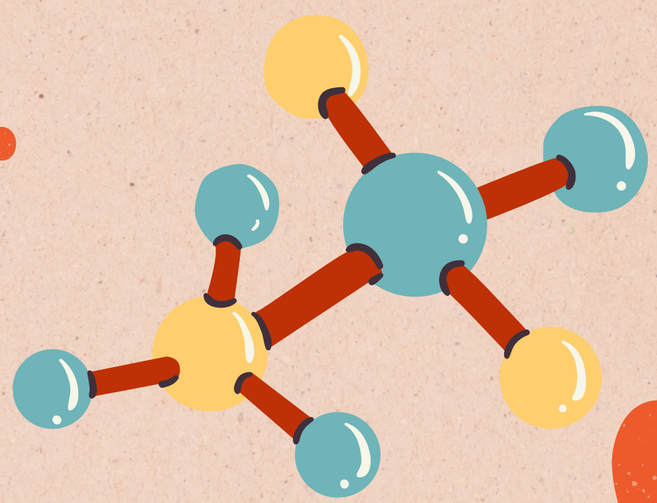
Pure substances are substances that are made up of only one kind of particle and have a fixed or constant structure.

- Pure substances are further classified as elements and compounds.

ALL OF THESE ARE PURE SUBSTANCES

Chemical Elements	Compounds	Crystals
 Tin	 Sugar	 Salt
 Sulfur	 Water	 Protein Crystals
 Diamond	 Baking Soda	 Copper Sulfate Crystals

THINK, PAIR, SHARE:



THINK AND THEN DISCUSS THE FOLLOWING WITH A PARTNER:

Give one example of each of the following:

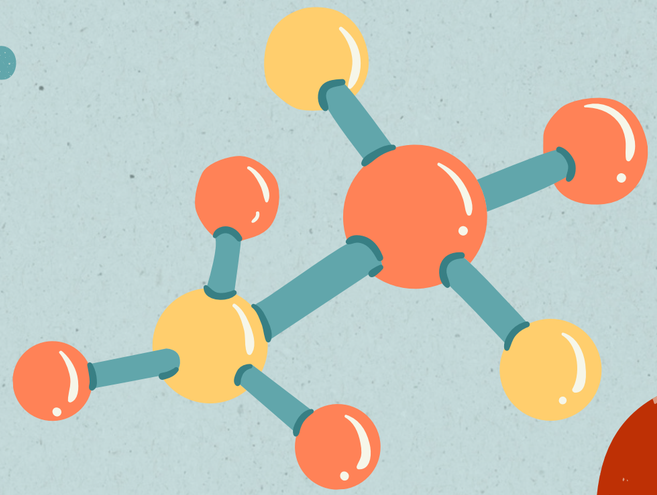
- **solid pure substance**
- **liquid pure substance**
- **gas pure substance**

MIXTURES

- A mixture is a combination of two or more substances that are NOT chemically bonded together

In a mixture, the substances keep their individual chemical properties, and can be separated into their original parts.

THINK, PAIR, SHARE:



THINK OF ONE MIXTURE YOU`VE MADE AT HOME, LIKE YOUR FAVORITE DRINK!

THEN DISCUSS THE FOLLOWING WITH A PARTNER:

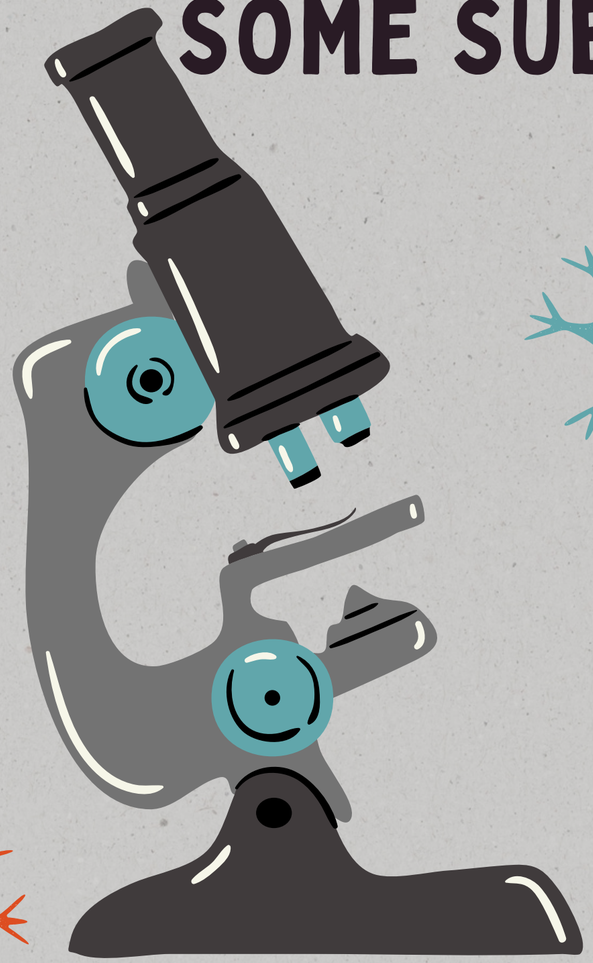
- How many ingredients does it need?
- What happens to the mixture you've stirred?
- Did the particles settle out?
- Is the color uniform throughout?

IS THIS PICTURE OF A GLASS OF WATER SHOWING A PURE SUBSTANCE OR MIXTURE?

IS THIS PICTURE OF A GLASS OF WATER SHOWING A PURE SUBSTANCE OR MIXTURE?

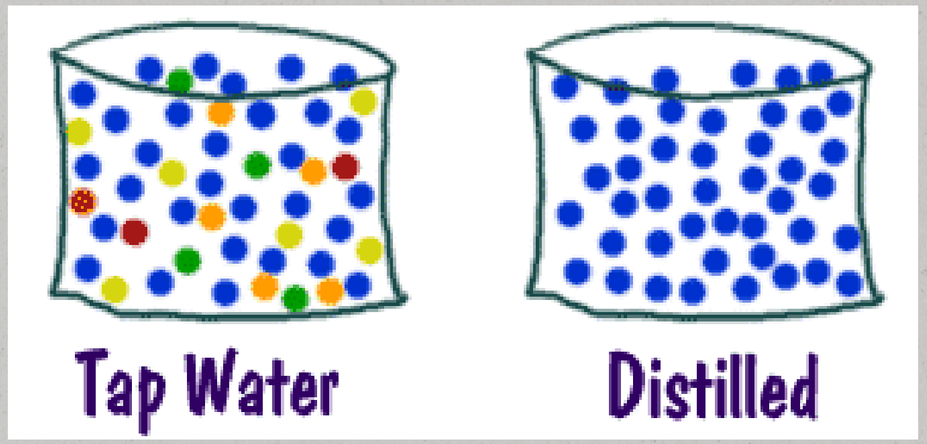
TAKE A CLOSER LOOK!

SOME SUBSTANCES MAY TRICK YOU...

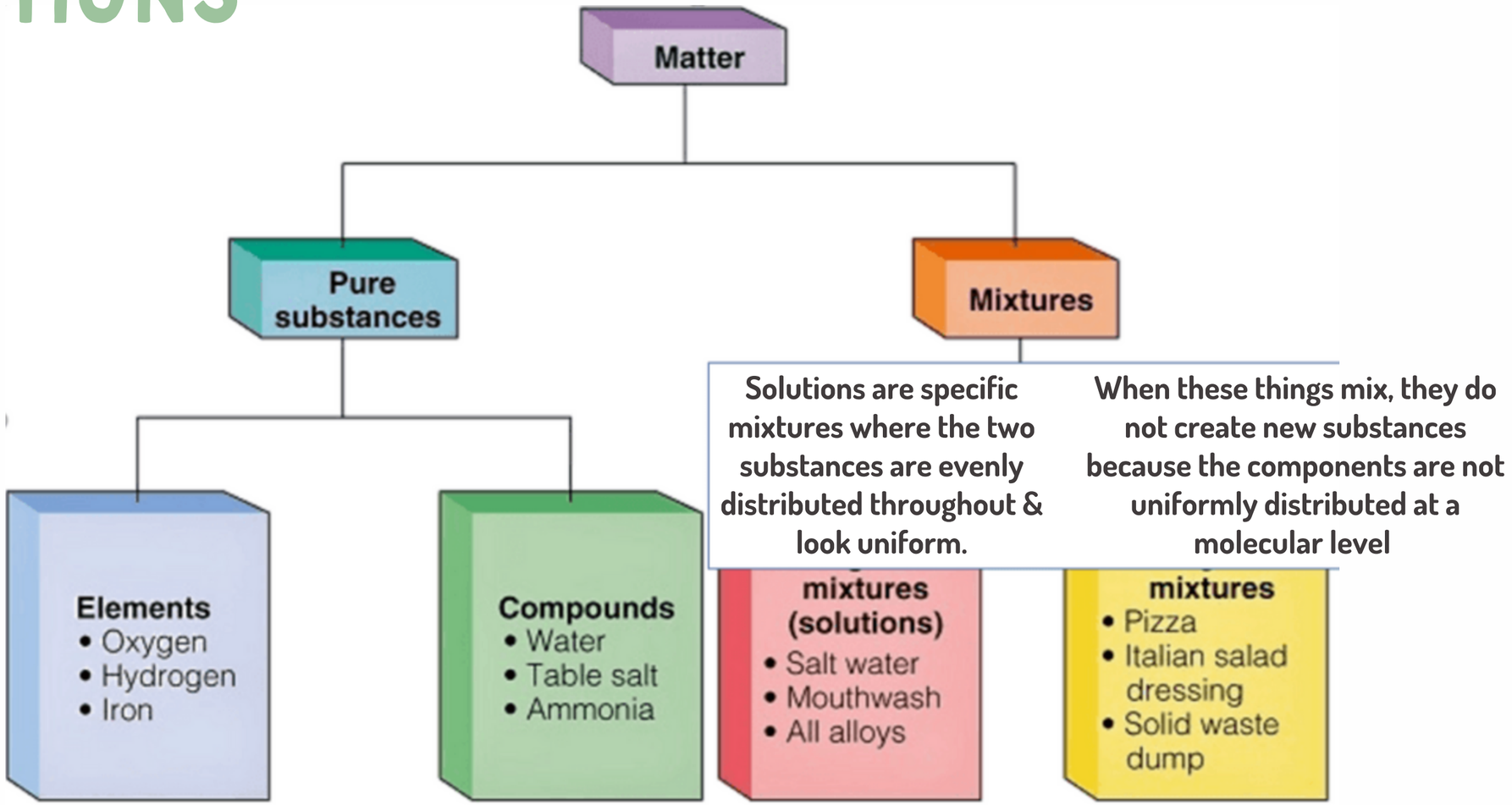


even if they look like they are pure substances, they could actually be mixtures!

For example: Tap Water



INTRODUCING A SPECIFIC KIND OF MIXTURE: SOLUTIONS



Solutions are specific mixtures where the two substances are evenly distributed throughout & look uniform.

When these things mix, they do not create new substances because the components are not uniformly distributed at a molecular level

SOLUTIONS ★

- A solution is a more specific type of mixture in which one substance is completely mixed into another, and its molecules are evenly distributed throughout

Examples of solutions can include:

- drinks like Kool-Aid or apple juice
- pen ink
- bleach
- saltwater