What's the Matter?

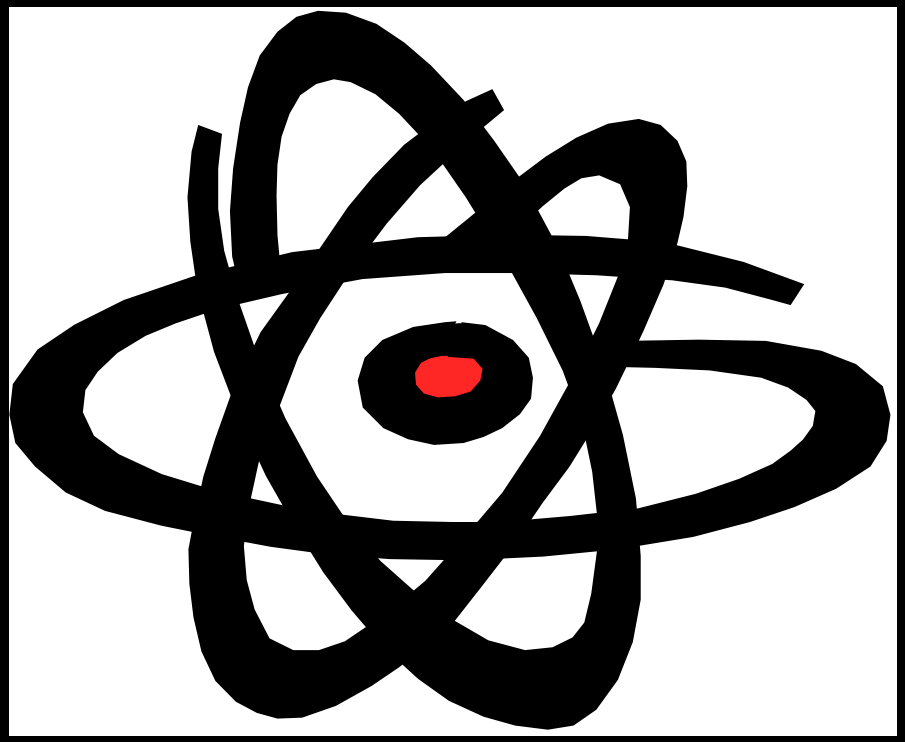
What is matter?

Anything that has ___Mass___ and

takes up ___Space___.

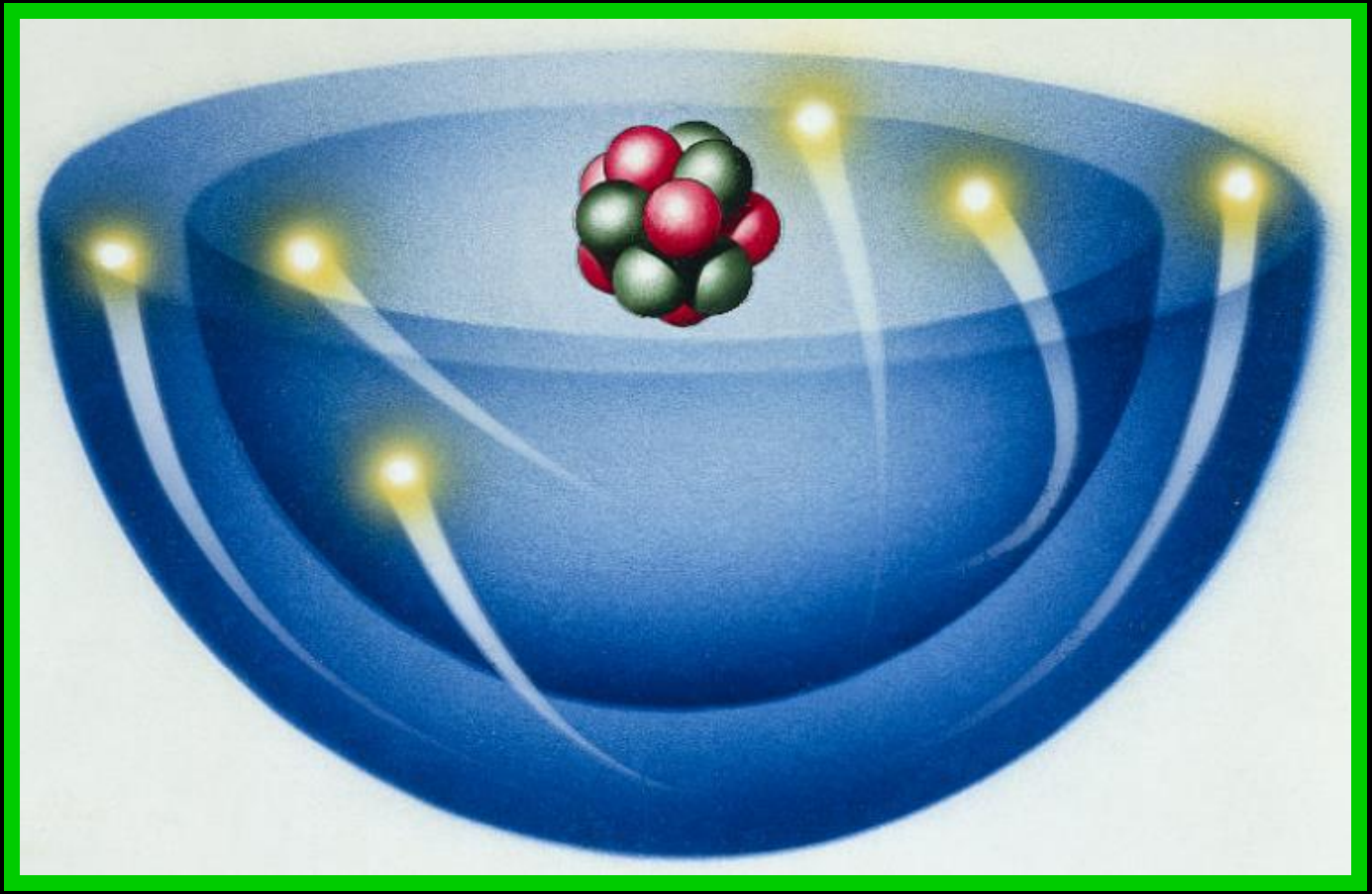
Examples of matter:

What is matter made of?



All matter is composed of one or more elements. There are about 100 natural elements. The smallest particle of an element that still has the properties of that element is called an atom

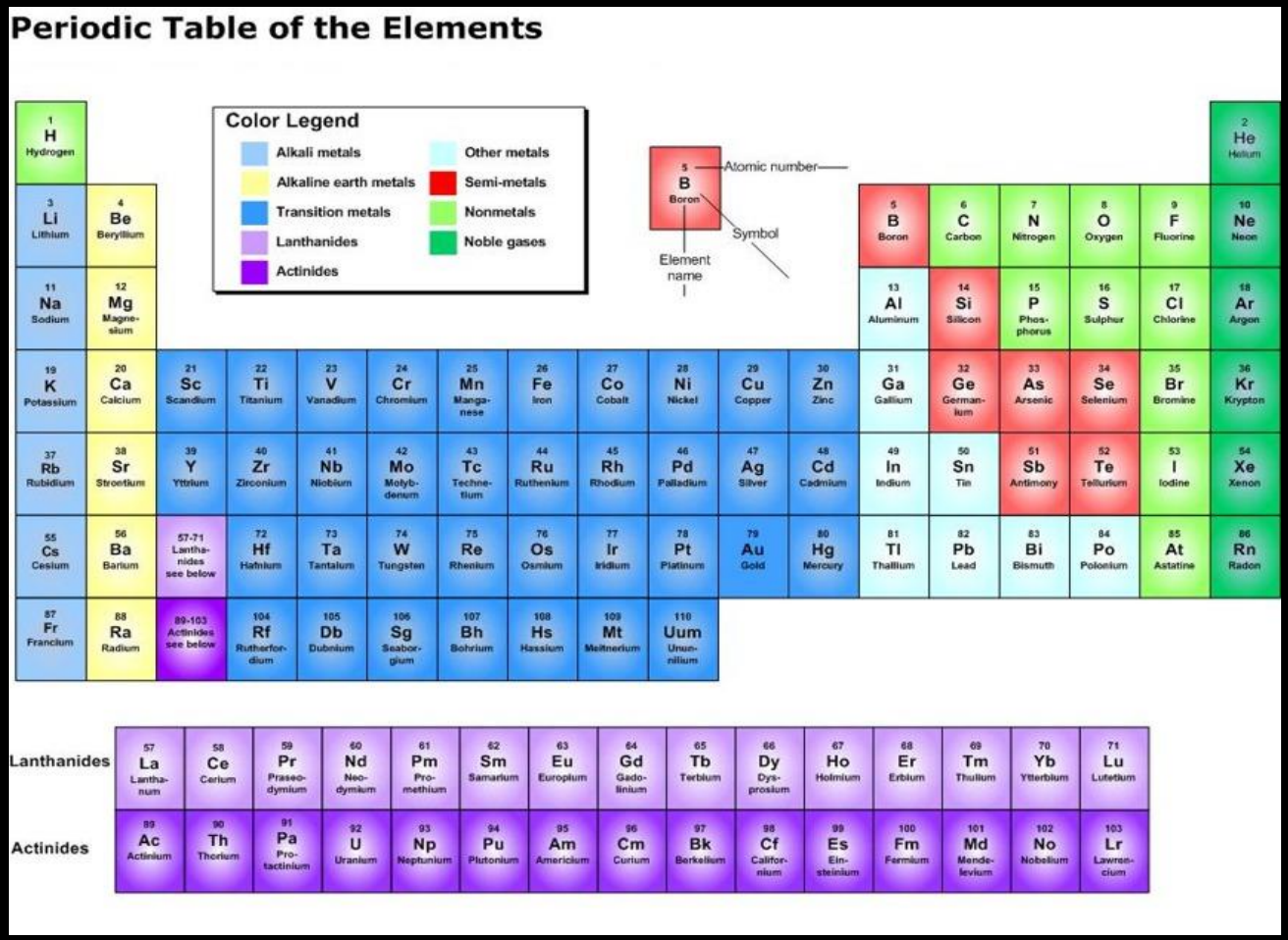
The Atom



The atom is the smallest component of an element having the chemical properties of the element.

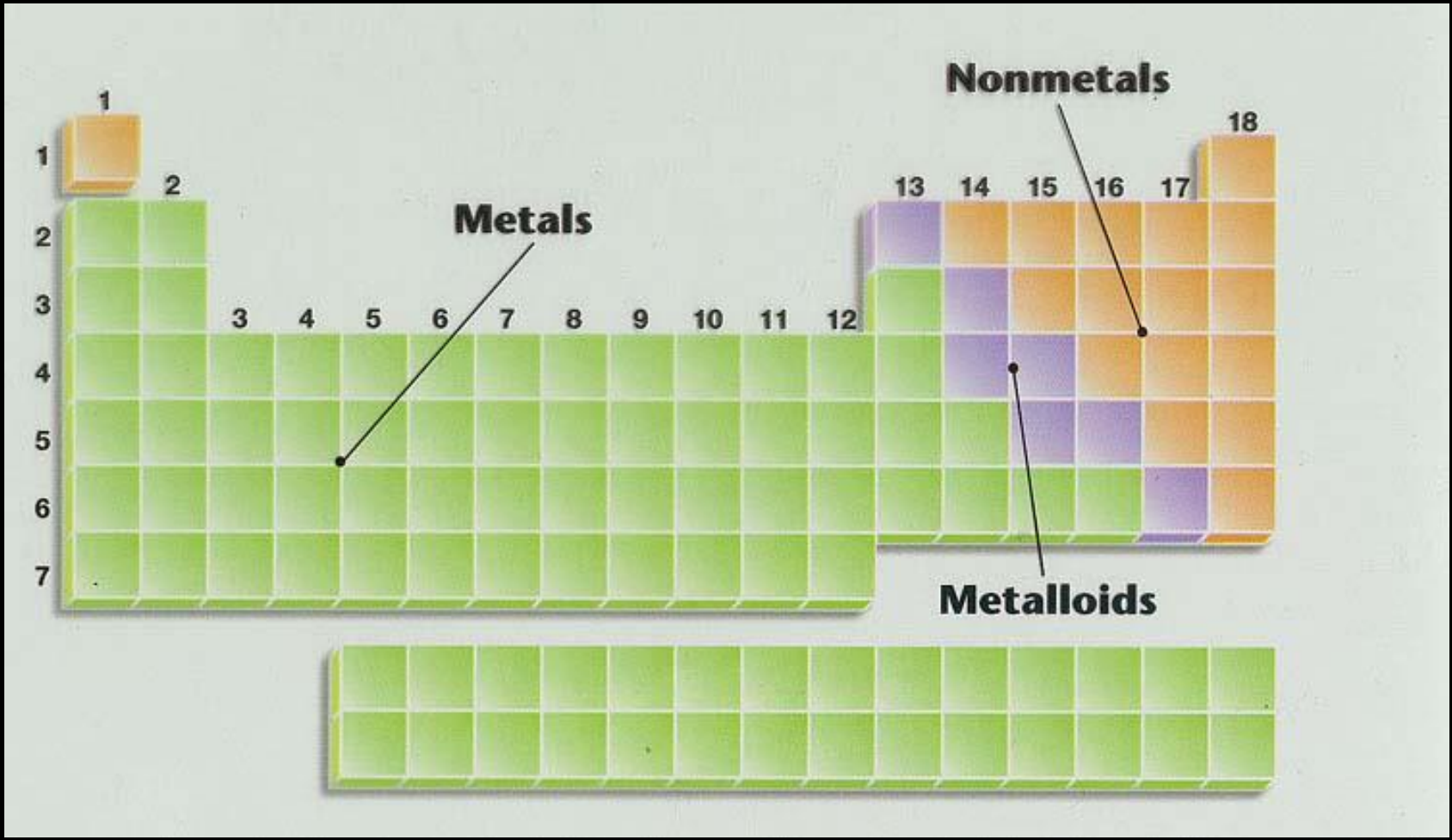
Click here for music video.

MEET THE ELEMENTS!



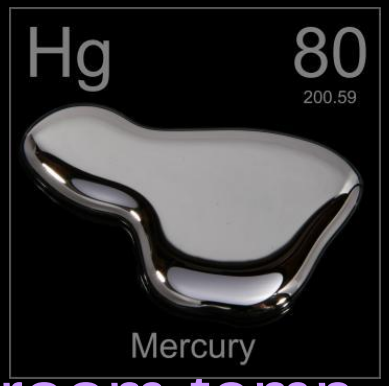
Photographic Periodic Table

Most of the elements on the periodic table are METALS.

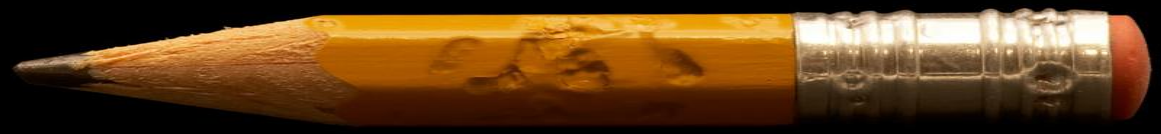


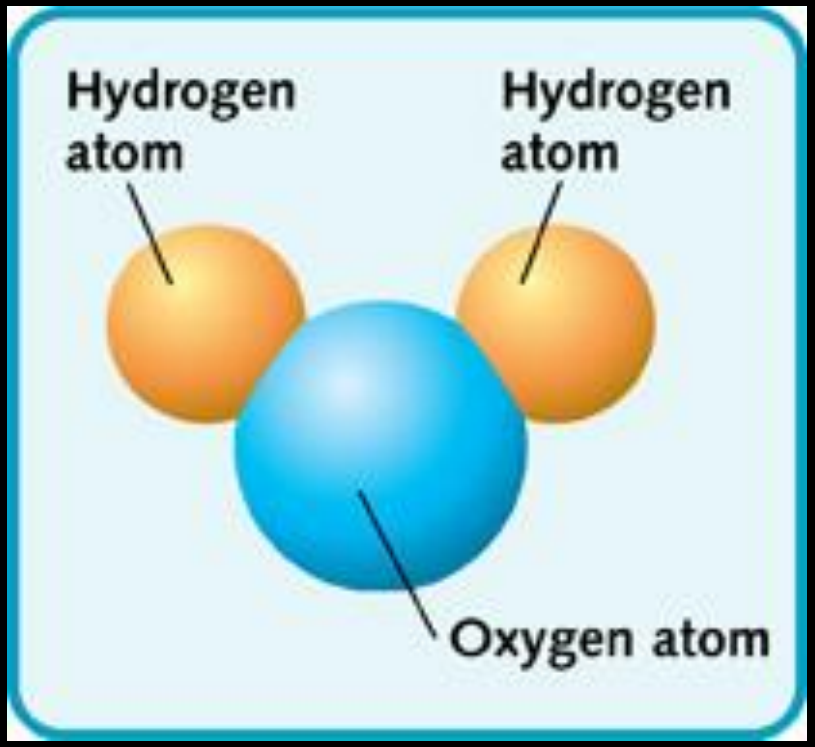
Interesting Facts:

- Most elements are metals.

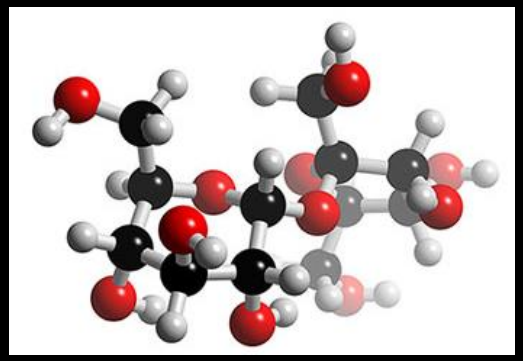


- Only one metal is a liquid at room temperature and that is mercury (Hg)
- Bromine, a nonmetal, is also a liquid at room temp.
- Pencil “lead” is not really lead anymore but is graphite, which is made of carbon. Diamonds are carbon too. The atoms are just arranged differently.





A water <u>molecule</u> is made up of hydrogen and oxygen atoms.



Sugar grains are made of molecules that are each made of 3 different types of atoms: carbon, hydrogen and oxygen.

C
carbon

H
hydrogen

O
oxygen

We are mainly made of carbon, hydrogen, oxygen and nitrogen.

Total Breakfast Cereal

Look at the different metals found in our cereal!

Nutrition Facts

Serving Size 0.75 cup (30g)

Amount per serving

Calories 97	Calories from Fat 6

Total Fat 1g	**2**
Saturated Fat 0g	**0**
Cholesterol 0mg	**0**
Sodium 192mg	**8**
Total Carbohydrates 22g	**7**
Dietary Fiber 3g	
Sugars 5g	
Protein 3g	

Vitamin A	10%	Vitamin C	100%
Calcium	110%	**Iron**	124%
Thiamin	141%	Riboflavin	142%
Niacin	132%	Pantothenic Acid	106%
Vitamin B6	141%	Vitamin B12	107%
Folic Acid	118%	Vitamin D	10%
Potassium	3%		9%
Magnesium	10%	**Zinc**	116%
Copper	6%		%

* Percent Daily Values are based on a 2,000 calorie diet.

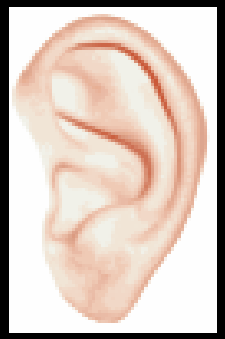
2 Ways to Describe Matter:

- ✓ Physical Properties
- ✓ Chemical Properties

EXAMPLES OF PHYSICAL PROPERTIES

Color

Taste



Texture

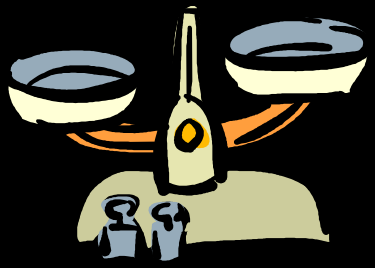
Size

STATE OF MATTER

Shape

Density

ELECTRICAL CONDUCTIVITY



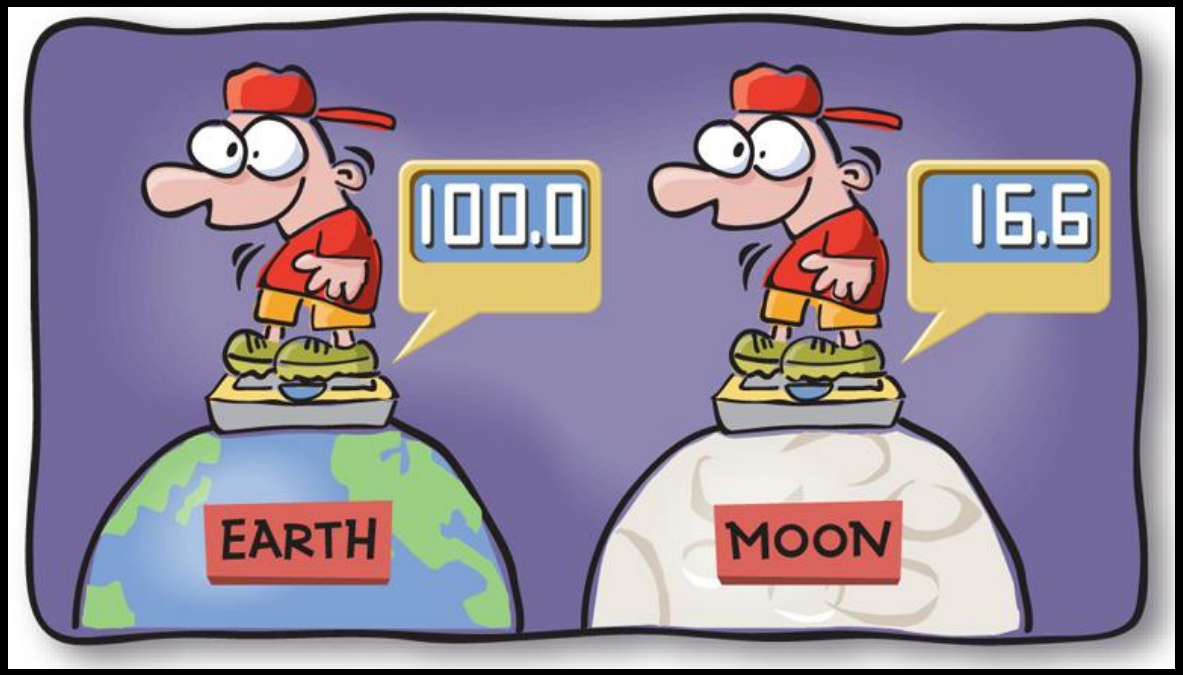
HEAT CONDUCTIVITY

MAGNETIC

What <u>is</u> mass?

Mass is how much “stuff” is in an object.

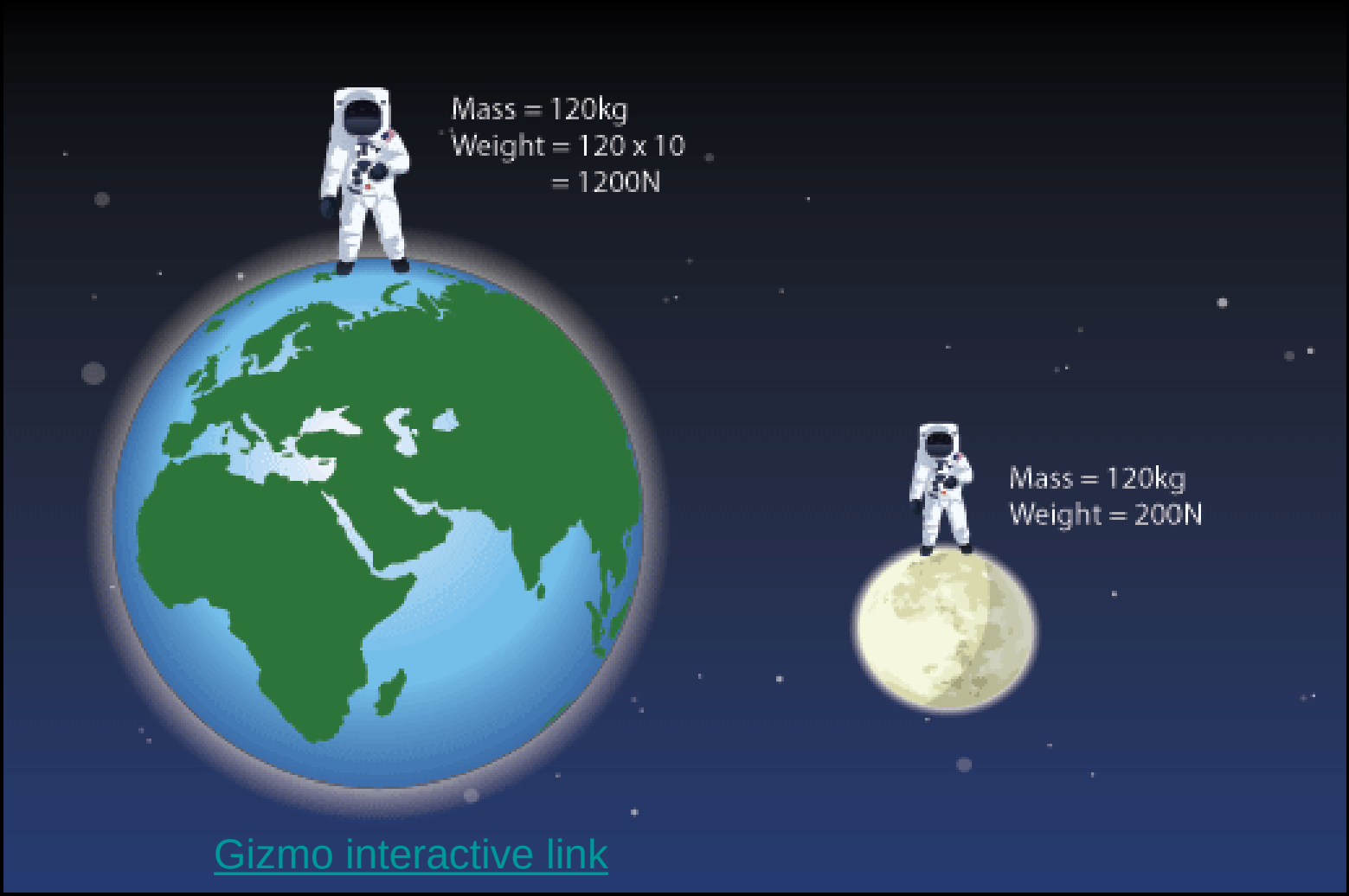
Weight is different from mass.



Weight depends on GRAVITY.

Your weight on other worlds.

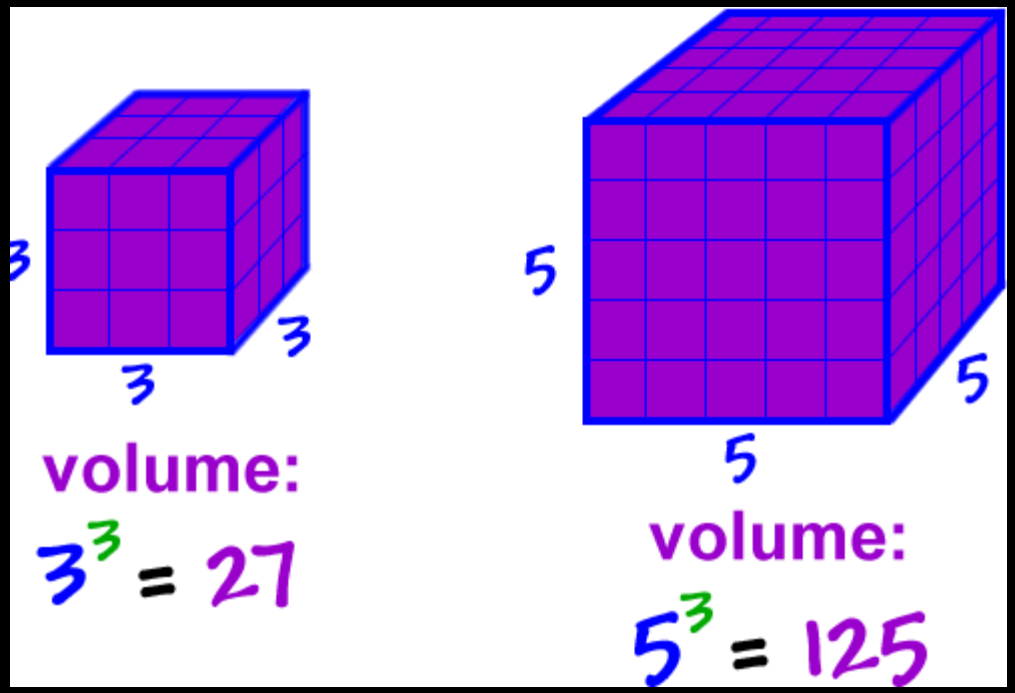
Mass is independent of gravity.



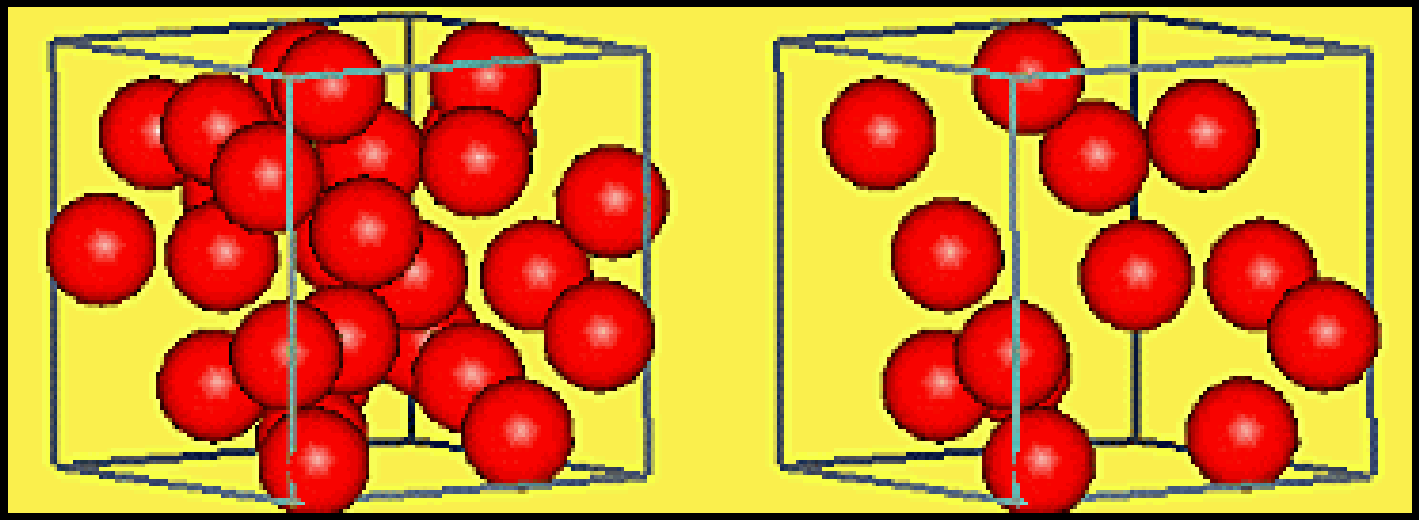
Gizmo interactive link

What is volume?

How much space an object takes up.



Density is the ratio of mass to volume.



States of Matter

1.

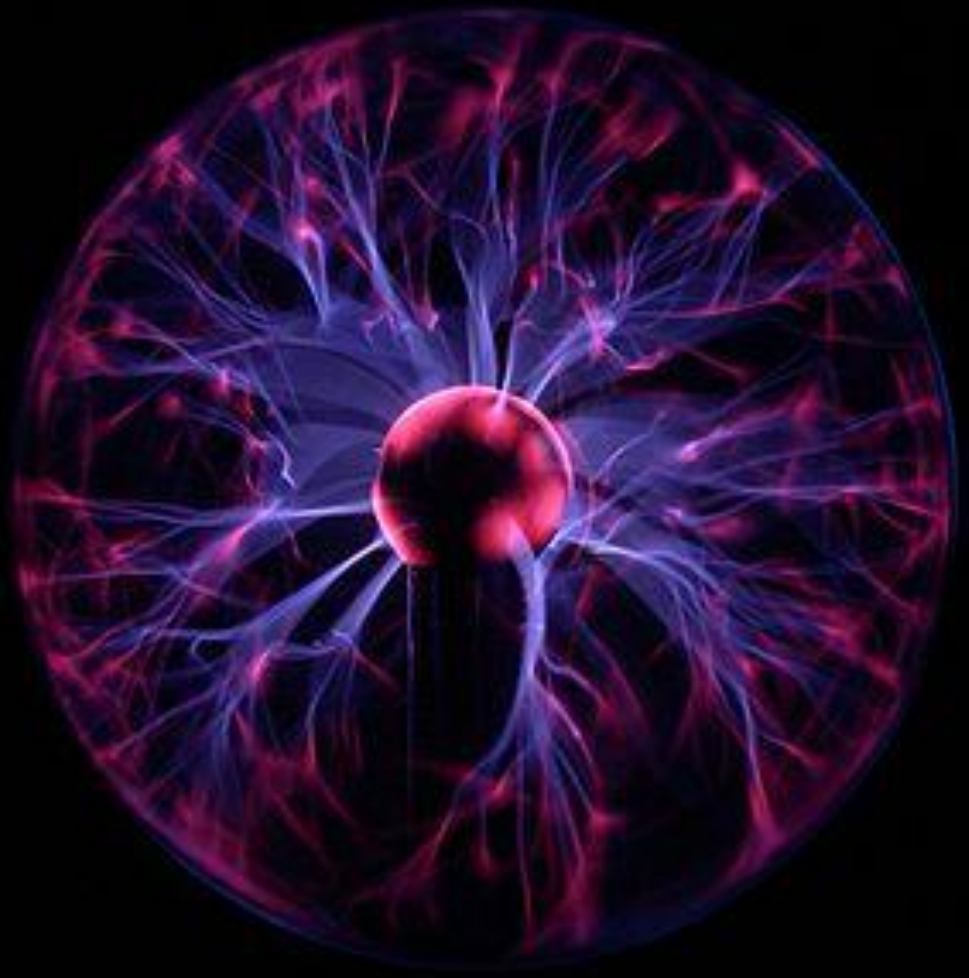
2.

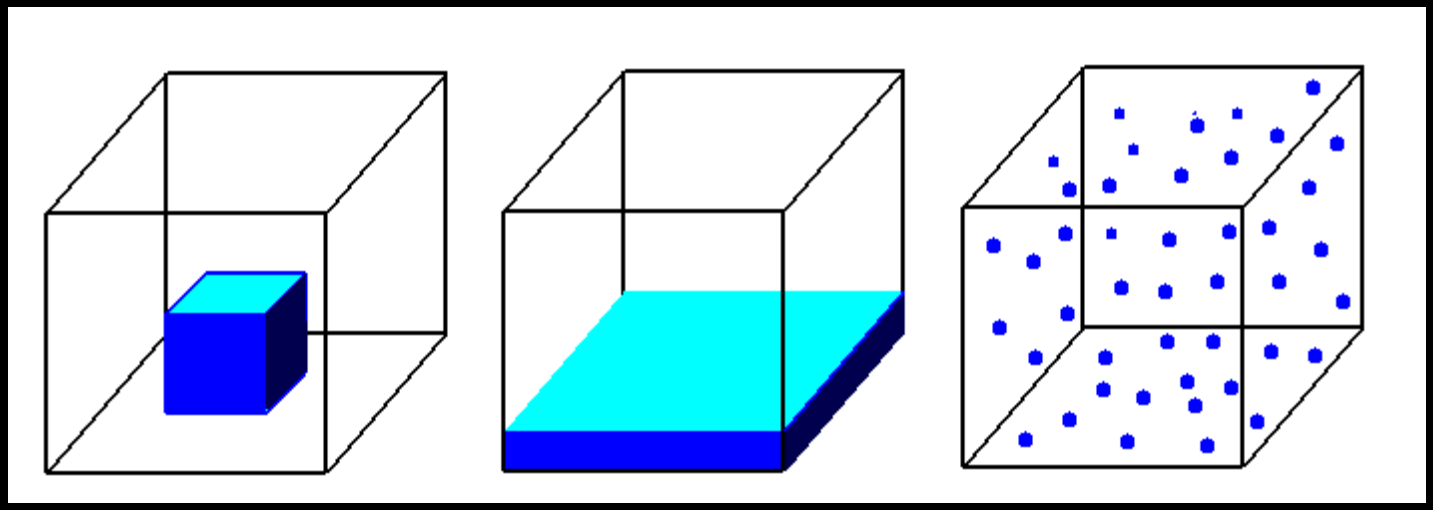
3.

4.

States of Matter Music Video

PLASMA





SOLID **LIQUID** **GAS**

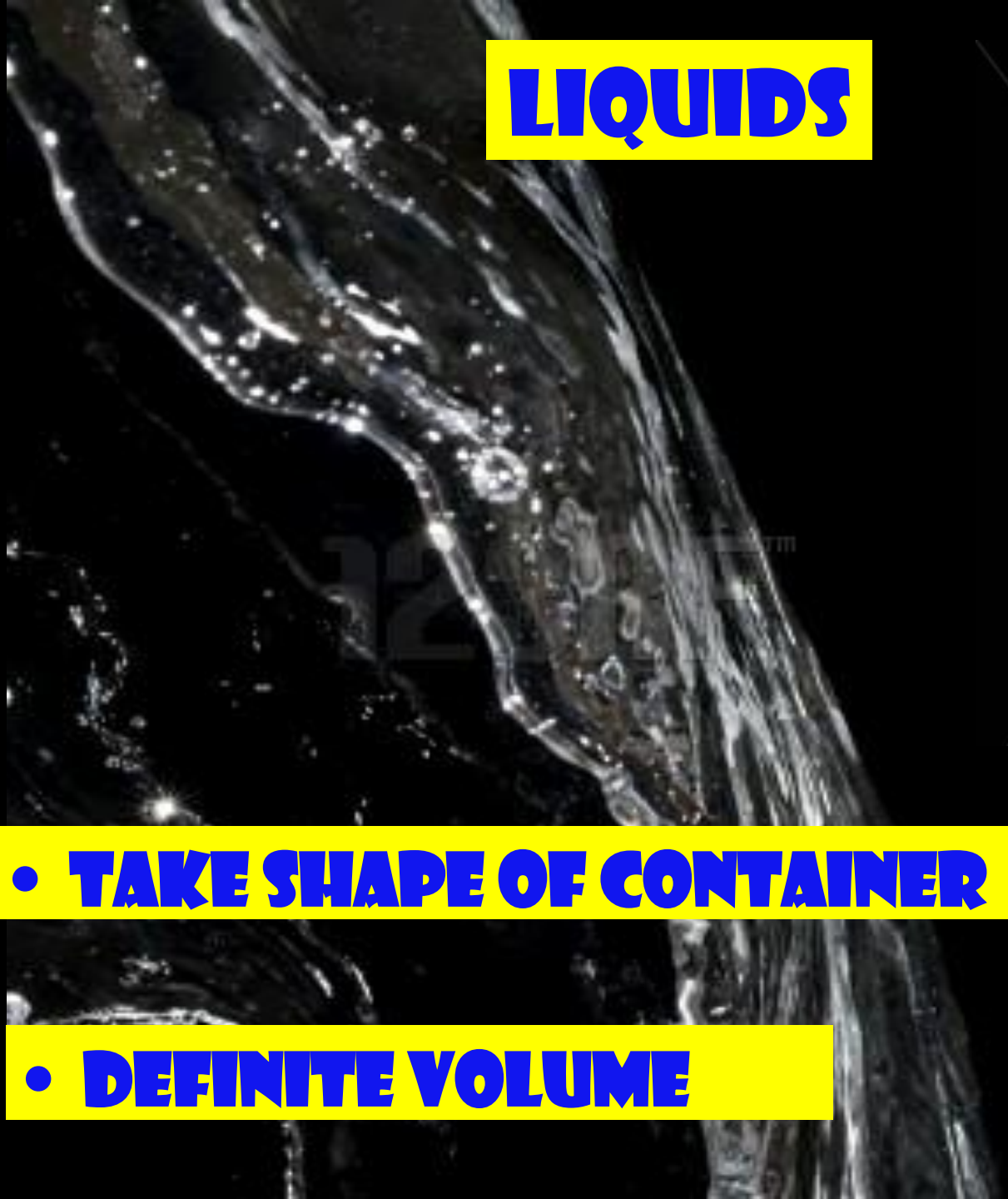
Animation 1

SOLIDS

- DEFINITE VOLUME

- DEFINITE SHAPE

LIQUIDS



- TAKE SHAPE OF CONTAINER
- DEFINITE VOLUME

GASES

- NO DEFINITE VOLUME
- NO DEFINITE SHAPE

Chemical Properties

Describes how materials react with other materials.

Chemical Properties

- Ability to burn
- Ability to rust
- Ability to change to a new substance when heated
- Ability to tarnish