DO NOW (Date):

Insert Text Here

Fun Fact:

Insert Text Here

INSERT PICTURE HERE

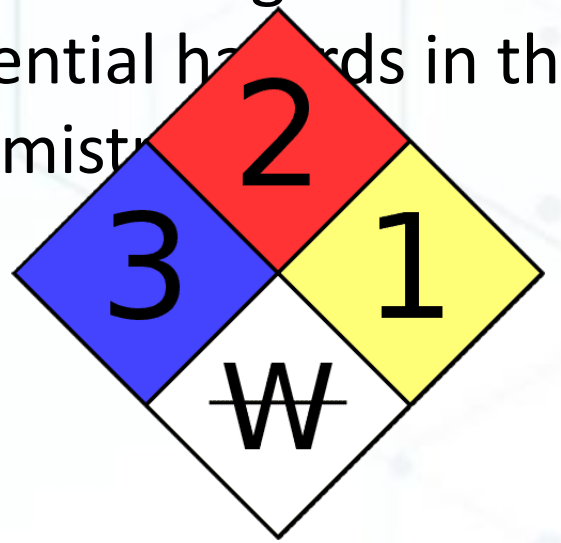
DO NOW (1/29/24):

On Friday we discussed the importance of following safety rules in a Chemistry lab.

Can you think of any real-life examples where a lack of chemical safety knowledge could have serious consequences? Explain an example!

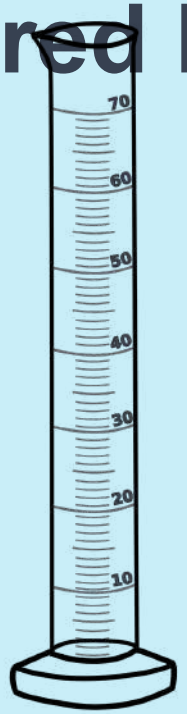
Fun Fact:

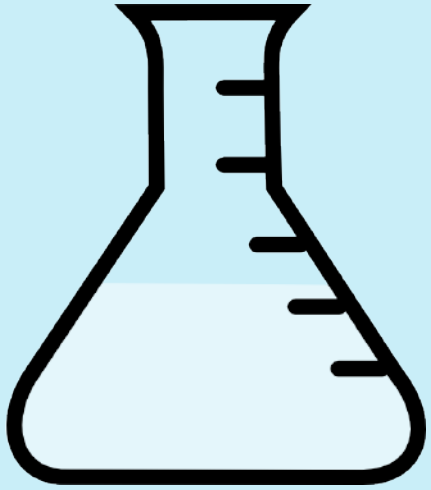
The color-coded diamond on chemical containers uses blue for health, red for flammability, and yellow for reactivity, providing a quick visual guide to potential ha rds in the Chemistr



DO NOW (1/30/24):

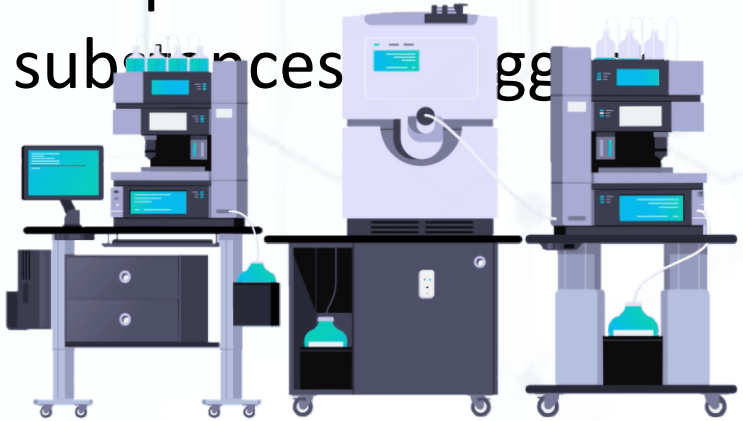
What is the name of and use for the lab equipment pictured below?





Fun Fact:

The technology used in mass spectrometers, commonly found in instrumental chemistry labs, is also employed in airport security scanners to help identify the composition of sub[illegible]nces [illegible]gg



DO NOW (1/31/24):

What considerations should be taken into account when planning and conducting an experiment?

(Think about your Play Doh lab!)

Fun Fact:

Play Doh was originally created as a wallpaper cleaner in the 1930s but instead gained popularity as a safe toy for children due to its non-toxic and pliable nature.

DO NOW (2/1/24):

Why do you think we use the metric system in chemistry class rather than the imperial (English) system?

Fun Fact:

A single drop of water contains approximately 1670000000000000000000 (1.67×10^{21}) molecules.

DO NOW (2/2/24):

Would you rather never use social media again or never watch another movie or tv show? Why?

Fun Fact:

The first photo ever shared on Instagram was a picture of a dog taken by co-founder Kevin Systrom and it was posted on July 16, 2010.

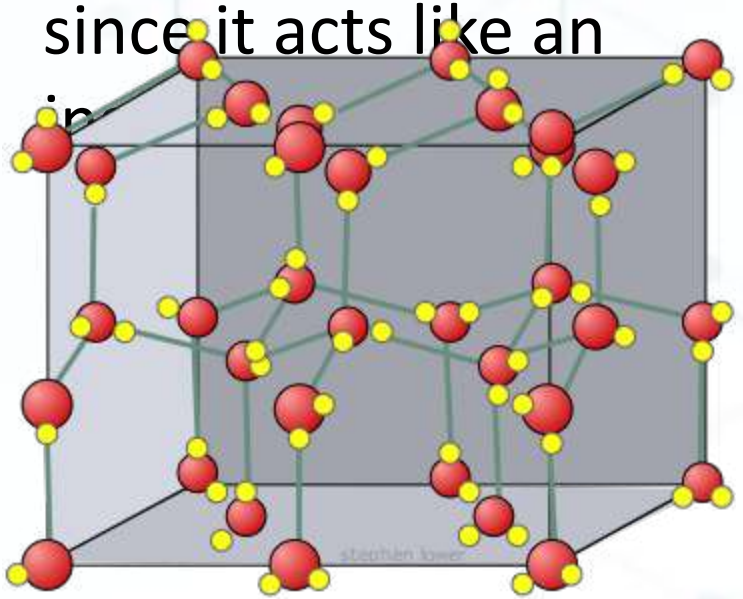
DO NOW (2/5/24):

Given the following objects, predict which ones will float or sink in water.

- **Marble**
- **Pencil**
- **Ping pong ball**
- **Eraser**
- **Corn syrup**
- **Oil**

Fun Fact:

Ice floats on liquid water because its structure forms an “open lattice” which is a unique property crucial for the survival of aquatic life since it acts like an in



DO NOW (2/6/24):

Consider the ingredients used in baking such as flour, sugar, or butter:

How might differences in their densities affect the texture of baked goods?

Fun Fact:

The chocolate chip cookie was invented by Ruth Graves Wakefield in the 1930s. She sold her cookie recipe to Nestlé in exchange for a lifetime supply of chocolate.

DO NOW (2/7/24):

Imagine boiling water on a stovetop:

What do you think is happening to the water molecules at the particle level?

Fun Fact:

Some scientists argue that there could be a theoretical seventh color beyond violet in the rainbow. No human has observed this color with the human eye; however, it has been observed with instrum

DO NOW (2/8/24):

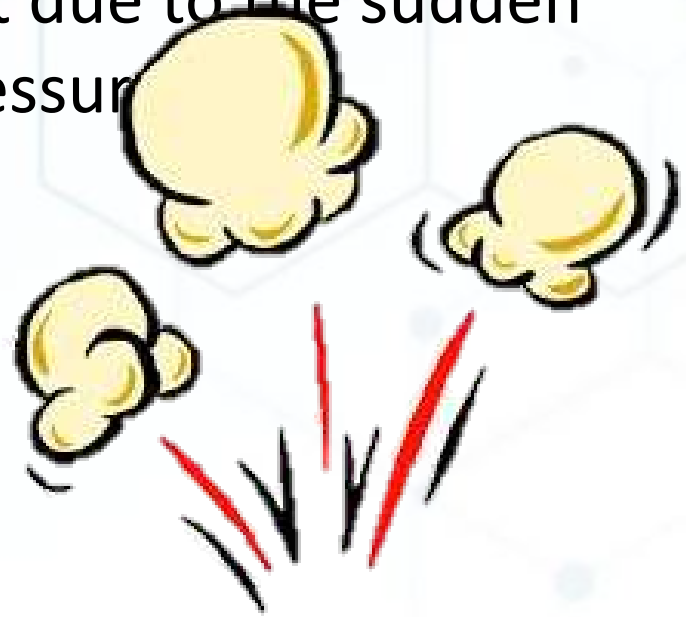
Analyze the following substances:

- Helium
_ Iron
_ Oxygen
- Carbon dioxide

Which of the following is in different physical state than the others at room temperature? Why?

Fun Fact:

Popcorn pops due to moisture trapped inside the kernel turning into steam when heated – this causes the kernel to "explode" and flip inside out due to the sudden pressur



DO NOW (2/9/24):

Would you rather have to read aloud every word you read or sing everything you say out loud?

Fun Fact:

Just like fingerprints, each person's voice has a unique "voice print." Voice recognition technology uses this uniqueness for security purposes, like unlocking smartphones.

DO NOW (2/12/24):

Enclosed in a small vial is a collection of shiny, silver-covered shavings. When inspected closely, you notice that each shaving is identical to the others and had the same luster (shine). **Determine whether the silver shavings are an element, compound, or mixture.**

Fun Fact:

Silver has the highest reflectivity of any element, making it valuable in mirrors, telescopes, and other optical devices.

DO NOW (2/15/24):

Imagine a mixture of sand and salt. **Discuss a way in which you can separate these components?**

Fun Fact:

The tallest sandcastle measures 21.16 m (69 ft, 5 in) and was made by Skulpturparken Blokhus in Denmark on July 2, 2021.

DO NOW (2/14/24):

In your kitchen, identify examples of physical and chemical changes in matter.

How would you explain the difference between a physical and chemical change using these examples?

Fun Fact:

When you brown meat or toast bread, you're witnessing the Maillard reaction. It's a chemical reaction between amino acids and reducing sugars that gives cooked food its distinctive flavor, aroma, and b

DO NOW (2/15/24):

Would you rather spend a week on a deserted island with no internet or a week in a busy city with no personal space?

Fun Fact:

Singapore, a country in Southeast Asia, is known for its cleanliness. In order to maintain its sanitation, it is actually illegal to chew gum!

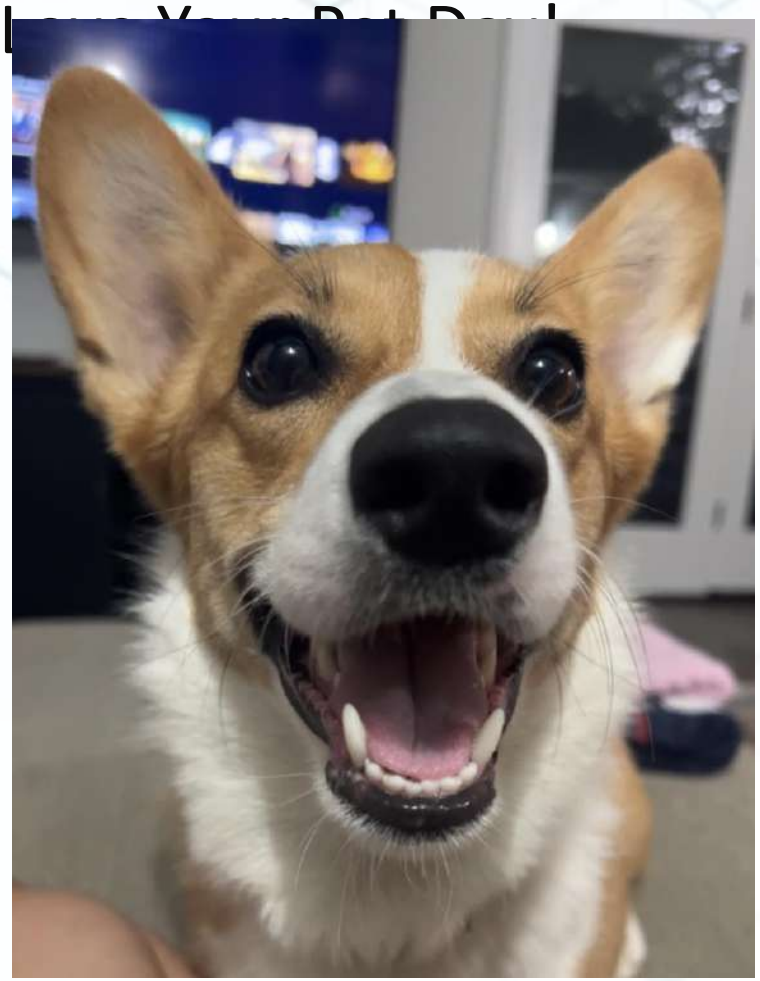
DO NOW (2/20/24):

Sort the following examples into two groups and explain why you grouped them in this way:

- Breaking a plate
- Rotting food
- Cutting paper
- Burning wood
- Boiling eggs

Fun Fact:

February 20th is celebrated as National



DO NOW (2/21/24):

Think about it:

In the process of developing film, what chemical changes do you think occur to transform the hidden image to a visible one?

Fun Fact:

On February 21, 1947, Edwin H. Land introduced the first commercial instant

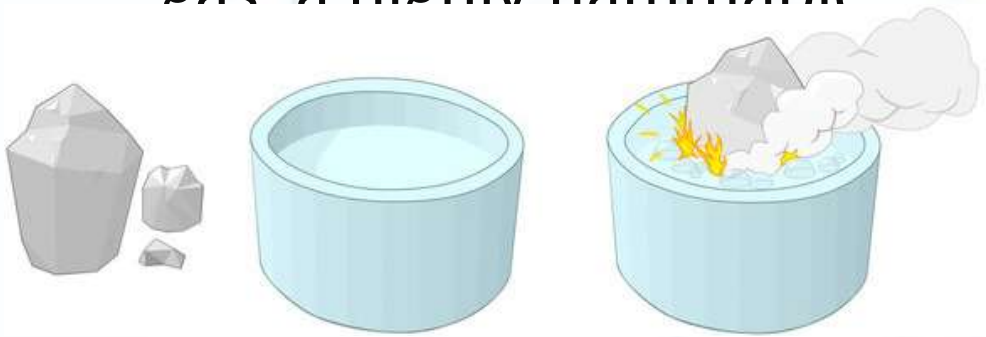
DO NOW (2/22/24):

Classify the following changes as either physical or chemical:

- Grass growing in a lawn
- Bending a copper wire
- A puddle evaporating
- Sodium metal reacting with water
- Inflating a tire with air

Fun Fact:

Sodium is so reactive that it's stored under oil to prevent it from reacting with moisture in the air. If exposed to the air, it releases hydrogen gas, a highly flammable



DO NOW (2/22/24):

Review Time:

Give an example of a heterogeneous mixture and explain how its components might separate based on density.

Fun Fact:

An Oreo cookie, a delicious example of a heterogeneous mixture, was first introduced on March 6th, 1912 in New York City. To celebrate this, March 6th each year is known as the "National Oreo Cookie Day".

DO NOW (2/23/24):

Would you rather only be able to listen to the same song or only be able to watch the same movie for the rest of your life?

Fun Fact:

The flute is often considered the world's oldest musical instrument. Flutes made from bird bones and mammoth ivory have been found and date b s.

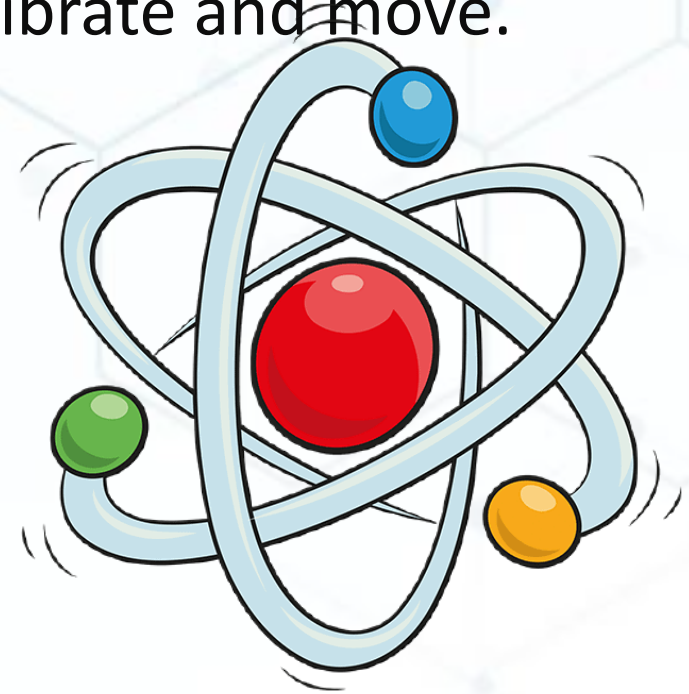
DO NOW (2/26/24):

Think about the word “atom”.

How would you define what an atom is in your own words?

Fun Fact:

Atoms are in constant motion. Even at extremely low temperatures, atoms still vibrate and move.



DO NOW (2/29/24):

Think about your atomic theory timeline and how the model of the atom has changed throughout time:

How has technological advancement contributed to our current understanding of atomic structure?

Fun Fact:

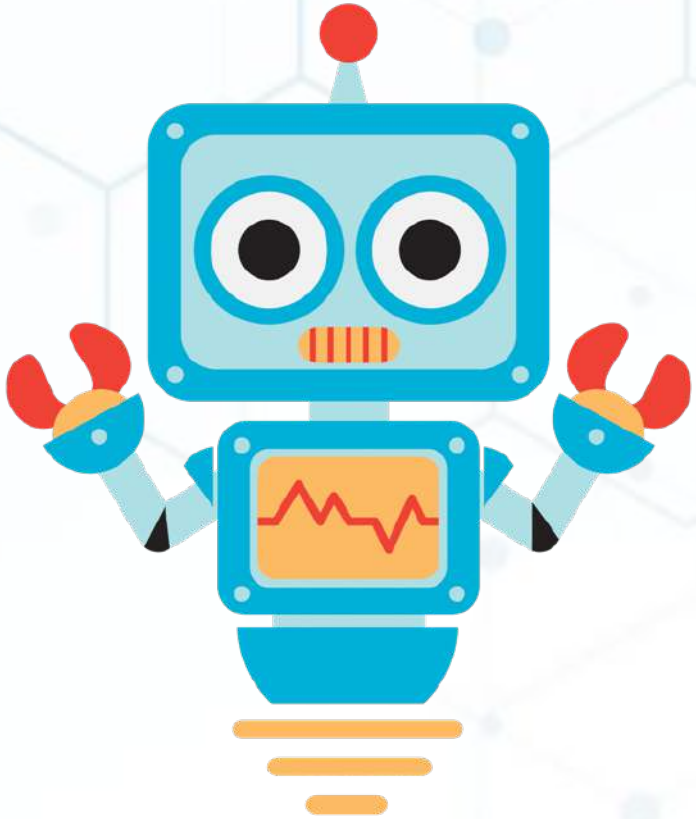
Unfortunately, most of Democritus' original writings have been lost over time. Much of what we know about his ideas comes from the works of later philosophers who discussed and quoted him.

DO NOW (3/1/24):

Would you rather have a robot that does all your chores for you or a personal chef who cooks all your meals for you?

Fun Fact:

The word "robot" comes from the Czech word "robota," meaning forced labor or drudgery.



DO NOW (3/4/24):

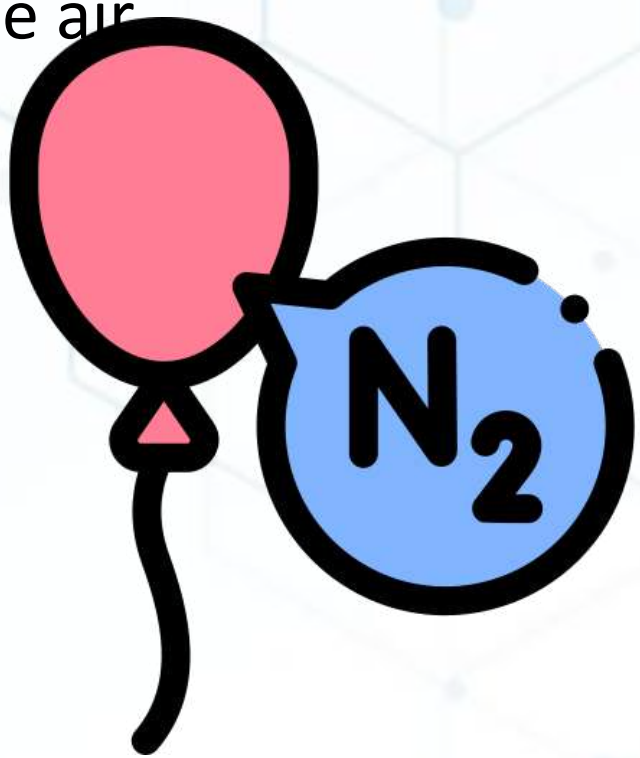
Given the symbol $^{14}_{7}N$, determine the number of protons, neutrons, and electrons.

Shorthand Symbol:

$^{Mass\ \#}_{Atomic\ \#}Atomic\ Symbol$

Fun Fact:

Nitrogen makes up about 78% of Earth's atmosphere, making it the most abundant gas in the air.



DO NOW (3/5/24):

If an atom has a mass number of 23 and an atomic number of 11, how many protons, neutrons, and electrons does it have?

Fun Fact:

Throwback to Biology:

On March 5th, 1953, the structure of DNA was revealed in a paper published by James Watson and Francis Crick in the scientific journal Nature.

DO NOW (3/6/24):

Explain the notation used to represent isotopes.

Example:

Carbon-12 vs Carbon-14

Fun Fact:

Carbon-12 plays a crucial role in the formation of diamonds. The stable carbon isotope is a primary building block in the crystal lattice structure that gives diamonds their hardness and brilliance.

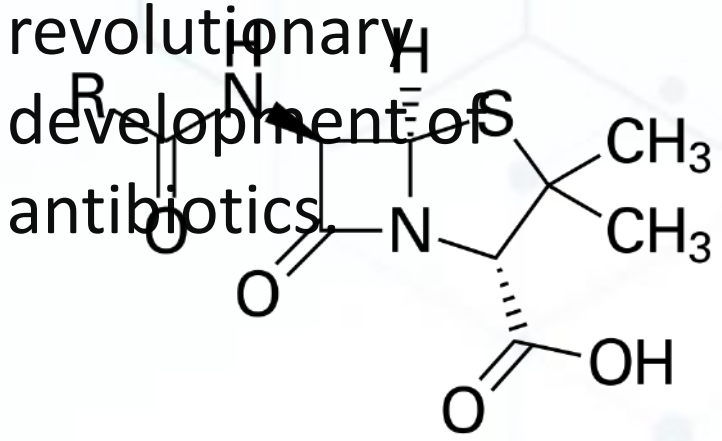
DO NOW (3/7/24):

Understanding atomic structure is crucial for drug development, medical imaging, and other medical applications.

Why do you believe understanding this is important?

Fun Fact:

The first widely used antibiotic, penicillin, was discovered by Sir Alexander Fleming in 1928. He noticed that the mold Penicillium notatum killed bacteria, leading to the revolutionary development of antibiotics.



DO NOW (3/8/24):

Would you rather have the ability to communicate with animals or speak all human languages?

Fun Fact:

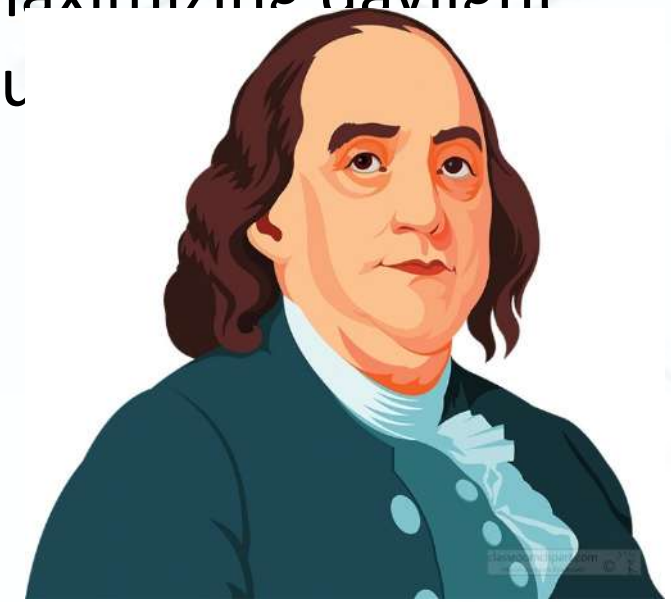
Cows have best friends and can become stressed when separated from them. They use vocalizations and body language to communicate with each other and maintain social bonds with the herd.

DO NOW (3/11/24):

How is the periodic table organized today, and what does its structure reveal about the elements?

Fun Fact:

Daylight Saving Time was first proposed by Benjamin Franklin in 1784 as a way to conserve energy by maximizing daylight du



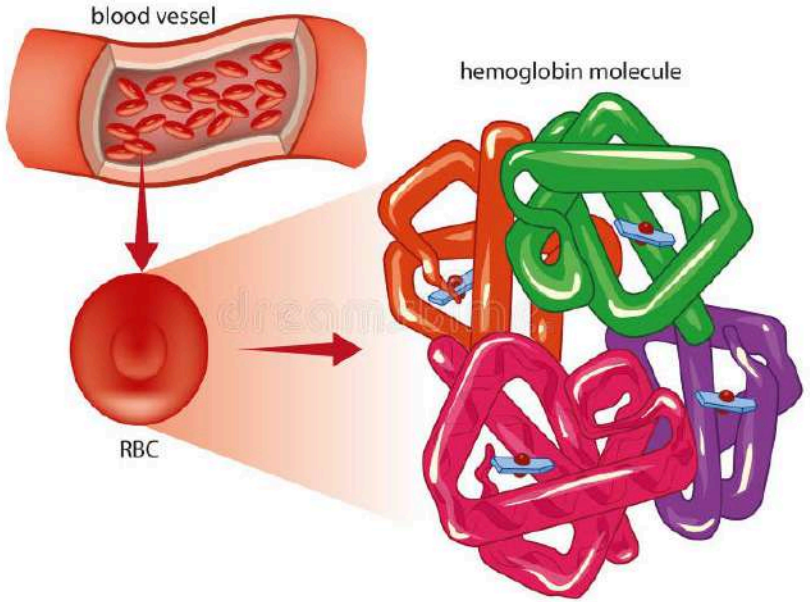
DO NOW (3/12/24):

Classify the following elements as metals, nonmetals, and metalloids:

- Sodium
- Helium
- Boron
- Hydrogen
- Zirconium

Fun Fact:

Iron is the most abundant transition metal on Earth and is crucial for the formation of hemoglobin in our blood, which carries



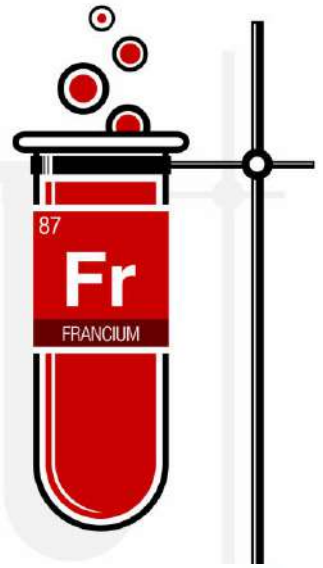
DO NOW (3/13/24):

As we move across a period on the periodic table, atomic radius (size) is going to decrease.

Develop a theory for why this will occur.

Fun Fact:

Francium (Fr) has the largest atomic radius of all the elements. However, it is extremely rare and highly radioactive, making it di
e



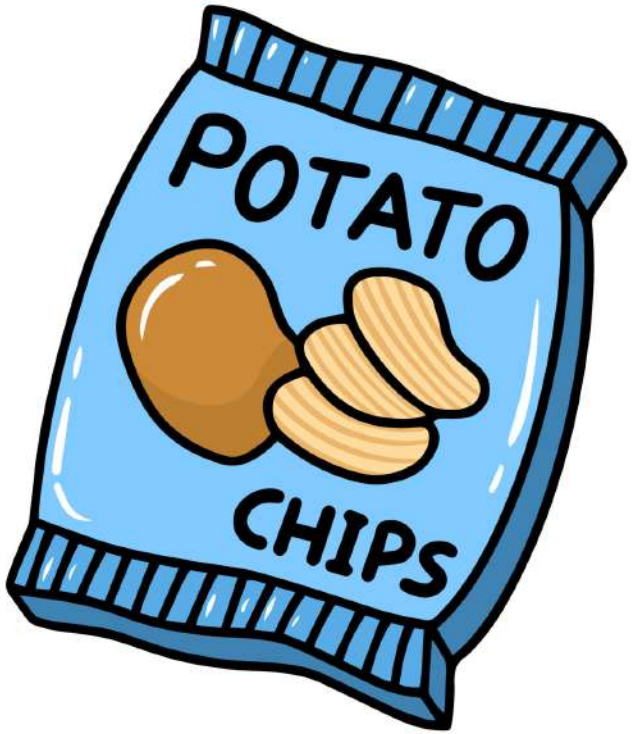
DO NOW (3/14/24):

Let's remember something about chemical change!

Describe the chemical changes that occur when potato slices are fried to make potato chips. How do you know a chemical change is occurring?

Fun Fact:

March 14th is celebrated as National Potato Chip Day!



DO NOW (3/15/24):

Would you rather have one wish granted today or 10 wishes granted 20 years from now?

Fun Fact:

The word "genie" is derived from the Arabic word "jinn" which means "hidden" or "concealed." This reflects their mysterious and often invisible nature.

DO NOW (3/19/24):

How many valence electrons are in an atom of chlorine?

Fun Fact:

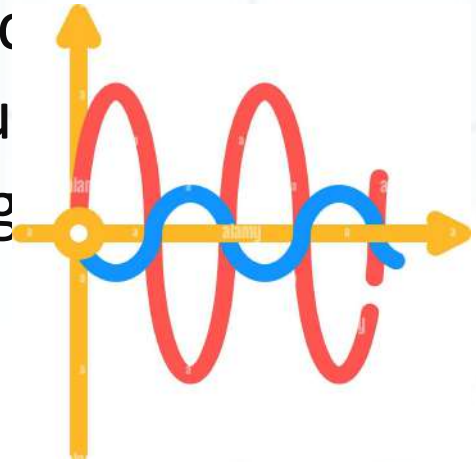
Chlorine has a distinct and pungent odor that is often associated with swimming pools. This odor is actually due to the chlorine reacting with organic matter in the w ine itself.

DO NOW (3/19/24):

Discuss one way we use the electromagnetic spectrum in everyday life

Fun Fact:

The electromagnetic spectrum consists of more than just visible light. In fact, visible light is just a small portion of the spectrum. There are other types of electromagnetic waves such as radio waves, mic
infrared, u
rays, and g



DO NOW (3/20/24):

Which of the following pairs are more likely to form an ionic bond?

- oxygen and fluorine
- sodium and calcium
- potassium and bromine
- phosphorus and chlorine

** Choose one pair **

Fun Fact:

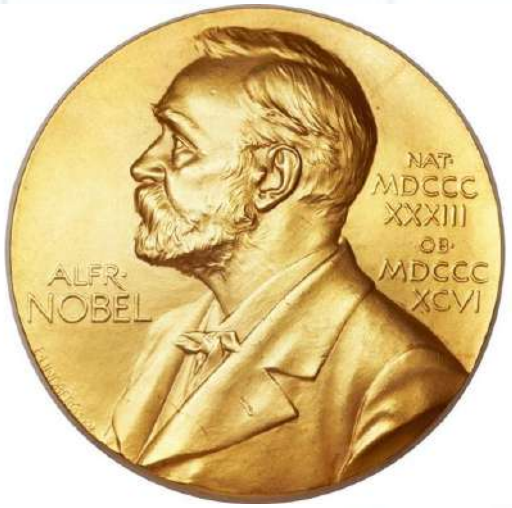
Many naturally occurring minerals are ionic compounds. For instance, halite (rock salt) and calcite are co[illegible] bo[illegible]

DO NOW (3/20/24):

What were the major limitations of Rutherford's atomic model that prompted Bohr to develop his own model?

Fun Fact:

Rutherford's contributions to atomic theory earned him the Nobel Prize in Chemistry in 1908 for his investigations into the disintegration of the el
ch
su



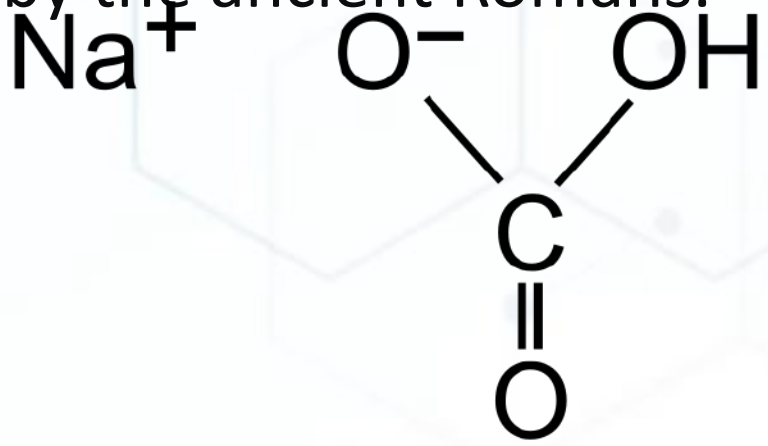
DO NOW (3/21/24):

Provide an example of an ionic compound and explain its role in real-world application.

Remember:
This is a metal – nonmetal bond!

Fun Fact:

Baking soda has been used for centuries for various purposes, including as a leavening agent in ancient Egypt and as a cleaning agent by the ancient Romans.



DO NOW (3/21/24):

How do line spectra play a crucial role in identifying elements and compounds in various fields of science?

Fun Fact:

The Northern Lights are natural light displays in the Earth's sky caused by charged particles from the Sun colliding with atoms and molecules in the Earth's atmosphere, exciting them and causing them to emit lig
wa

DO NOW (3/22/24):

Would you rather be the richest person in the world and hate what you do, or have an average wage and love what you do?

Fun Fact:

Many currencies incorporate hidden symbols and messages into their designs. For example, the U.S. $1 bill features an owl in the upper le[illegible]he "1" in th[illegible] corner o[illegible]

DO NOW (3/25/24):

Predict the chemical formula for an ionic compound consisting of aluminum and oxygen.

Fun Fact:

Aluminum oxide is one of the most abundant compounds in the Earth's crust, making up a significant portion of

as bauxite

.

DO NOW (3/25/24):

Predict the Bohr Model for the element Carbon, showing the proper arrangement of electrons in the different energy levels.

Fun Fact:

Carbon is often referred to as the "building block of life" because it forms the basis of almost all organic compounds, including those found in living organisms.

DO NOW (3/26/24):

Monatomic ions are an ion formed from a single atom.

What do you believe a polyatomic ion is comprised of?

Fun Fact:

Polyatomic ions such as sulfate (SO_4^{-2}) and nitrate (NO_3^{-1}) are major components of acid rain, which forms when these ions combine with water vapor in the atmosphere.

DO NOW (3/26/24):

Today we are going to discuss “electron configurations”.

What is meant by this term in the context of atomic structure?

Fun Fact:

The concept of electron configurations arises from quantum mechanics, a branch of physics that describes the behavior of particles at
sub

DO NOW (3/27/24):

If you could only time travel in one direction, would you rather travel back in time or into the future?

Fun Fact:

According to the theory of relativity proposed by Albert Einstein, time travel is theoretically possible. It suggests that time is not constant and can be altered by factors like gravity and velocity.

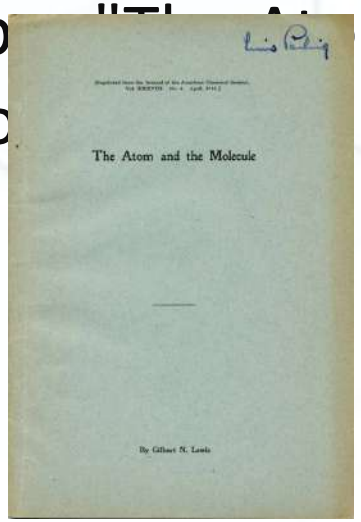
DO NOW (4/2/24):

Discuss the role of the octet rule in determining the stability of ions in ionic compounds.

How does the octet rule influence the formation of ions and the structure of ionic compounds?

Fun Fact:

The concept of the octet rule was first proposed by Gilbert N. Lewis in 1916 to explain the stability of chemical compounds. Lewis introduced the idea in his pap m and the Mo


The Atom and the Molecule

By Gilbert N. Lewis

DO NOW (4/2/24):

How does the Aufbau Principle guide the order of orbital filling in electron configurations?

Fun Fact:

"Aufbau" is a German word that translates to "building up" or "construction."

DO NOW (4/4/24):

How do you determine the name of an ionic compound from its chemical formula?

Fun Fact:

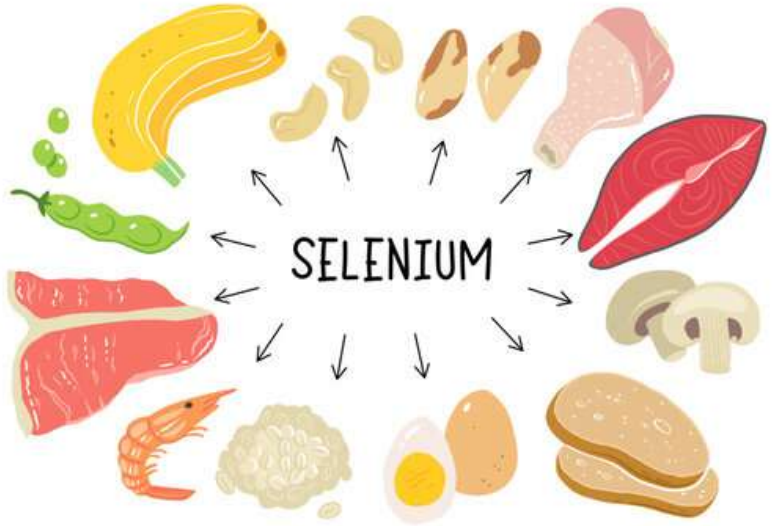
Some ionic compounds have common names that are widely used and recognized, especially for compounds with widespread use. For example, sodium bicar is comr bakir

DO NOW (4/3/24):

Predict the electron configuration for Selenium (Se).

Fun Fact:

Selenium is an essential trace element for humans and animals, but it can be toxic in large amounts. It is necessary for proper functioning of enzymes and plays a role



DO NOW (4/3/24):

Investigate the relationship between the formula of an ionic compound and the charges of its ions.

Provide examples of ionic compounds and explain how their formulas reflect the balance of positive and negative charges.

Fun Fact:

The International Union of Pure and Applied Chemistry (IUPAC) developed systematic naming rules for chemical compounds to ensure consistency and clarity in communication among scientists worldwide.

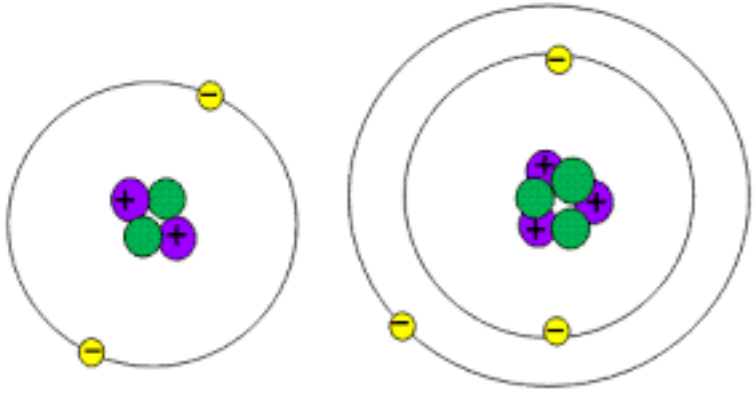
DO NOW (4/4/24):

Imagine you have two atoms: one with two protons and two neutrons, and another with three protons and three neutrons.

Compare and contrast their electron configurations and discuss how they might interact with each other.

Fun Fact:

Helium is the second most abundant element in the universe, after hydrogen. However, it is relatively rare on Earth and is mostly obtained as a byproduct of natural

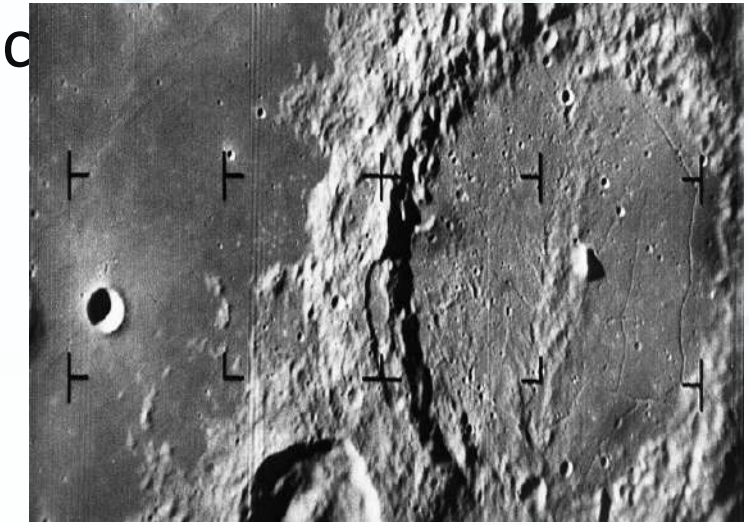


DO NOW (4/5/24):

Would you rather live in a world where it's always summer or always winter?

Fun Fact:

On April 5, 1965, the United States' spacecraft, Ranger 9, transmitted the first close-up images of the moon's surface before c



DO NOW (4/8/24):

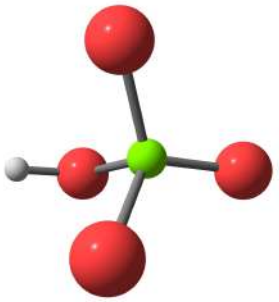
How many <u>total</u> valence electrons are in a molecule of perchloric acid, $HClO_4$?

- 6
- 16
- 24
- 32

** Choose one answer**

Fun Fact:

Perchloric acid is one of the strongest acids known to man. Due to its hazardous nature and potential for explosive reactions, the use and handling of perchloric acid are subject to strict reg
cou



DO NOW (4/8/24):

Predict the chemical formula for an ionic compound consisting of aluminum and oxygen.

Fun Fact:

Aluminum oxide is one of the most abundant compounds in the Earth's crust, making up a significant portion of

as bauxite

.

DO NOW (4/9/24):

Remember This!

What are the observable signs of a chemical reaction occurring?

(Hint: We talked about six signs!)

Fun Fact:

The next total solar eclipse will not be observed in Bethlehem, Pennsylvania until August 12, 2045! This means if you are c
o
y

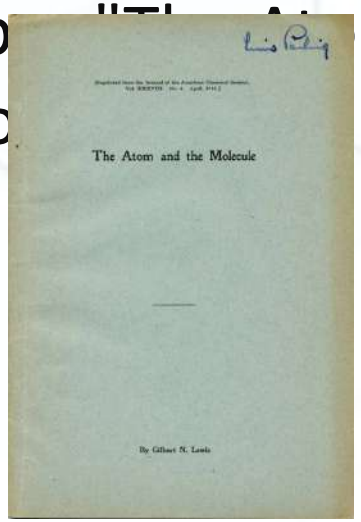
DO NOW (4/9/24):

Discuss the role of the octet rule in determining the stability of ions in ionic compounds.

How does the octet rule influence the formation of ions and the structure of ionic compounds?

Fun Fact:

The concept of the octet rule was first proposed by Gilbert N. Lewis in 1916 to explain the stability of chemical compounds. Lewis introduced the idea in his pap m and the Mo


The Atom and the Molecule

By Gilbert N. Lewis

DO NOW (4/10/24):

A researcher is investigating the reaction between magnesium metal (Mg) and hydrochloric acid (HCl) to produce magnesium chloride ($MgCl_2$) and hydrogen gas (H_2).

Write a balanced chemical equation for this reaction, paying attention to the coefficients of each compound.

Fun Fact:

Compared to other de-icing salts like sodium chloride (table salt), magnesium chloride is often considered more environmentally friendly. It has lower toxicity levels and is less cor
infr
veh

DO NOW (4/10/24):

Monatomic ions are an ion formed from a single atom.

What do you believe a polyatomic ion is comprised of?

Fun Fact:

Polyatomic ions such as sulfate (SO_4^{-2}) and nitrate (NO_3^{-1}) are major components of acid rain, which forms when these ions combine with water vapor in the atmosphere.

DO NOW (4/11/24):

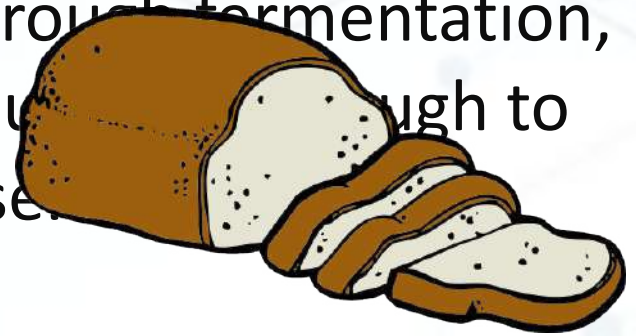
Imagine you are a chemical detective investigating a mysterious reaction.

Describe the clues you would look for to determine whether the reaction is a "decomposition reaction".

Hint: Think about what

Fun Fact:

The decomposition of food is not only a natural process but also a key concept in food preservation and cooking. For instance, when yeast acts on sugars in bread dough, it produces carbon dioxide through fermentation, cau[illegible]ugh to rise.



DO NOW (4/11/24):

For the following element pairs, determine whether they would form ionic or covalent bonds:

- Sodium and Phosphorus

_ Hydrogen and Sulfur

_ Barium and Nitrogen

- Palladium and Oxygen

Fun Fact:

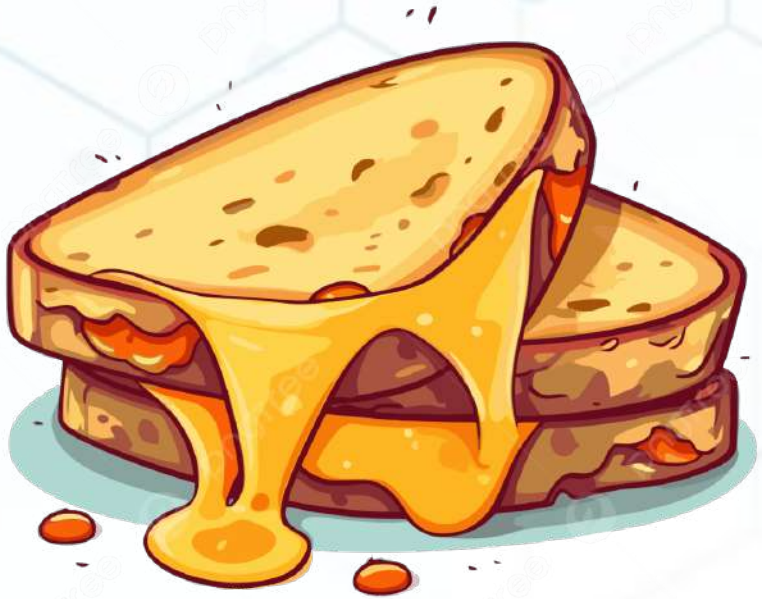
Due to its role in catalytic converters and other environmental applications, palladium oxide plays a part in reducing air pollution from vehicles and industrial processes, contributing to efforts towards a cleaner environ

DO NOW (4/12/24):

Would you rather teach a class in high school or have your parents teach one of your classes?

Fun Fact:

April 12th is celebrated as National Grilled Cheese Sandwich Day in the United States!



DO NOW (4/15/24):

Balance the following reaction AND classify it as synthesis, decomposition, single replacement, double replacement, or combustion:

___ $CaBr_2$ + ___ HCl --> ___ $CaCl_2$ + ___ HBr

Fun Fact:

In the human body, hydrochloric acid is produced by the stomach to aid in the digestion of food. It helps break down proteins and activates enzymes that further d[illegible] food.

DO NOW (4/15/24):

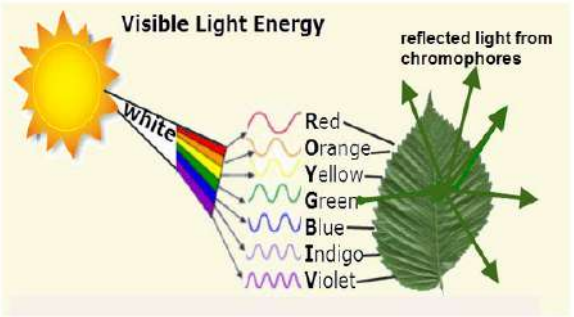
Remember This!

What are the observable signs of a chemical reaction occurring?

(Hint: We talked about six signs!)

Fun Fact:

Certain molecules, called chromophores, are responsible for the color of substances. When a chemical reaction occurs, the arrangement of atoms in these molecules can change, altering their ability to abs
thu r.

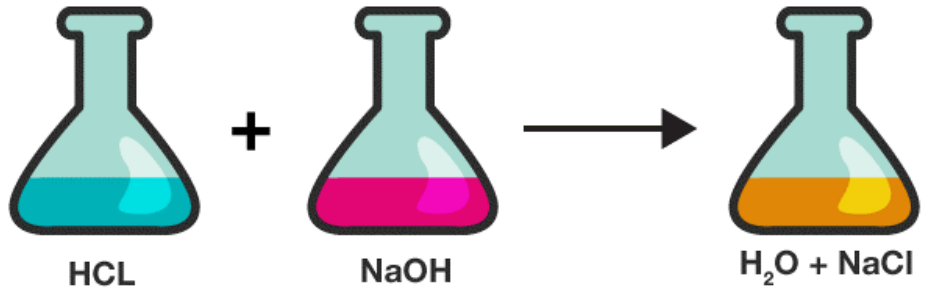


DO NOW (4/16/24):

Without looking at your notes, list the five reaction types!

Fun Fact:

There is actually a 6th type of reaction known as an “acid-base reaction” which involves the combination of an acid with a base to form water and a salt. This process is called



DO NOW (4/16/24):

A researcher is investigating the reaction between magnesium metal (Mg) and hydrochloric acid (HCl) to produce magnesium chloride ($MgCl_2$) and hydrogen gas (H_2).

Write a balanced chemical equation for this reaction, paying attention to the coefficients of each compound.

Fun Fact:

Compared to other de-icing salts like sodium chloride (table salt), magnesium chloride is often considered more environmentally friendly. It has lower toxicity levels and is less cor
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veh

DO NOW (4/17/24):

What makes gold unique among metals in terms of its properties and uses?

Fun Fact:

While it's called a gold medal, Olympic gold medals are mostly made of silver. They're plated with about 6 grams of gold (about $460) to give them their iconic appearance.

DO NOW (4/17/24):

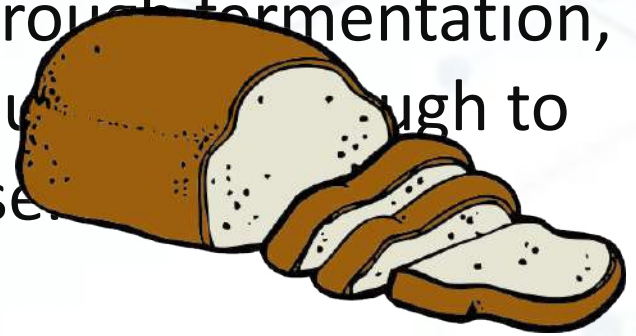
Imagine you are a chemical detective investigating a mysterious reaction.

Describe the clues you would look for to determine whether the reaction is a "decomposition reaction".

Hint: Think about what

Fun Fact:

The decomposition of food is not only a natural process but also a key concept in food preservation and cooking. For instance, when yeast acts on sugars in bread dough, it produces carbon dioxide through fermentation, cau[illegible]ugh to rise.



DO NOW (4/18/24):

Yesterday we made "Silver" and "Gold" pennies during lab. This wasn't really the element silver or gold – only appeared it in color.

What did we ACTUALLY make during lab?

Fun Fact:

Copper is highly valued for its versatility. It is an excellent conductor of electricity and heat, making it indispensable in electrical wiring, plu l hea

DO NOW (4/18/24):

Balance the following reaction AND classify it as synthesis, decomposition, single replacement, double replacement, or combustion:

___ $CaBr_2$ + ___ HCl --> ___ $CaCl_2$ + ___ HBr

Fun Fact:

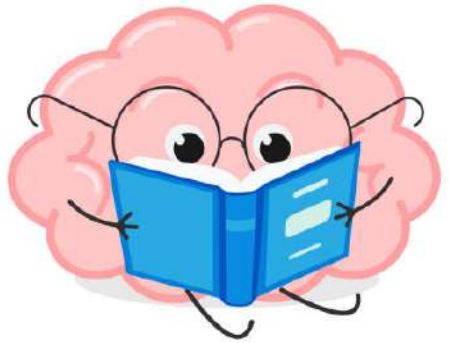
In the human body, hydrochloric acid is produced by the stomach to aid in the digestion of food. It helps break down proteins and activates enzymes that further d[illegible] food.

DO NOW (4/19/24):

Would you rather be able to teleport anywhere or be able to read minds?

Fun Fact:

Some organisms in nature exhibit a form of teleportation. For example, certain types of bacteria can transfer genetic material between cells through a process called horizontal gene transfer, effectively "tele c inforr



DO NOW (4/22/24):

In your chemistry experiment, you encounter a metal that reacts with hydrochloric acid to produce hydrogen gas and a solution of iron chloride. When this metal is exposed to air and moisture, it forms a reddish-brown coating.

What element could this metal be?

Fun Fact:

Hydrogen is the most abundant element in the universe!

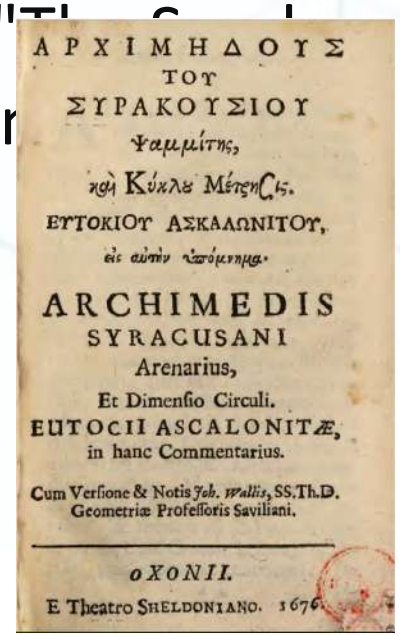
DO NOW (4/22/24):

Express the following number in scientific notation:

602,000,000,000,000,000,000,000

Fun Fact:

The use of scientific notation dates back to ancient Greece, where Archimedes used a form of it to represent very large numbers in his work "The Sand Reckon


ΑΡΧΙΜΗΔΟΥΣ
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Ψαμμίτης,
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εἰς αὐτὴν ὑπόμνημα.

ARCHIMEDIS
SYRACUSANI
Arenarius,
Et Dimensio Circuli.
EUTOCII ASCALONITÆ,
in hanc Commentarius.

Cum Verſione & Notis *Joh. Wallis*, SS.Th.D.
Geometriæ Profeſſoris Saviliani.

OXONII.
E Theatro SHELDONIANO. 1676

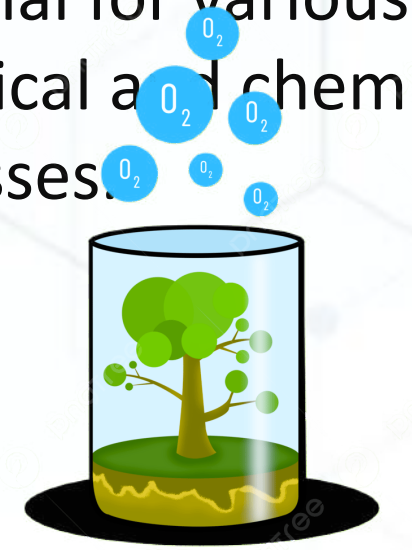
DO NOW (4/24/24):

You're examining a sample in the lab that, when reacted with hydrogen, forms water. Additionally, when a compound containing this element is decomposed, it releases a gas that relights a glowing splint.

What element might this sample be?

Fun Fact:

Water is often called the "universal solvent" because it can dissolve more substances than any other liquid. This property makes it essential for various biological and chemical processes.



DO NOW (4/24/24):

If you have 2 moles of water (H_2O), how many molecules do you have?

Fun Fact:

If you were to count a mole of pennies at a rate of one per second, it would take you around 19 million years to finish counting!

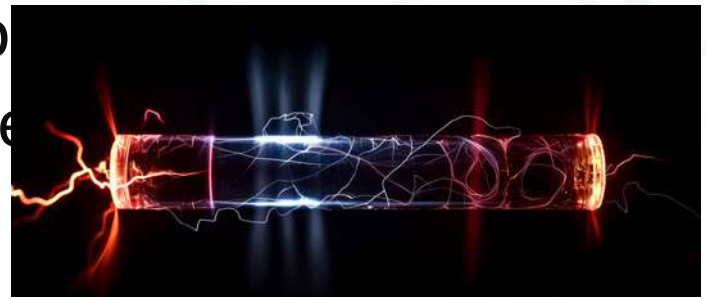
DO NOW (4/25/24):

You're investigating a gas in the lab. When this gas is introduced to a high-voltage electric field, it emits a bright red-orange glow. Additionally, it does not react with any other elements or compounds under normal conditions.

What might this gas be?

Fun Fact:

Electric fields are created by charged particles, such as electrons and protons. In chemistry, understanding the behavior of charged particles is crucial for comprehending topics like atomic structure, b
re



DO NOW (4/25/24):

How can you determine the molar mass of a compound with multiple elements?

Fun Fact:

The term "mole" comes from the Latin word "moles," meaning a large mass or heap. This reflects the idea of counting large numbers of atoms or molecules, which is what the mole enables chemists to do.

DO NOW (4/26/24):

If you could have the powers of your superhero / villain you have created in your project, would you want them?

Fun Fact:

National Superhero Day is celebrated on April 28th each year, honoring superheroes and the impact they have on p

DO NOW (4/26/24):

Would you rather live in the Marvel / DC Universe (superheroes) or in the Harry Potter Universe (magic)?

Fun Fact:

The Harry Potter series has been translated into over 80 languages, making it one of the most translated literary works in history.

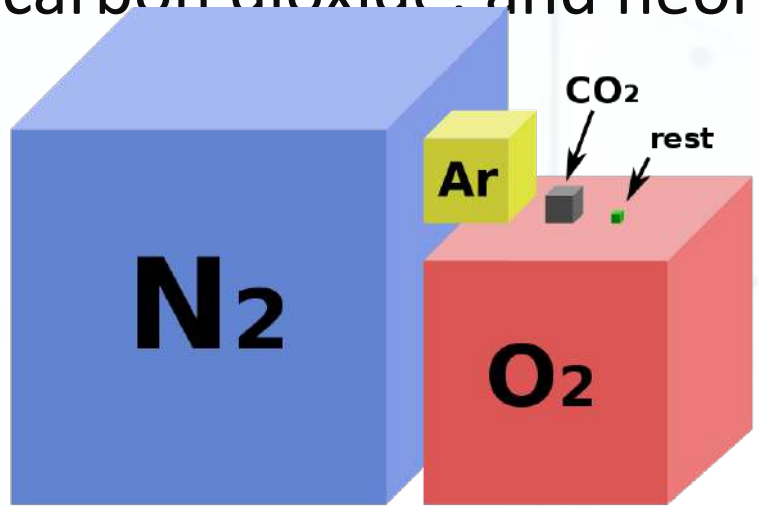
DO NOW (4/29/24):

Remember this:

How do gases behave differently from liquids and solids, and what are some key properties that characterize their behavior?

Fun Fact:

The air we breathe is primarily made up of nitrogen (~78%) and oxygen (~21%), but it also contains trace amounts of other gases like argon, carbon dioxide, and neon.

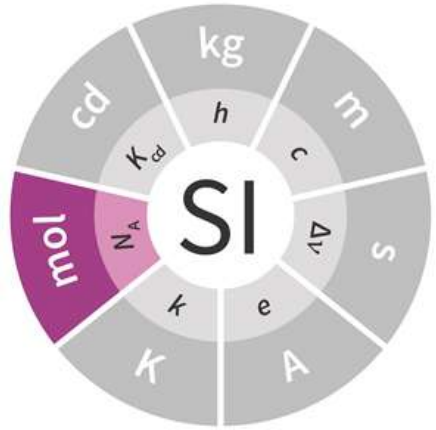


DO NOW (4/29/24):

Why is the mole considered a fundamental unit in chemistry?

Fun Fact:

Despite its importance, the mole wasn't officially adopted as a fundamental unit in the International System of Units (SI) until 1971. Before that, chemists used various methods to expre f subst



DO NOW (4/30/24):

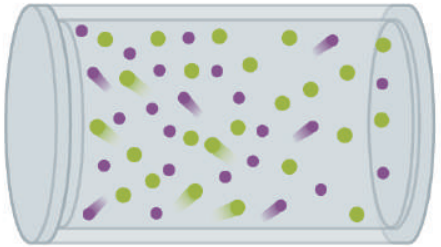
Imagine you spray perfume in one corner of a room. Describe what happens to the perfume scent over time and explain why this occurs.

Fun Fact:

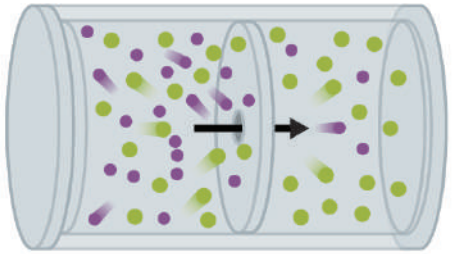
While both diffusion and effusion involve the movement of particles, effusion specifically refers to the escape of gas particles through a small opening, whereas diffusion involves the

f particles

an area.



Diffusion



Effusion

DO NOW (4/30/24):

Can you explain the consequences of an unbalanced chemical equation in a reaction?

Fun Fact:

Stoichiometry is crucial in industrial processes, such as the production of chemicals, pharmaceuticals, and materials. Engineers and chemists use stoichiometric principles to design efficient

DO NOW (5/1/24):

A balloon is squeezed to half its original volume while keeping the temperature constant. What happens to the pressure inside the balloon?

Fun Fact:

Early balloons were made from animal bladders, but modern balloons are typically made from latex, rubber, or Mylar.

DO NOW (5/1/24):

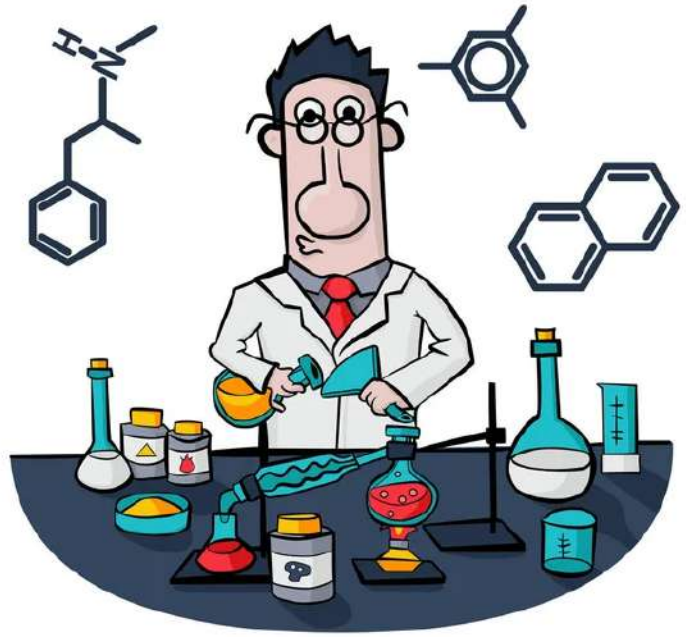
In the reaction

$$\_\_\_\_H_2 + \_\_\_\_O_2 \rightarrow \_\_\_\_H_2O$$

What is the mole ratio of hydrogen to oxygen?

Fun Fact:

The synthesis of water is an exothermic reaction, meaning it releases heat energy. This heat is often harnessed in fuel cells a .



DO NOW (5/2/24):

Why do you think your car tires often appear less inflated during the winter months compared to summer?

Consider how temperature affects the air inside the tires according to gas laws.

Fun Fact:

While most tires are filled with compressed air, some drivers opt for nitrogen inflation. Nitrogen molecules are larger and less permeable than oxygen molecules, which can lead to more stable pressure over time.

DO NOW (5/2/24):

What is the purpose of using conversion factors in stoichiometry problems?

(What is stoichiometry used to predict?)

Fun Fact:

On May 2, 1962, the world's first satellite television broadcast was made from the Telstar satellite. It featured live images of the American flag and a singer

DO NOW (5/3/24):

Would you rather become an adult (30) overnight or stay a teenager forever?

Fun Fact:

May 3rd is recognized as National Paranormal Day. It's a day dedicated to exploring and discussing all things related to the paranormal, including ghosts, spirits, extraterrestrial life, cryptids, a[illegible]nexplained phenom[illegible]

DO NOW (5/6/24):

You're using a pressure cooker to prepare dinner. Initially, the pressure inside the cooker is 29 psi at room temperature (25°C). If you increase the temperature to 150°C while keeping the volume constant, **what will happen to the pressure inside the pressure cooker?**

Fun Fact:

Pressure cookers played a role in space exploration. Astronauts used pressure cookers to prepare meals during the Apollo missions to the moon. The high-pressure environment helped compensate for the lower boiling point of water in

DO NOW (5/6/24):

You're baking cookies and have 2 cups of flour, 1 cup of sugar, and 1 cup of butter. The recipe calls for 1 cup of flour, 1 cup of sugar, and 1/2 cup of butter per batch.

Which ingredient is the limiting reactant, and how many batches of cookies can you make?

Fun Fact:

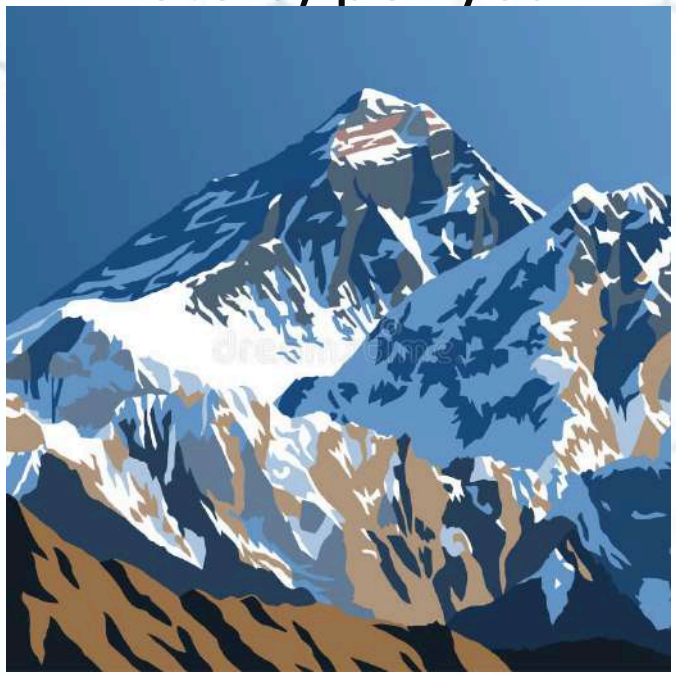
Despite being known as the Cookie Monster, the character's real name is "Sid" as revealed in a 2004 episode of Sesame Street.

DO NOW (5/7/24):

You have a balloon filled with air at sea level. If you were to take the same balloon up to the top of a high mountain, what would happen to its volume?

Fun Fact:

Due to tectonic activity, Mount Everest is still growing at a rate of about 0.1576 inches (4 millimeters) per year.



DO NOW (5/8/24):

You're making pancakes and accidentally add too much baking soda to the batter.

Predict how this will affect the taste and texture of the pancakes.

Fun Fact:

The word "pancake" first appeared in English in the 15th century, derived from the Old English word "pancake" or "pannekoek," which literally means "cake

DO NOW (5/8/24):

Review Time:

If you have 4.5 moles of nitrogen gas (N_2), how many molecules of nitrogen does this correspond to?

Fun Fact:

Lightning strikes can convert nitrogen gas in the atmosphere into nitrogen oxides, which can then combine with water vapor to form nitric acid, contributing to nitro the soil a

DO NOW (5/9/24):

You’re at a picnic and one of your friends accidentally spills their soda on the grass.

Explain what might happen to the grass due to the acidity of the soda.

Fun Fact:

Coca-Cola was invented in 1886 by pharmacist John Pemberton as a patent medicine. It was originally sold as a tonic to cure ailments like headache and f[illegible]ie.

DO NOW (5/9/24):

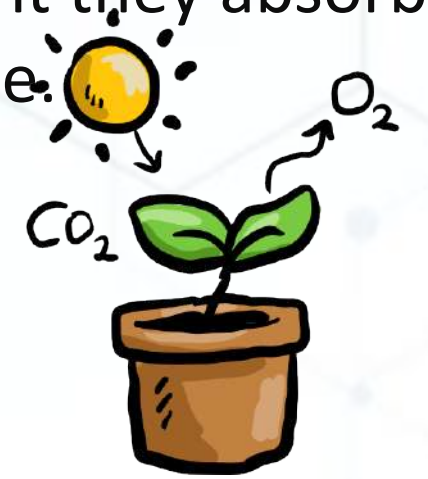
Reflect on the process of photosynthesis in plants.

If you have 20 moles of water, how many moles of glucose can be produced assuming complete conversion?

___ CO_2 + ___ H_2O --> ___ $C_6H_{12}O_6$ + ___ O_2

Fun Fact:

While photosynthesis is a highly efficient process, plants only convert a fraction of the sunlight they receive into chemical energy. On average, plants convert about 1-2% of the sunlight they absorb into glucose.



DO NOW (5/10/24):

Would you rather have a million dollars now or 150k per year the rest of your life?

Fun Fact:

One million U.S. dollars in one-dollar bills would weigh about 2,204.62 pounds and if stacked, would be about 358 feet tall!

DO NOW (5/16/24):

Imagine you spray perfume in one corner of a room. Describe what happens to the perfume scent over time and explain why this occurs.

Fun Fact:

While both diffusion and effusion involve the movement of particles, effusion specifically refers to the escape of gas particles through a small opening, whereas diffusion involves the

f particles

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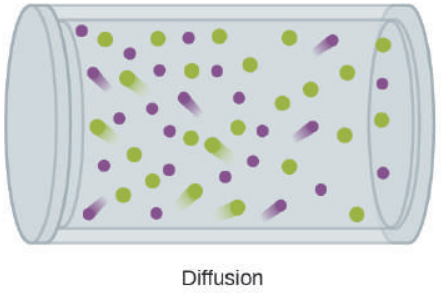
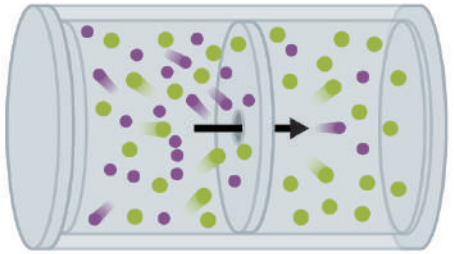


Diffusion



Effusion

DO NOW (5/17/24):

Would you rather fight 1 horse-sized duck or 100 duck-sized horses?

Fun Fact:

Despite their sometimes waddling appearance on land, ducks are powerful flyers. Some species, like the mallard, can reach speeds of up to 55 mph in flight.

DO NOW (5/20/24):

Would you rather feel like you have a hair in your mouth or a stone in your shoe for the rest of your life?

Fun Fact:

Hair myth: cutting your hair does not make it grow faster. While regular trims can help prevent split ends, they do not affect its rate of grow

DO NOW (5/22/24):

Would you rather ONLY eat your favorite food (nothing else!) or NEVER be able to get your favorite food again?

Fun Fact:

Capsaicin, the compound that gives chili peppers their heat, actually tricks your brain into thinking your mouth is being burned. It triggers pain receptors that respond to heat, causing the sensa s.

DO NOW (5/23/24):

Would you rather be able to breathe underwater or have night vision?

Fun Fact:

Night vision devices amplify existing light, such as moonlight or starlight, or use infrared radiation, converting it into visible light that humans can see.

DO NOW (5/24/24):

Would you rather live completely ALONE in a mansion with everything you need, but you can never leave or live in a van and travel the entire world, meeting people from all over?

Fun Fact:

The term “mansion” derives from the Latin word ”mansion”, which originally referred to a dwelling place or lodging. Over time, it evo[illegible]rge and[illegible]e.

DO NOW (5/28/24):

Would you rather have a 10-hour dinner with your least favorite celebrity or attend a 10-hour concert of a music group you cannot stand?

Fun Fact:

Adele's album "21" holds the record for the longest-running number-one album by a female solo artist on the Billboard 200 charge, spending 24 non-

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DO NOW (5/29/24):

Would you rather have the ability to reverse time, stop time, or skip time?

Fun Fact:

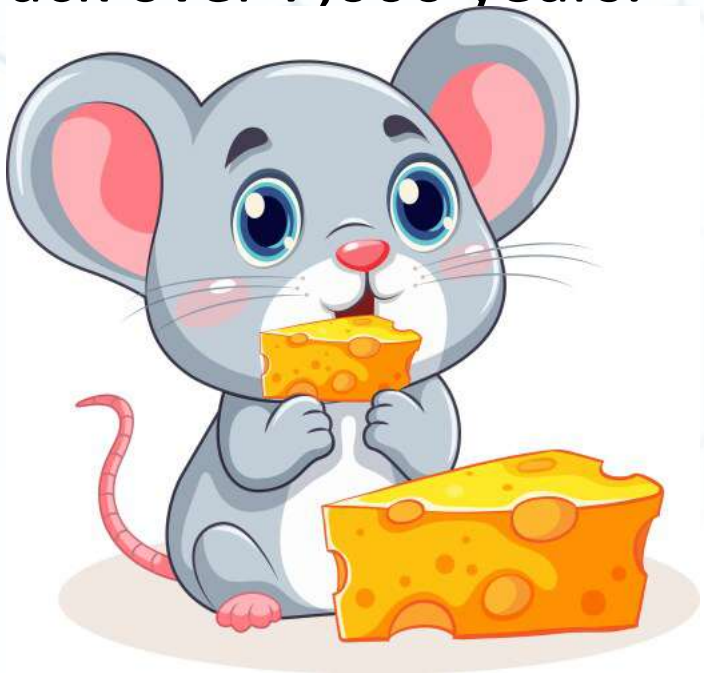
The longest unit of time is the cosmic year, which is the time it takes for the solar system to complete one orbit around the center of the Milky Way galaxy, estimated to be about 225-250 million Earth ye

DO NOW (5/30/24):

Would you rather only eat sweet or savory foods for the rest of your life?

Fun Fact:

Cheese is one of the oldest foods known to humanity, with evidence of cheese-making dating back over 7,000 years.



DO NOW (5/30/24):

Would you rather have school 4 days a week year-round (with a small summer / winter break) OR keep the current 5-day system we have now?

Fun Fact:

Summer break in schools has its roots in agrarian society, where children were needed to help with farming during the warmer months