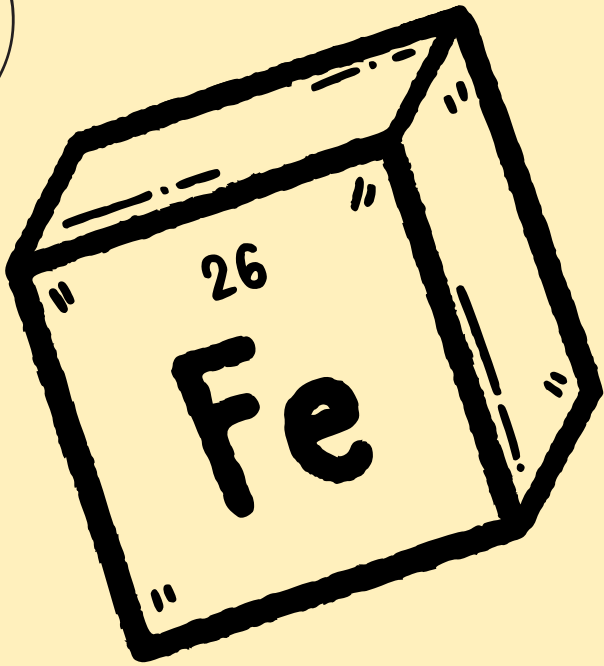


The Periodic Times



Elements, mixtures,
and the periodic
table

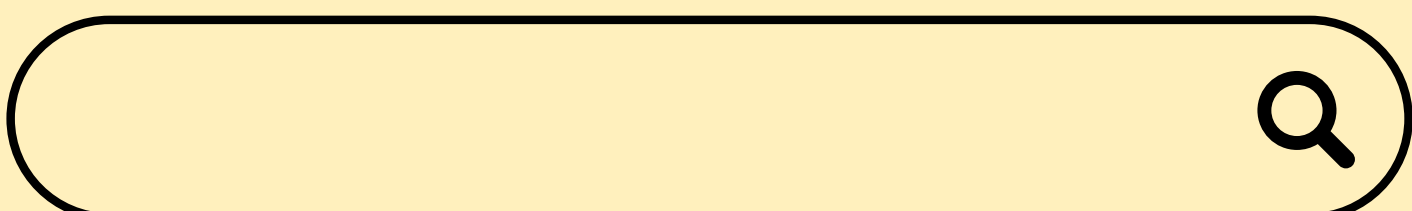
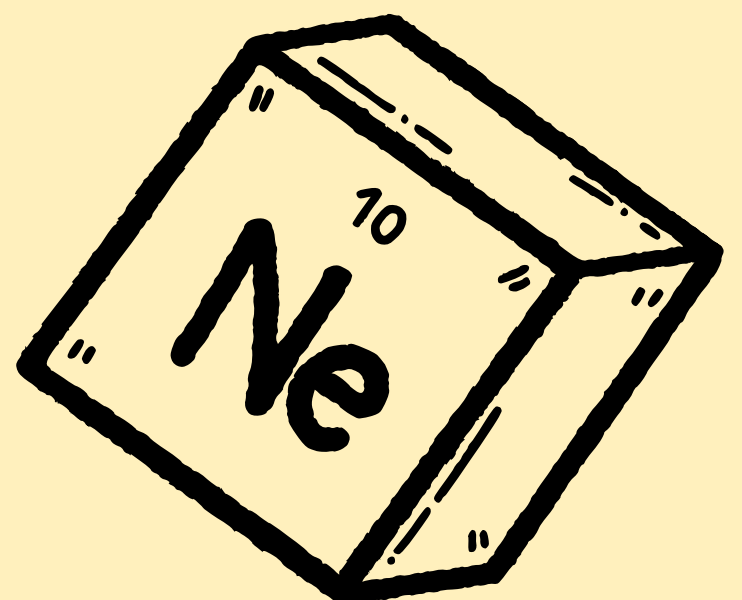
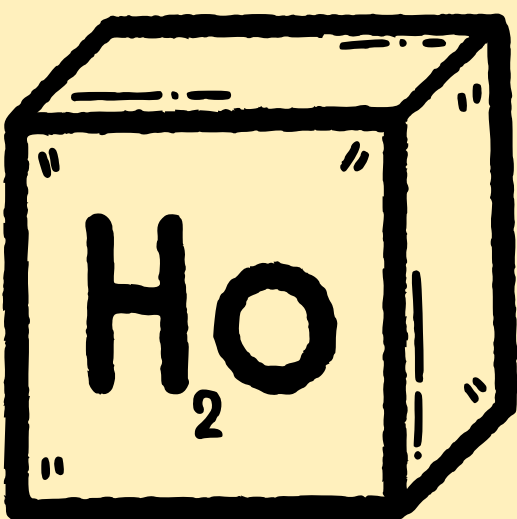


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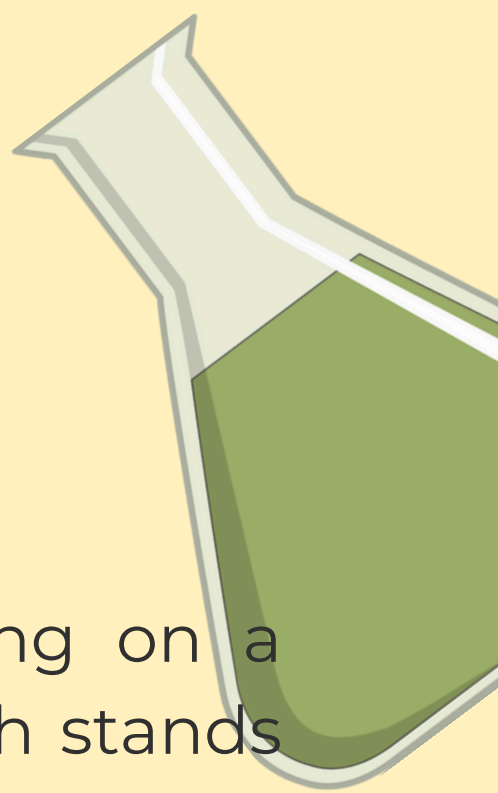
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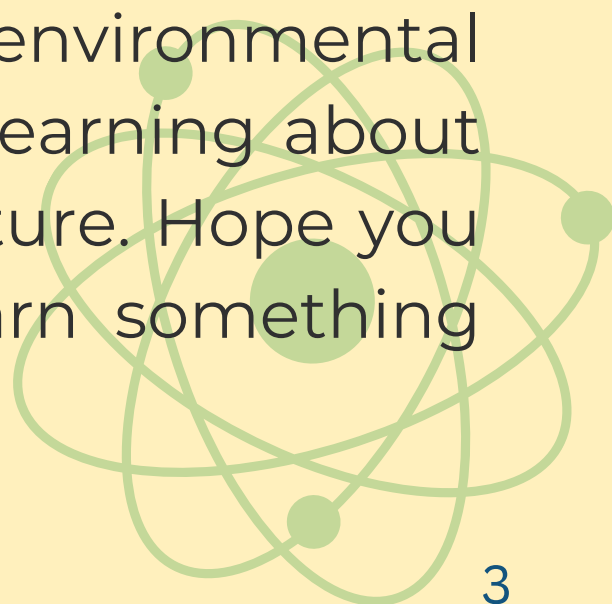


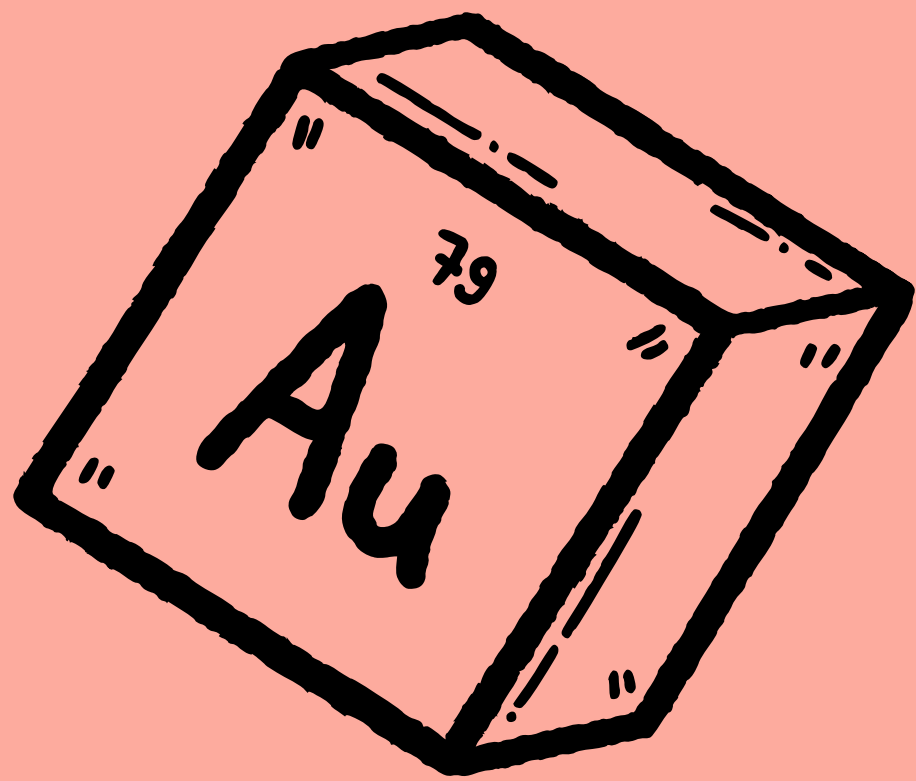
INTRO



In the last month, we have been working on a combination of subjects named LED which stands for Learning Experiences through Discovery, in which we learned about the history of chemistry and how different “genius” people made the advancements that now lead humanity. When we were clarified in the topic, then we started creating a magazine in which we included entire texts of a specific scientist. We made the incredible effort of building a poem about an element. Also we read a book about the elements “The mystery of the periodic table”. We did some grammar exercises that helped us write our texts in a better and more complete way.

During the construction of this magazine, we had different researches about the types of mixtures and advances in chemistry in the long book of history of the world. After facing challenges in the group, trying to do our best in time management, the ideas came to our group and together we built our final product. Throughout this project we have developed the ability of teamwork and we’ve suggested what these learnings and discoveries should be used for. In this magazine we have also included some previous knowledge and experience of previous projects . This project was the only one that did not have the theme of environmental issues or how to fix our planet, but learning about how to lead humanity to a better future. Hope you enjoy our series magazines and learn something new about the world of chemistry .



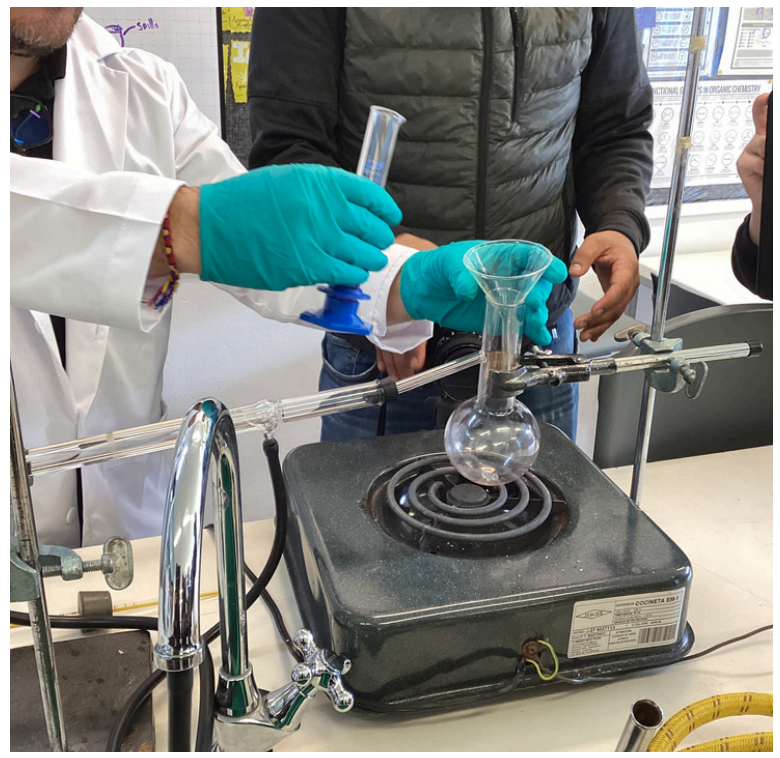


ARTICLES



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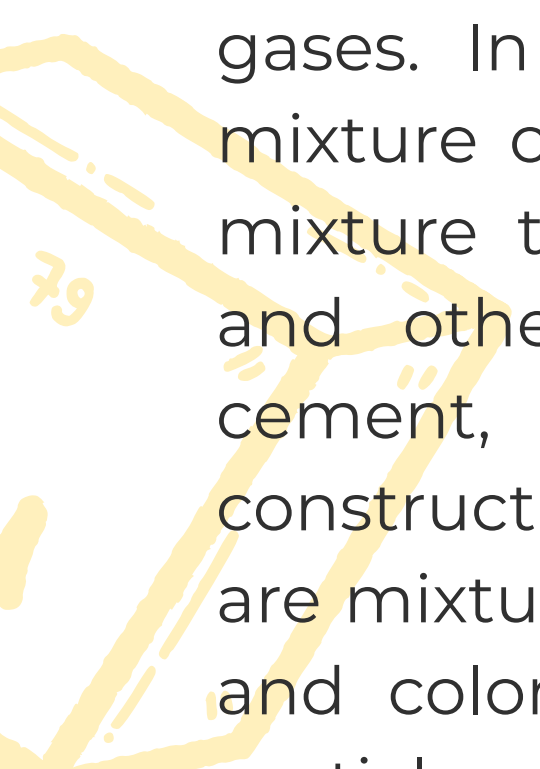
Joaquín Mora



Mixture is a combination of two or more substances in which each substance retains its chemical properties this topic is important because mixtures are in every thing and knowing about it and its characteristics that is way this topic is important.

Mixtures are combinations of two or more substances that retain their original properties in homogeneous mixtures, such as saltwater, the ingredients are completely dissolved and cannot be distinguished by the naked eye In contrast, heterogeneous mixtures, like a salad, show an uneven distribution of their components. The substances that form a mixture can be in different states of matter, such as solids, liquids, or gases The substances that form a mixture can be in different states of matter, such as solids, liquids, or gases. Often, mixtures allow for the separation of their components through physical techniques, such as filtration or distillation. A key aspect of mixtures is that no chemical reaction occurs between the components, meaning the individual properties of each substance remain unchanged. Additionally, mixtures can have different concentrations of their components, which can affect their characteristics. Soil is a natural mixture that includes sand, clay, organic matter, and other particles.

Matter can be broken down into 2 different



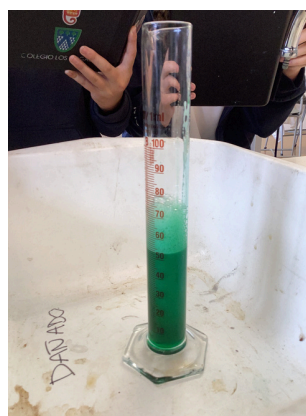
categories and when matter breaks into mixtures it can be broken even more. Some common mixtures include air, which is a mixture of gases such as nitrogen, oxygen, and small amounts of other gases. In the kitchen, salad dressing is often a mixture of oil, vinegar, and spices. Soil is a natural mixture that includes sand, clay, organic matter, and other particles. Concrete is a mixture of cement, water, sand, and gravel used in construction. In the beverage industry, soft drinks are mixtures of carbonated water, sugar, flavorings, and colorings. Airborne dust is a mixture of tiny particles of soil, plant matter, and other materials suspended in the atmosphere. A common mixture in the pharmaceutical industry is the combination of various ingredients to create medicines.

Exposure to the metals arsenic, manganese, and cadmium can impair the function of pancreatic beta cells – a change that is linked to type 2 diabetes risk. A review of 109 chemicals and mixtures found some compounds that seemed to be protective, and a few that appeared to be risk factors, for the development of autoimmune disease. The biggest potential risk was exposure to an antibacterial and antifungal agent called triclosan, which was banned by the U.S. Food and Drug Administration in 2017. The whole mixture approach concentrates on complex mixtures with no single chemical of interest, such as botanical dietary supplements. This approach uses a concept called sufficient similarity, which assumes that if two chemicals are similar enough, the toxicity data from one can be applied to the other.



Common mixtures

Salomón Sanchez



In this paragraph I will talk about what a mixture is and its variables. A mixture can be defined as substances that are composed of two or more than two forms of matter. One example of a mixture is putting sugar in water and the mixture is the solution of sugar and water. Mixtures are divided in two variables: homogeneous and heterogeneous mixtures. Heterogeneous mixtures possess different properties and are not uniform throughout a mixture. Homogeneous mixtures can be described as mixtures that possess the same properties and combination throughout their mass. You can separate a mixture by using physical methods. Moreover, in mixtures, the components that make up its structure do not undergo any sort of chemical changes. As a result, the individual properties of the components of a mixture remain intact and do not change. Some examples of mixtures would be salt and water, water and sugar, air, and different gases, etc. In other words, we can say that a mixture is a thing you get as a result of combining two different substances so that no chemical reaction occurs between them and you can separate the substances if you want.

In this paragraph I will talk about what are the most common mixtures. A common example of a mixture is air, which is a combination of some types of gases. Air is a mixture that we interact with every day. It's composed of several gases, the most abundant are nitrogen and oxygen, making up 78%

categories and when matter breaks into mixtures it can be broken even more. Some common mixtures include air, which is a mixture of gases such as nitrogen, oxygen, and small amounts of other gases. In the kitchen, salad dressing is often a mixture of oil, vinegar, and spices. Soil is a natural mixture that includes sand, clay, organic matter, and other particles. Concrete is a mixture of cement, water, sand, and gravel used in construction. In the beverage industry, soft drinks are mixtures of carbonated water, sugar, flavorings, and colorings. Airborne dust is a mixture of tiny particles of soil, plant matter, and other materials suspended in the atmosphere. A common mixture in the pharmaceutical industry is the combination of various ingredients to create medicines.

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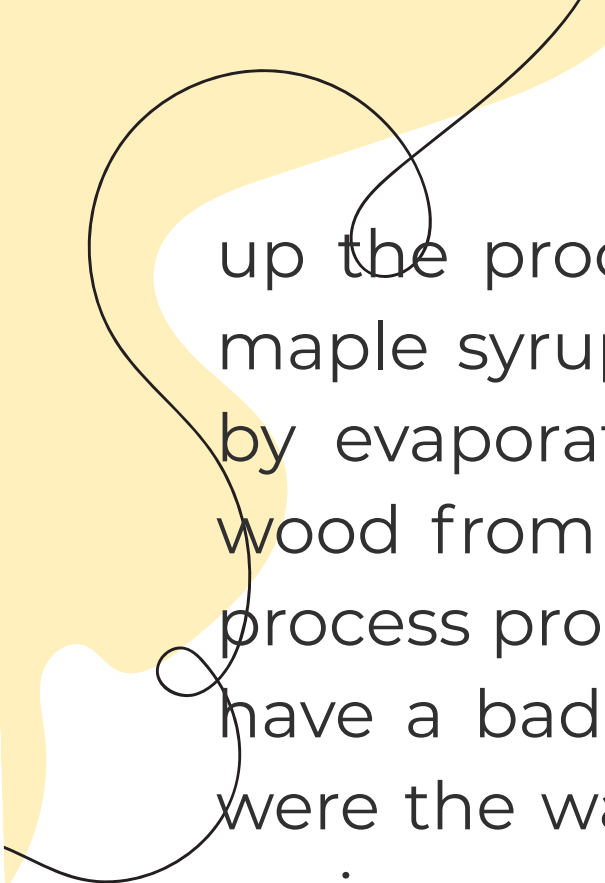


and 21% of the mixture respectively. Leaving a 1% that is a combination of gases like argon, carbon dioxide, neon, helium, and trace amounts of other gases. The composition of air can be very slightly depending on the location and the time of the year, but the proportions of nitrogen and oxygen remain fairly constant. Beyond the things we eat, our surroundings are full of other mixtures. Anytime you light a scented candle, you're introducing smells into the air, creating a new mixture in the environment. For example: Smoke and fog (Smog), Dirt and water (mud), sand, water and gravel (cement), water and salt (sea water), and oxygen and water (sea foam).

In this paragraph I will talk about in which ways mixtures affect us and the environment. Most studies only concentrate on the toxicity of chemicals in isolation whereas in the environment, organisms are exposed to a large number of different chemicals at the same time. The assumption of mixture toxicity based on the individual component data that a mixture can present. Many commonly commercial products, including gasoline and plastics, are produced in refineries. A refinery is an industrial plant that purifies crude substances, such as petroleum or sugar.



Nearly every industrial separation process that relies on evaporation (such as the production of some fuels, distilled spirits, and many types of plastics) uses heat from fuel combustion to speed



up the process. For example, to produce 1 liter of maple syrup, 40 liters of water must be separated by evaporation. This may involve burning of fuel wood from maple trees and some other fuel. This process produces a lot of carbon dioxide, which can have a bad impact on the environment. And that were the ways in which mixtures affect us and the environment.

In conclusion, mixtures affect us and the environment in a big way. And also what are common everyday mixtures and how they affect us. Also here is the definition of a mixture and its variables. But all give the answer to one question. That is, what are common everyday mixtures and how do they affect us? Like water, oil and air. These mixtures affect us. For example, in cooking you need oil and water and in breathing you need air also in drinking you need water. This is very important because without these mixtures we wouldn't be even alive.



Matter around us

Matias Castellanos

What makes up everything around us, from the air we breathe to the food we eat? Matter. Matter is this fundamental thing that makes up our entire universe. This, let's call it substance, has different properties. Chemical properties and physical properties. These properties help scientists to understand and identify materials. Physical properties can be observed without changing the substance. On the other hand, chemical properties are those that involve changes in composition. But, what is the composition of different objects? Well, in the universe, there are main elements that are in the periodic table. These elements are the very first and you can't break them down more. Is like if you want to go further north when you are already in the north. The same with elements. You could have heard some elements like oxygen or helium. The composition is the combination of different elements. One example is water



whose composition is H_2O . The little number after H is the amount of H's that there is in the composition. Now, coming back to the

theme, there are two types of physical properties. Extensive and intensive. An intensive property is a local property, an intensive property of a system which does not involve the size of the system or the amount of

material. Intensive properties are properties that are independent of the amount of matter present. A property which is a function of the amount of matter present in a sample is an extensive property. These properties play an important role in matter because it involves density. Exploring matter and its properties is very significant to science and the future.



Properties are those characteristics that enable us to identify one material from another. A physical property is a characteristic of matter that does not rely on its chemical composition. Because you already know the difference between intensive and extensive properties, I will show some examples. Pressure, color, melting point, density, and temperature, for example, are intensive properties. Some examples of extensive properties are: mass, volume, and weight. Now, maybe you are thinking

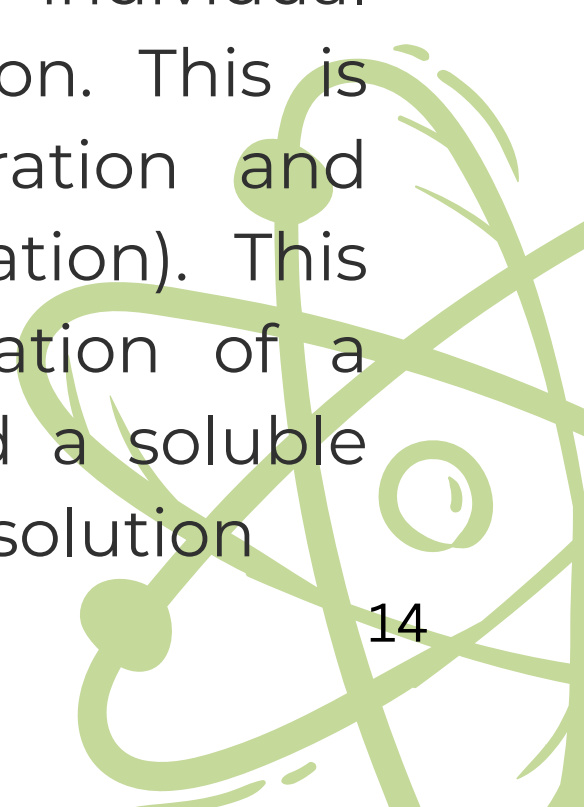
about “What is density?”. Well, density is mass per unit volume and is usually reported in grams per cubic centimeter (g/cm^3). As mass in a given volume is raised, so does density. Now, physical properties are used for many things, but the principal is to identify materials. Physical properties do remain consistent for pure substances, like metals. This means that the density of it does not change. Physical properties can be measured using math and even just seeing the object, like color. The physical properties are applied in industrial areas like construction and manufacturing. These properties help predict the behavior of matter. Apart from physical properties, there are chemical properties. Chemical properties are a lot simpler than physical properties. Chemical properties are those that can be observed or measured only when matter converts to a form of matter. Reactivity, flammability, and the ability to rust are just a few of them. Matter's tendency to chemically interact with other materials is called reactivity. A few examples include flammability, toxicity, acidity, various types of reactivity, and heat of combustion.



And now, you will learn about mixtures. A mixture is a physical combination of two or more substances that are not chemically attached. An



example is water and salt being two separate substances when mixed, creating a mixture. Mixtures are the result of the coming together of compounds and elements without changing chemically, so that each substance remains in its own properties and remains a separate substance. Mixtures can either be heterogeneous, where the components of the mixture can be simply separated from one another, or homogeneous, where the composition is uniform throughout the mixture. A mixture of salt and sand or a salad are heterogeneous mixtures. Heterogeneous mixtures possess various compositions and properties in various parts. The properties are unequal throughout the mixture. On the other hand, the most common example of a homogeneous mixture is water with sugar dissolved in it. Homogeneous mixtures can be defined as the mixtures which possess the same properties and mixture throughout their mass. Mixtures retain the properties of their components. The importance in science of separation of mixtures is very important because it helps understand and make more things based on it. Mixtures can be separated into their separate components, returning to being individual substances without a chemical reaction. This is done using some methods like filtration and distillation. Evaporation (Simple Distillation). This method is most used for the separation of a mixture of a liquid (usually water) and a soluble solid dissolved in the liquid. Heating the solution



will make the water evaporate off, leaving the soluble solid that was dissolved in it. Evaporation and Condensation (also known as Complex Distillation). This process is similar to Simple Distillation, but with a little complexity. If you want to keep both liquid and solid products from a mixture after they've been separated, you can trap and cool the water vapour once it's leaving a solution. When the water vapour is cooled, it turns back to water, so you can keep both halves of the last mixture. It does usually need a special tool called a condenser, however, so this one might not be usable at home. Magnetism. This method works best with a large quantity of solid metal objects. By passing a magnet over a group of metal objects, you can sort out the magnetic objects because they're attracted to the magnet. Filtering.

This method is useful in the separation of insoluble solids from liquids, for example, a mixture of sand and water. When the mixture is passed through filter paper, the liquid will pass through but the solid cannot pass through the paper. Sieving. It works best in separating solids that differ in sizes. Smaller objects will pass through the holes in the sieve, but bigger material is left behind. Decanting. This is carried out on mixtures of two liquids, for instance, oil and water. Transfer the mixture to a container initially, and allow the liquids to settle. During settling, they will be able to separate into two different layers, and you can go ahead and drain the top layer off cautiously to separate the



liquids. These are some of the separation methods used and why they are important in science. Now, till here we have learned what are mixtures, what are heterogeneous and homogeneous mixtures and how we can separate them.



Substances in a mixture just combine, but they don't lose their chemical composition, they just get together. Some examples can be saltwater and air. The properties of substances affect their combination of mixtures to determine if it is a homogeneous or heterogeneous mixture. Now, whether it is a homogeneous or heterogeneous

mixture, for example the water with salt, the salt is still salt and the water is still water. And, as you know, each substance has different chemical and physical properties, so based on that, you can separate the water from salt. You can separate these two things with the methods in the previous paragraph. In this case, you use heat to evaporate water, leaving salt because salt can't evaporate. Now, you can try exactly the same. You just need to put water with salt in a pot and start the fire. You will slowly see the water evaporating and the salt being left behind in the pot. Now, this method, also known as evaporation, is called distillation. Distillation is not only used to separate solids from liquids, but also to separate liquids from liquids like alcohol and water because alcohol has a lower boiling point than water.

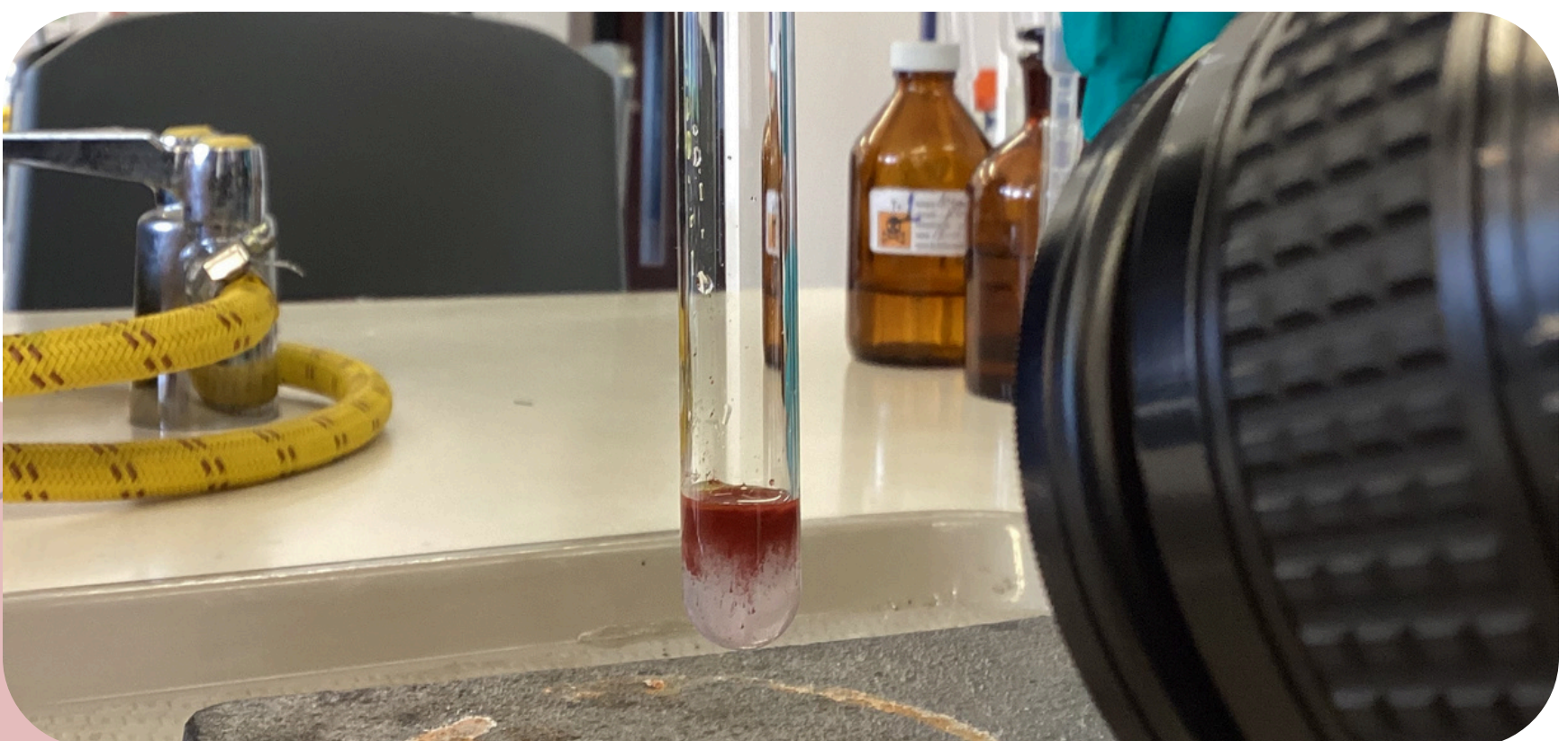
Also, filtration can help separate things, for example, the coffee. Coffee is filtered with paper in a coffee machine. It is very important for us as humans to understand mixtures in industries



like food production and pharmaceuticals to understand the real science behind these two factors. All the separation techniques are based on the physical properties of the substance or substances that are needed to separate. Separation plays an essential role in every community that we don't pay attention to. Water purification. Water purification makes our lives possible. So now you know, how important are the separation methods and what would have happened if it had not been discovered.

Now, I must again tell you the importance of

learning matter and its properties because it is very simple. We do mixtures every single and unique day of our lives. After this journey, we learned about physical and chemical properties and what they are. We learned the significance of chemical properties in reactions and transformations. The importance of mixtures and their separation in real world uses like in a laboratory in school. We also learned about intensive and extensive properties and what they influence in matter. Yeah, we learn a lot of things on this journey, but we are here to answer a single question. How do the properties of the substances in a mixture affect how they combine? We talked about the properties of the substances or matter, we talked about nature and we talked about how a day affects how they combine. But if you don't remember how to answer these questions, here is the answer: properties in a mixture affect how they combine because they have different properties like boiling point and color. You have seen different colors combining and forming new colors. It's the same with mixtures: you combine two things and you get a homogeneous or heterogeneous mixture depending on the two things that you combined. Also, with that mixture, with different separation techniques, you can again have the two or more substances that you mixed.



How properties react in mixtures

Thaliana Niño

Everything in the known universe is made of matter. Each form of matter is made of substances or elements that in turn make mixtures, and mixtures are found in our everyday lives even if you haven't noticed. Mixtures are found in everything we use; in creams, medicine, makeup, food, salt water, ect. When talking about mixtures, properties play an important part in it, especially when you think that mixtures are two or more substances combined together and that each substance has properties. So this is what will be discovered later; what properties a substance has, how mixtures are created and how properties react in mixtures, in short, how do the properties of the substances in a mixture affect how they combine? But why this topic? This topic was chosen because the understanding of the chemistry of mixtures is important because we find mixtures in everything in our lives, if this topic had not been explored many of the basic products that we use today would never have been developed. Compounds are a type of mixture that is chemically combined together while mixtures are physically combined. There are two types of mixtures homogeneous and heterogeneous and two types of properties, chemical and physical. These types of mixtures and substances can be separated using different methods that could be physical or chemical. Let's start with; what are properties?

All forms of matter have properties. Properties are the qualities or characteristics of a substance that describe and identify it. These properties can be divided into two categories: chemical and physical properties. Physical properties are characteristics that can be studied or measured without changing the identity or composition of the substance such as color and density. These include colour, hardness, malleability, weight, electrical conductivity, solubility, and mass. As well as density, size, melting point, boiling point, length, and volume. Physical properties can help to separate substances by filtration, evaporation, sublimation, magnetic separation, distillation, and chromatography.



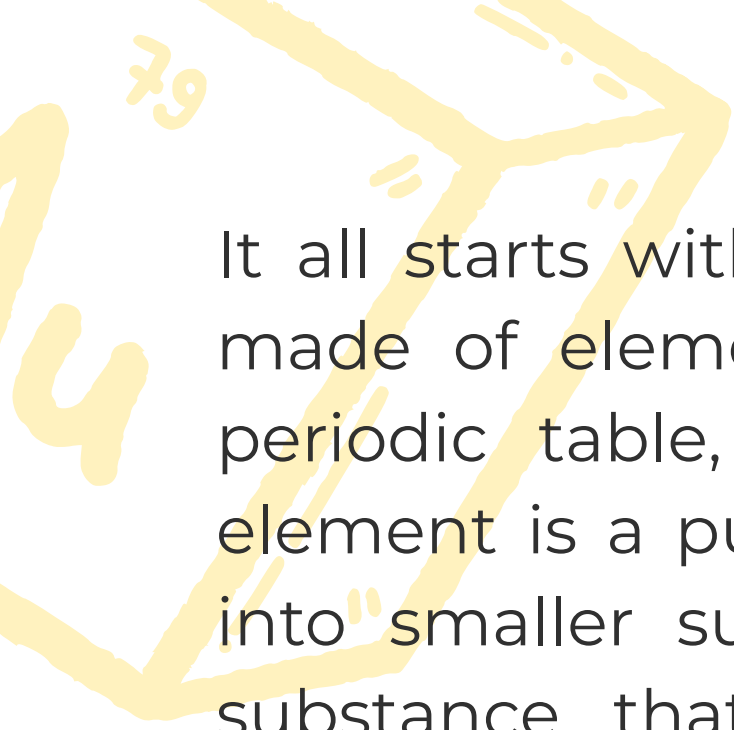
Density can be very useful for identifying an element. Hardness helps determine how an element might be used, many elements are soft while others are harder. Melting and boiling points are unique identifiers, especially of compounds. You can measure or observe the physical properties by applying force to an object. If it is brittle the object can break, or if it is flexible it will bend. By

observing a solid's melting point, or a liquid's boiling point these physical properties can be measured. Physical properties are important because apart from giving an idea of the origin of the compound, important information can be obtained about the purity of the material.

Now for chemical properties. Chemical properties describe the characteristic of a substance to react to create a new substance such as flammability and susceptibility to corrosion. However chemical properties are far more difficult to observe than physical properties which can be measured by observing or measuring. Chemical properties include flammability, toxicity, solubility, heat from combustion, radioactivity, types of chemical bonds formed, coordination number, oxidation states, and acidity or basicity. You can measure chemical properties by; “Observing how elements react with air. For example, the Group 1 elements react with moist air. They are stored in oil to stop air and water vapour coming into contact with them. Moist air reacts with potassium to form potassium oxide. This creates a layer over the surface of the metal.”



Chemical properties are used to separate substances through reactions that can modify or break down the components in mixtures. Heating, electrolysis, and selective chemical reactions show how substances can be separated because of their reactivity. In short properties are very useful for separating substances either through physical or chemical processes. But how do these substances create mixtures?

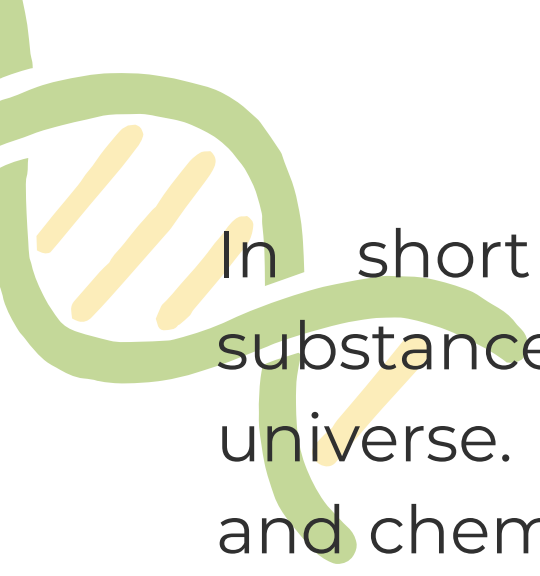


It all starts with elements. Everything on earth is made of elements, which can be found on the periodic table, there are around 100 elements. An element is a pure substance that can't be broken into smaller substances. A compound is a pure substance that is made from more than one element. In a compound elements are chemically bonded together, which makes it difficult to separate them. When a compound is made the atoms of the elements bond together in a fixed ratio. Compounds can be broken down by using heat or electrical energy. The energy causes a chemical reaction and breaks the bonds holding the atoms together. The compound has properties different from the elements it contains and there is a fixed amount of each element in a compound. Examples of compounds in our daily life include; toothpaste, soap and baking soda. And what are mixtures? A combination between two pure substances is a mixture. In a mixture the elements can be separated through a physical process, without chemical reactions because bonding among the atoms does not occur in a mixture. There are two types of mixtures: Heterogeneous mixtures and homogeneous mixtures or solutions. A homogeneous mixture or solution is a mixture in which the substances are so well mixed that together they create just one substance and not two. Therefore the elements are equally distributed throughout the entire mixture. Examples of homogeneous mixtures include a cup of coffee, vinegar, rainwater and air. And what about heterogeneous mixtures? A heterogeneous mixture is a mixture in which the composition is not uniform through the mixture that means that the mixture will contain varying amounts of the other substance. Examples of these include;

chocolate chip cookies, pizza or sandwich.



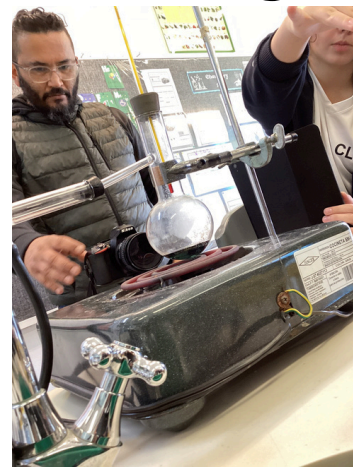
Lastly, there is a direct relationship between the two topics last discussed. Mixtures contain more than one substance that can have chemical bonding. Mixtures can be seen in different forms such as solid, liquid and gas. There are several properties of mixtures, these include that; There is no chemical force between the particles of the mixture and the properties of a mixture are similar to the properties of its constituents, there is no chemical force between the particles of the mixture and the properties of a mixture are similar to the properties of its constituents. Components of the mixtures do not present in the fixed proportion, and the substance varies in terms of quantity in the mixtures. It is because a mixture is a combination of more than one substance and any element can be used in any proportion to form the mixture. But what does really happen when mixtures are made? The components and the substances used for the formation of mixtures do not lose their original form and retain their original properties physically. Mixtures can be separated with the help of physical techniques such as filtration, evaporation, distillation, decantation, and others. These processes separate the mixtures and original elements can be found distinctly.



In short mixtures, elements, properties and substances are in everything in the known universe. There are 2 types of properties; physical and chemical and one is easier to identify than the other one. There are mixtures and compounds one is chemically bonded and the other not. Mixtures can be homogeneous or heterogeneous. Mixtures and compounds are a mix of elements, substances and properties. But why is all this important? To know about properties is one step that takes us closer to knowing our universe better. For properties are in substances that are then in turn in mixtures and so on. Knowing about this can help to develop a more scientific understanding of the world humans now live in.

Why do some mixtures stay together and others separate?

Maria Jose Cortes

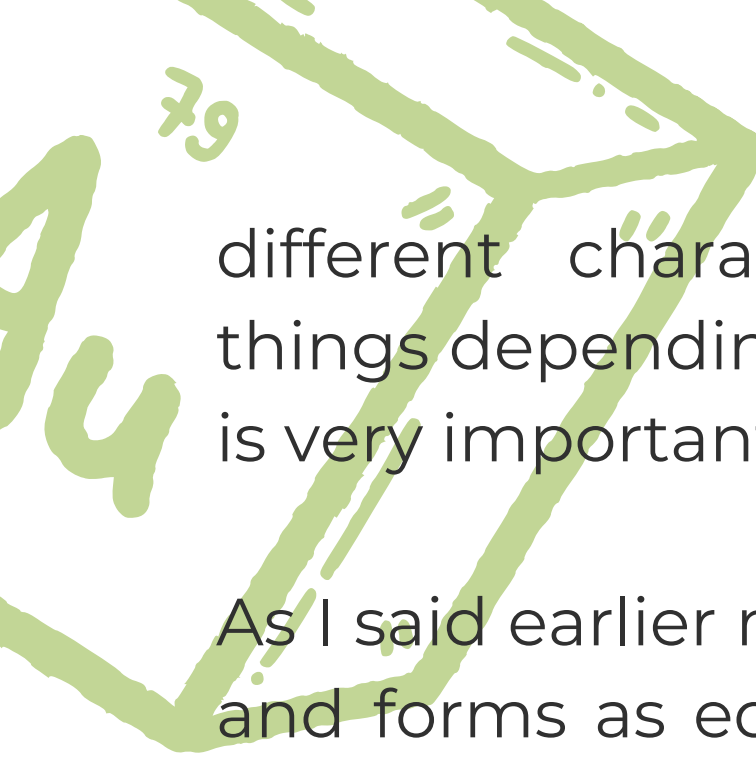


Mixtures are very important for our life and even for ourselves. They are in our everyday life but we don't notice them. They are in the air we breathe, the drinks that we drink and even on the surface that we walk on. In the world there are different types of mixtures and some stay together and others separate, but why? Well there are different reasons for this. We will examine the different mixtures, why some separate and others stay together and some examples about it. I chose this topic because it was interesting and makes me wonder about the mixtures when I think about it. To know about this topic is important because I can understand more about mixtures, which elements are used to create mixtures so now I can understand how the mixtures form and what makes them different. Knowing about mixtures also helps me in my normal life like out of the school because I can relate different mixtures or elements to the places we're I am or even to the air we breathe. In addition, I will be talking about the mixtures and his different characteristics, how they form and what makes them different and finally how mixtures combine or separate.

Mixtures have a lot of different characteristics like his definition, the groups in which they are

separated and also his properties. In this paragraph I will be talking about that and explaining these different topics. Let's start with the definition of mixtures, that is that one element and another one that can be from the periodic table combine and then they create a mixture but the mixtures don't need to be made by only two elements, it can be formed by more. According to the link [geeksforgeeks](#) "A mixture is a compound that is made up of two more chemical compounds or substances that do not combine together chemically". The mixtures are divided into 2 groups: homogeneous and heterogeneous. Homo means same and hetero means different, a homogeneous mixture is when the chemicals are separated equally no matter if it is a solid, gaseous, or liquid mixture. In addition a homogeneous mixture can not be seen at the plain side. Instead a heterogeneous mixture is when different elements or substances whose particles are visible in a microscope are mixed, also compared to the other type of mixture the particles of the heterogeneous mixture are not distributed equally and the phases of matter of this one can be seen. It also talks about some of the properties of mixtures, that as I talked earlier they can be both homogeneous and heterogeneous, separated by a lot of methods like physical and that the components of the mixture always retain their original identities. It also explains about examples of mixtures like smog that is a mixture of smoke and fog, sea water that is obviously made out of water and salt. There are many more examples of mixtures but there are also examples of homogeneous mixture like air, coffee, vinegar and on the other side we got the examples of heterogeneous mixture that are water and sand, sugar and salt, water and oil. Mixtures have a lot of

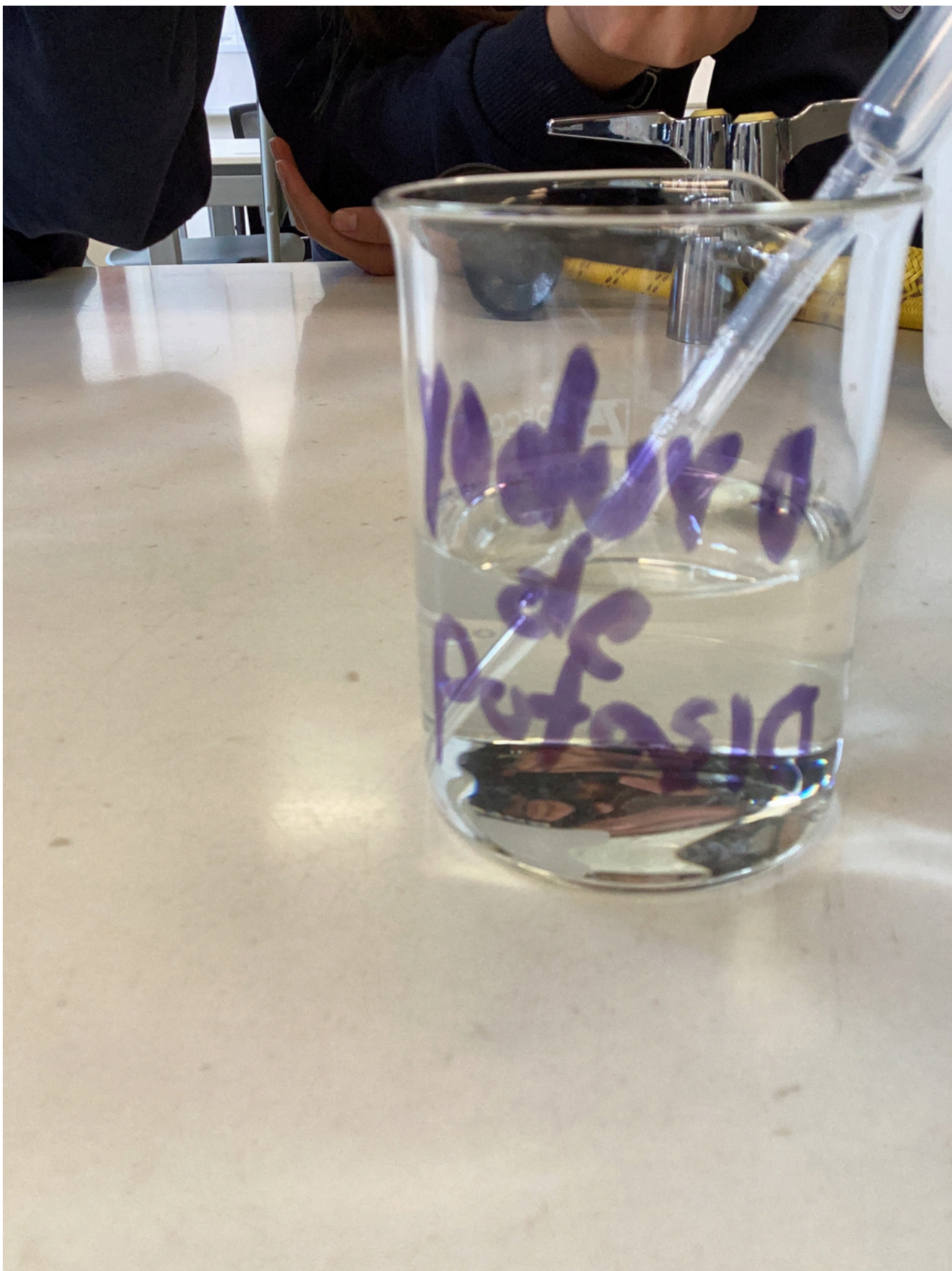




different characteristics that help in different things depending on them, and each characteristic is very important for life and also for ourselves.

As I said earlier mixtures are made in different ways and forms as equal as they can separate, not all of them are separated by the same form because they are different. All different mixtures are separated by different methods because they are made by different materials. Some different methods are with a magnet, with evaporation it all depends on the chemicals that are mixed to create the mixture. Mixture is in our everyday life for example in the air we breathe, the drinks that we drink and even in the surface we walk on. This is formed because two or more substances or chemicals or elements combine and mix all the way and finally you get a mixture, some examples of this process is the sea water it combines water and salt other is the cement it is a mixture of sand, water and gravel. Something very special that makes one mixture different from another one is that it can be homogeneous or heterogeneous and that is a very good way to see if the mixture is similar or different to others. A heterogeneous mixture is a mixture that is not distributed equally for example a cereal with milk all the time you don't get cereal and milk sometimes we get only milk or only cereal so that means that is not distributed equally but then the air is an example of particles that distributed in an equal amount in this mixture you can't see individual chemicals or substances or elements. More methods in which you can separate mixtures are filtration, crystallization, distillation and/or chromatography that is when the scientist divides the mixture between the stationary phase and the mobile

phase. “The stationary phase is the surface that retains the components of a mixture, while the mobile phase is the fluid that drags them”. All the mixtures are separate having in mind different things, if they are homogeneous, heterogeneous or if it is made of solids, liquids or gases. And they are formed the same as I was talking earlier by different forms but all of that depends on the creation and the forms it can separate.



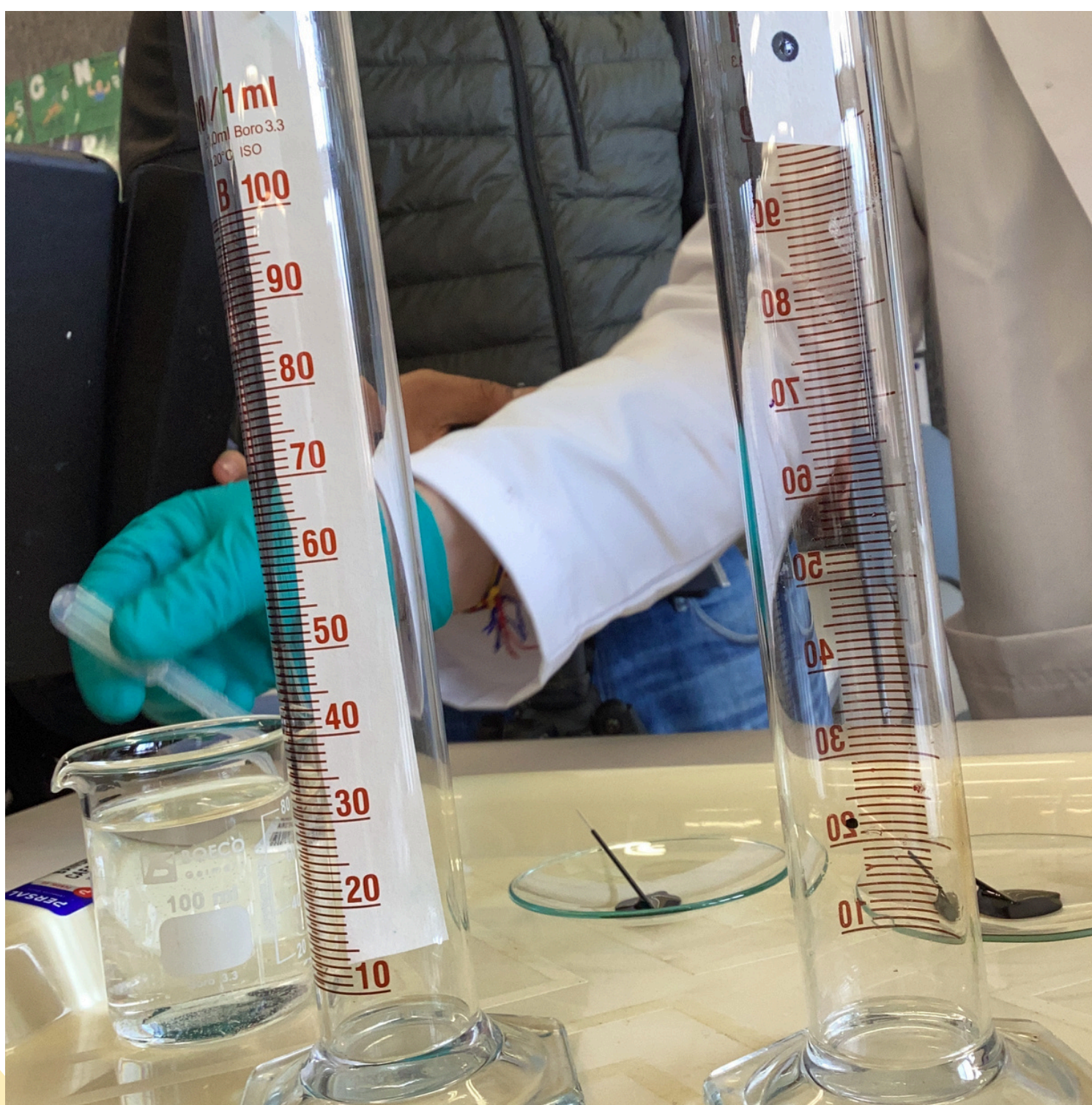
A lot of people ask how mixtures combine or separate? And that is a good question that I also ask when I select the research question for example how can you separate a mixture that is composed by two liquids or another mixture that is made by two gases. There are three states of matter that are liquid, gas and solid, these states

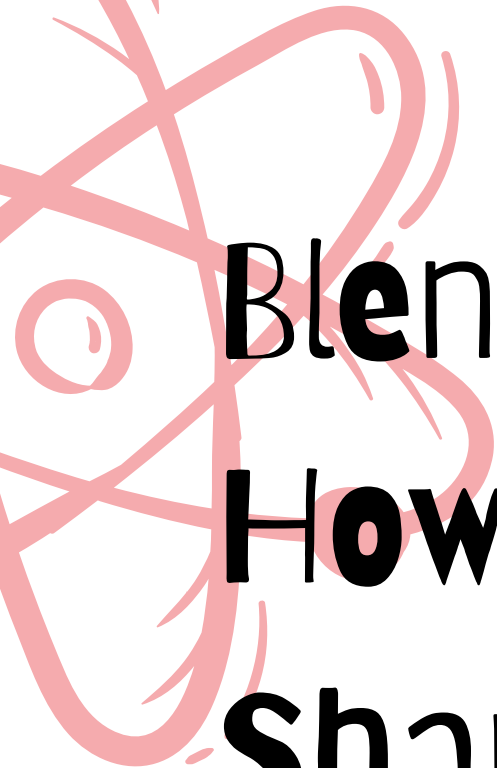
can be combined to make a mixture but not all the mixtures need to be made by a person. The different ingredients can be separated by different methods that depend on their substances and on the mixture itself. The methods in which the mixtures can be separated are evaporation, by using a magnetic, filtering, floating and more that also work to separate the substances or elements. Evaporation is formed when a liquid is drying up so it converts into a gas. Then we got a solution that forms when a solid dissolves in a liquid. Solutions are the same as mixtures but they are transparent. Liquid is a state of matter that has mass, for example water is a specific kind of liquid. In a mixture, the two ingredients can be separated using physical process without any chemical or substance or element. The different mixtures can be separate by a magnet or how I was telling by evaporation or maybe with magnetic. The amount of elements or substance on the mixture are not relevant when the time of the process for separating the different elements. Now you know more about the different states of matter, what is the process of separating mixtures and the topic itself how do some mixtures combine and others



separate.

In conclusion, a mixture is very important for chemistry, the world and ourselves. They help us in different ways and are made by different materials that are so useful for cooking, medicine, air and more. It is also important to learn about some common mixtures of our everyday life because they are so helpful. Now that you read this article you know more about mixtures and their different characteristics, how do they form and what makes them different, finally how do they combine or separate. Mixtures are separated by two groups, homogeneous and heterogeneous. The differences are made mainly by solid, liquids and/or gases. I recommend you to learn more about this topic because you can learn things for our life and it can also help you. I like to explore about this because it is a topic that helps for life.





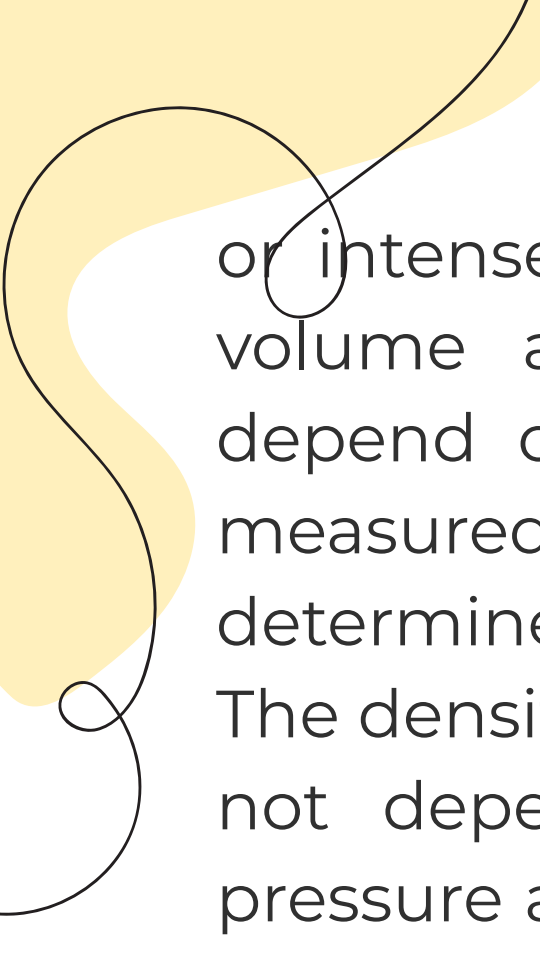
Blended Wonders: How Mixtures Shape Our World

Antonia Sanchez

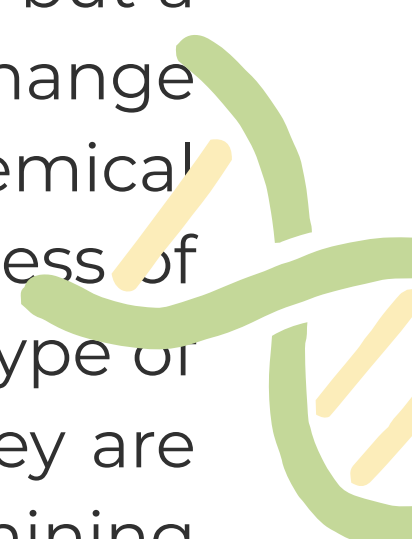


What are the properties of matter, what are mixtures in chemistry, how do the mixtures separate, etc... in this text you'll find all those questions or more. This text is to inform readers about the mixtures and facts about them, especially their properties. This can be very interesting when you investigate it, it can really catch your attention how crazy and fun this is. But why is this important? Mixtures are in our everyday lives, they are everywhere, like in air, food, drinks. It helps people in their work, making perfumes, to clean dirty water and make it drinkable. It helps scientists separate things properly with methods like distillation, chromatography, etc... and helps scientists with the understanding of mixtures. With all this information you can understand and help you with mixtures in your everyday life. You could have a lot of life situations with mixtures, even if you think they are not in a lot of parts of your life, but they are in more parts of your life than you can think so. When to know that you can't mix two components because it's dangerous or more life situations that can save you from many accidents and problems by knowing the properties of the substances in the mixtures and how they affect how they combine.





or intense and as physical or chemical. Mass and volume are extensive properties, which always depend on the amount of matter that is being measured, so the volume and the matter can determine the extensive property of the substance. The density and color are intense properties that do not depend on the amount, temperature and pressure are examples of intense properties “it is a system’s local physical property that is independent of the system’s size or volume of material”. Physical properties are measured without taking away any chemical identity; the density, color, hardness, melting and boiling points, and electrical conductivity are all examples of physical properties, “a physical change does not cause a substance to become a fundamentally different substance, but a chemical change causes a substance to change into something chemically new”. Chemical properties can only be measured in the process of the matter changing into another particular type of matter (the substance's chemical identity); they are very helpful when it comes to determining compounds “is any of a material’s properties that becomes evident during a chemical reaction” just by viewing or touching the substance, chemical properties can’t be determined or know the internal structure of the substance has to be affected” for the chemical properties to be investigated.



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A mixture is made of two kinds of matter in different amounts and can be physically separated by using methods that use physical properties to separate the mixture, like evaporation, distillation, filtration, and chromatography. Depending on the physical properties of the substance mixtures can

be separated in many ways. Like the following;
Manual separation: in this technique the hands are used to separate the mixture like, separating noodles from water. Magnetism: with a magnet, the iron filings can be separated from a mixture attracting the iron filings. Dissolving and filtration: when salt and sand is put into water the salt dissolves and the sand doesn't, so the sand remains and the mixture then is filtered to get the sand separated from the salt. Evaporation and crystallization: the water evaporates and the salt stays, and while the water evaporates the crystallisation makes solid salt crystals. Distillation: in this separation method you can boil water away from salt with different temperatures of the two. And while the water evaporates the salt stays still.

A mixture is a compound that is made of two other chemical components that are not linked at all. Examples of mixtures: crude oil; this is a mixture of organic compounds, seawater; this is a mixture various salt and water, air; this is a mixture of many gases, ink; a mixture of colorido dyes, gunpowder; a mixture of sulfur, potassium, nitrate and carbon.

There are two main types of mixtures; homogeneous and heterogeneous. A homogeneous mixture possesses the same properties and combination throughout their mass, and a heterogeneous mixture possesses different



properties and compositions in many parts of the two kinds of compounds. Like is said, mixtures are everywhere, some more examples are: honey and tea, cereal and milk, water and salt (sea water), zinc and copper (Brass), oil and water, lemon juice and tea, honey and tea, milk and chocolate, coffee and cream, cream and sugar, flour and butter, orange juice and champagne, sugar and water, sugar and tea, tonic water and lime juice, soda and vanilla syrup, smoke and fog (Smog), dirt and water (Mud), sand, water and gravel (Cement), water and salt (Sea water), potassium nitrate, sulfur, and carbon (Gunpowder), oxygen and water (Sea foam), petroleum, hydrocarbons, and fuel additives (Gasoline), minerals, organic materials, air, water, and living organisms (Soil), chlorine, caustic soda, and water (Bleach), plasma, white blood cells, red blood cells, and platelets (Blood), aluminum, nickel, and cobalt (Alnico), nickel, manganese, aluminum, and silicon (Alumel), copper and arsenic (Arsenical copper), copper and silver (Billon), zinc and copper (Brass), silver and copper (Britannia silver), nickel and chromium (Chromel), copper and nickel (Constantan), etc...

In conclusion, now you know lots of things about mixtures. And maybe you can pay more attention when or where you use mixtures or how they present in your daily life. With all these examples I'm sure you're impressed at how many moments, places and things are mixtures at. Also at how much information is in just a simple topic and how interesting it is. I hope it was very fun reading this text. This is a clear and organized example of mixtures, its properties, etc... now you

Mixtures are around us

Emilio Toro

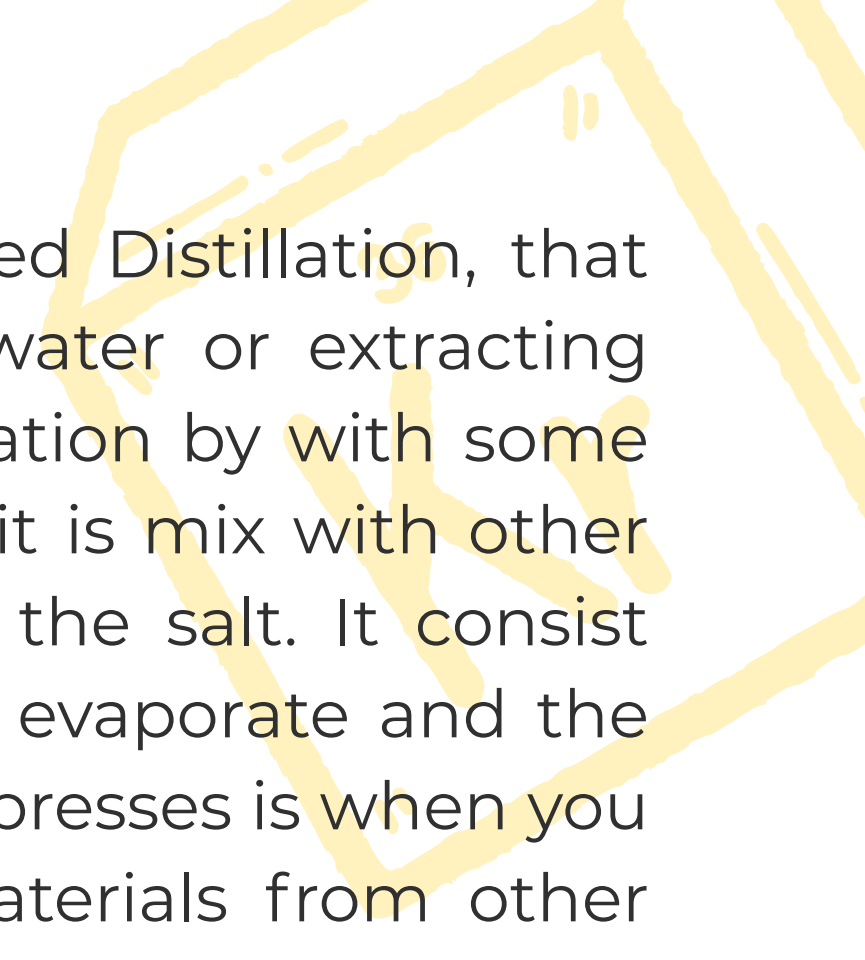
Have you ever asked yourself what are mixtures? Well yes some mixtures stay and separate.¿but why? Mixtures are important for our lives, they are in many different ways like in air, and food. A mixture is when you mix two or more things together, and the particulars connect with each other. Also they can mix together in a big way like water and salt or a small way like cereal with milk. You may have seen your blueberry juice as separate, like the blueberry down and the other component like water stay up? Or why do some mix's separe and others are not? Well in this article this will be our main question. In any case you will need a process for filtration, with magnetism, atracción, some times at hand, and many more. But the process is for some types of mixtures.

Mixture is when you combine to or more things that make a physical result. A mixture can be found in any place, the park, the class, your home, in a cereal , etc. There can be forms in some forms depending how the two substances mix. It can be in a big way like chocolate with milk or two types of paints. That means that we can't separate again. And in a more small way like cereal with milk. That means that is the easiest way. in a mixture are combined physically. This means that the substances retain their properties even after they are mixed. Like have you know we can find mixtures everywhere, and they may exist in different states of matter. An example can be the ocean that has water and salt. Mixtures are formed

when substances whether in solid, liquid, and gas forms are combined, in which no new kinds of matter are formed. When you make a mixture you always will have a physical change.



Mixtures are formed when the particles of all the substances that you are using, connect with each other and make a physical result on it. We could mix anything, and the particles would always combine. Some examples it's when you mix the juice of a fruit with water we can see all how the substances interact. But sometimes we can't see how, like when you mix air with carbon dioxide. Other examples can be mentos with Coca Cola that you can see the process. For example when I put sand with a cup of water we see that the sand stays down on the cup. ¿Why? Because the particles did not connect. But if you mixed the water with some paint you could see the change. Now you can tell other people how does a mixture form. Some mixtures separate and others no. Mixtures can be separated using some methods, depending on the substances. One method could be Filtration. Filtration it's for separate substances solid from liquids, this process it's that the liquid passes and

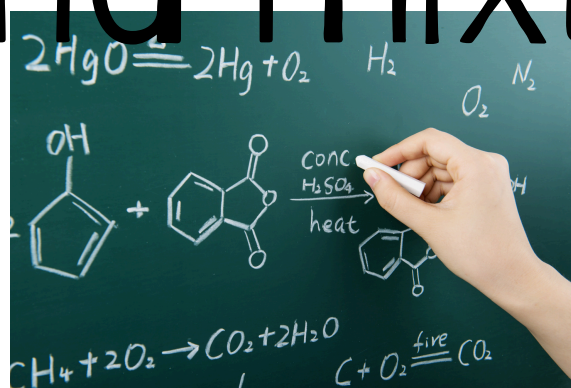


the solid stay. Others are named Distillation, that separate liquid, like purifying water or extracting alcohol. Other could be Evaporation by with some heat can separate water when it is mix with other substance like the ocean with the salt. It consist that the heat make the water evaporate and the other substance stay. Magnetic presses is when you what to separate magnetic materials from other things that are not magnetic like sand. Other that maybe you already do it is by hand this is handpicking . This consist when you with your hand separate different substance like emenems that are of many colors separate them by one color. Mixtures are very important for or day to day. We can find it in many places, like in the ocean, in the house, the school, and many more places like in the food. A mixture happen when two substances combined with each other. There are many methods for and mixture. Like filtrations, evaporations, and more.



Chemists and mixtures

Belén Muñoz



Chemists use mixtures to create new products. Mixtures are everywhere, and we use them in everyday life. They are made from elements of the periodic table. But, how do chemists use mixtures to create new products? Chemists are scientists who study the properties, composition, and reactivity of substances. It's important people are aware of how chemistry works, to allow them to have a better understanding of how the world works, and it's also important to know how new products are made from mixtures. This article will inform and explain how chemists use mixtures to create new products.

Firstly, what are mixtures? A mixture is a physical combination of two or more substances that are not chemically bonded. In other words, a mixture happens when two or more substances, like elements or compounds, are combined without changing chemically. This means they stay the same as they were before being mixed. Additionally, these substances do not have to be mixed in a fixed proportion in order to form a mixture. There are two main types of mixtures: homogeneous and heterogeneous mixtures. Homogeneous mixtures are uniform mixtures, in which the components of the mixture cannot be identified, and they can't be physically separated, they would have to be chemically separated.

Heterogeneous mixtures are non-uniform mixtures, in which all the components can be easily identified and physically separated. Homogeneous mixtures are also known as solutions, and they have components that are evenly distributed at the molecular level. Additionally, they have particles that possess the same physical properties. On the other hand, heterogeneous mixtures have components that can be seen through naked eyes. They have particles with different physical properties and have parts that remain separate. All mixtures are either homogeneous or heterogeneous. In conclusion, mixtures can be classified as either homogeneous or heterogeneous, depending on their composition and the ability to separate their components.

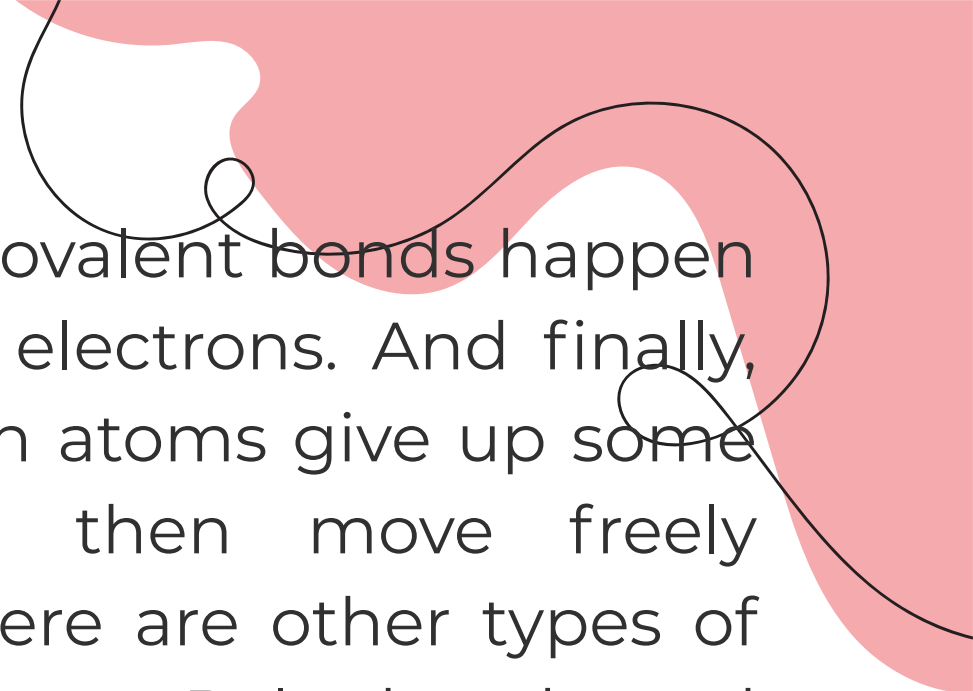
It's also important to know about atoms and bonding. "An atom is the smallest unit of an element that retains the properties of that element." Atoms are the building blocks of matter, and they are composed of a nucleus surrounded by electrons.

The nucleus contains protons and neutrons. Protons are positively charged, and neutrons have no charge. Electrons are negatively charged, they orbit the nucleus, and are involved in chemical bonding.

"Atoms bond to form molecules and macroscopic

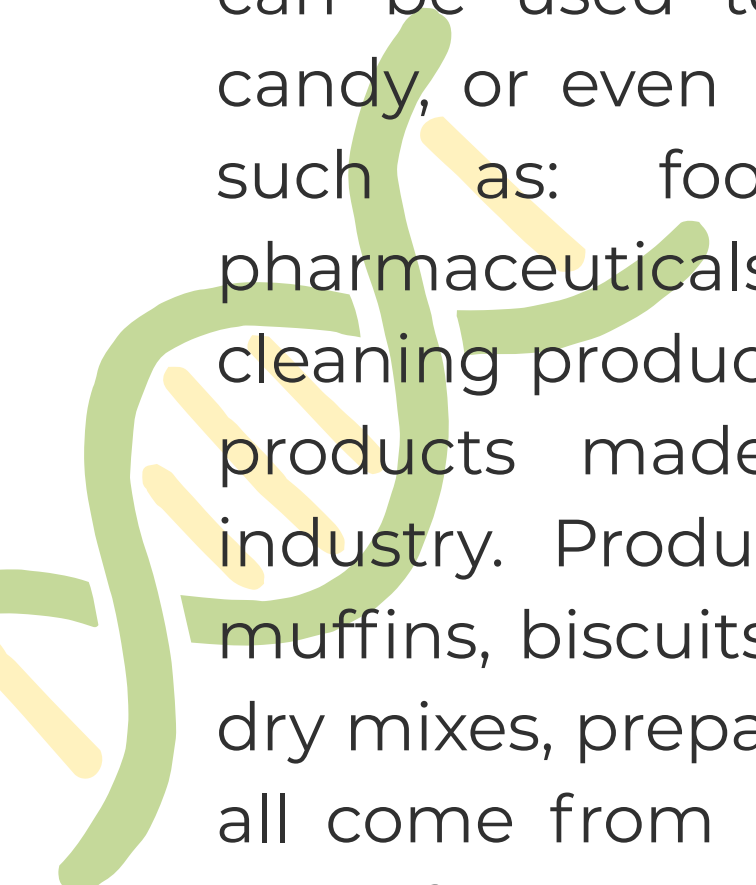
materials through several types of interactions, primarily involving their outer electrons." There are 3 main types of bonds. Ionic, Covalent, and Metallic bonds. Ionic bonds happen when electrons are transferred





from one atom to another. Covalent bonds happen when two atoms share the electrons. And finally, metallic bonds happen when atoms give up some of their electrons, which then move freely throughout the material. There are other types of bonds, like Van der Waals Forces, Polar bonds, and Hydrogen bonds, but they are not as common or important.

Lastly, how do chemists create new products using all this? Chemists are scientists who study the composition, properties, and reactions of substances. They focus on understanding how different elements and compounds interact and transform into new substances through chemical reactions. “Chemists have a significant impact on everyday products through their involvement in the development, production, and improvement of a wide range of goods.” “Chemists use mixtures to create new products through a process known as chemical synthesis. This involves constructing complex chemical compounds from simpler ones.” Mixtures can be used to create a wide variety of new products across different industries. Mixtures can be used to create new products like glue, candy, or even rockets! Mixtures can make things such as: food and beverages, cosmetics, pharmaceuticals, construction materials and cleaning products. An example of an industry with products made from mixtures is the baking industry. Products such as layer cakes, cookies, muffins, biscuits, corn bread, doughnuts, prepared dry mixes, prepared doughs, and frozen batters, etc all come from mixtures. Mixtures make up a big part of our everyday lives. They are present in many of the things we use and consume.



In conclusion, mixtures have a very important role in different fields by allowing multiple substances

to keep their chemical properties without being combined. Additionally, mixtures can be used to create new products and materials, study the properties of different substances, and solve problems in industrial, commercial, and environmental settings. Also, bonding atoms helps chemists create new mixtures and solutions. This is important because even more products can be created with bonding, properties of mixtures, and chemists. I encourage you to look deeper into these topics, become familiar with the periodic table, and be curious about all of this. It is important to know about this, because mixtures make up our daily lives, and the world around us.



Why are mixtures important?

Nicolás García



Mixtures are two or more physical blends that mix together, like an apple with a banana. Mixtures are a very interesting topic to learn because we interact with them everyday but we are not aware of it. There are processes of making mixtures, there are different types of mixtures and some mixtures stay together and some mix, that are some fun facts of mixture but there is a long chemistry story behind it.

a mixture is a combination of two or more chemical blends mixed together without a chemical reaction. These substances maintain their own properties and are blended in the form of solutions, colloids and suspensions. Solutions are in a homogeneous mixture of two or more substances, where one substance (the solute) dissolves in another (the solvent) The particles in a solution are microscopic and uniformly distributed. Colloids can be in a heterogeneous mixture of particles of substances that are suspended in a fluid The particles in a colloid are larger than those in a solution, but smaller than those in a suspensions. Colloids can be either homogeneous or heterogeneous in appearance. Suspensions are heterogeneous mixture of two or more substances, where the solute particles do not dissolve, The particles in a suspension are large

eventually see
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maintain the



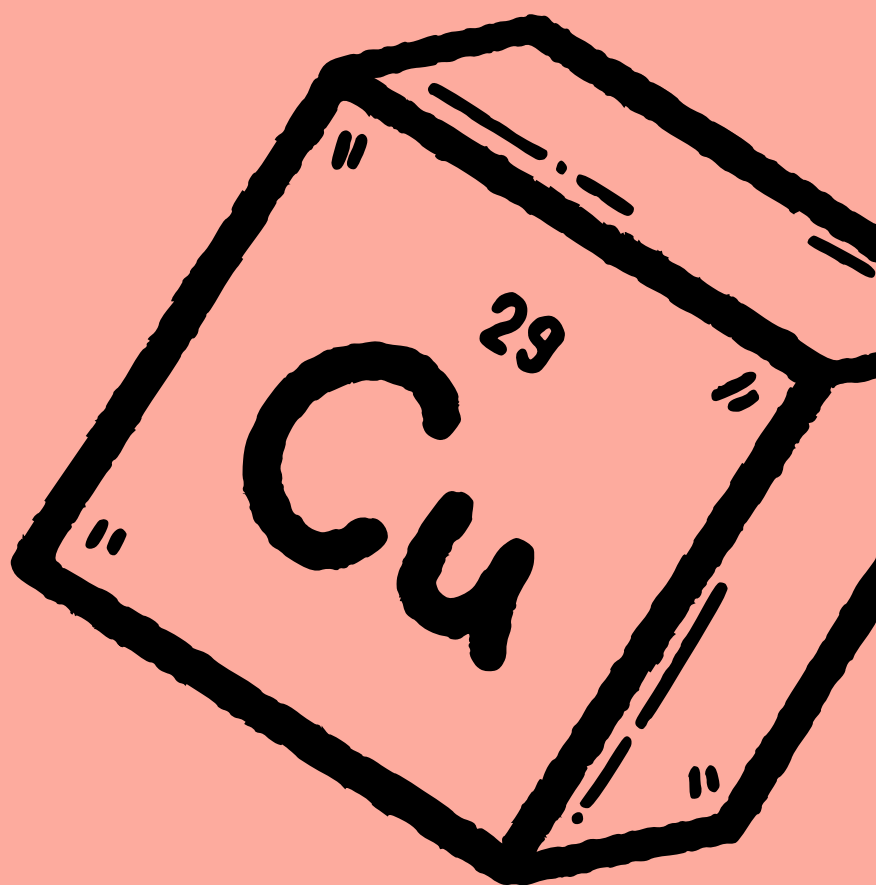
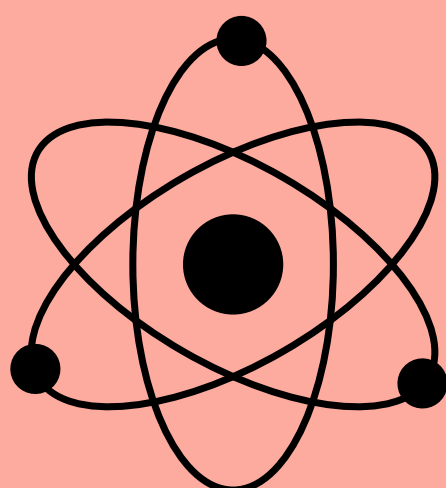
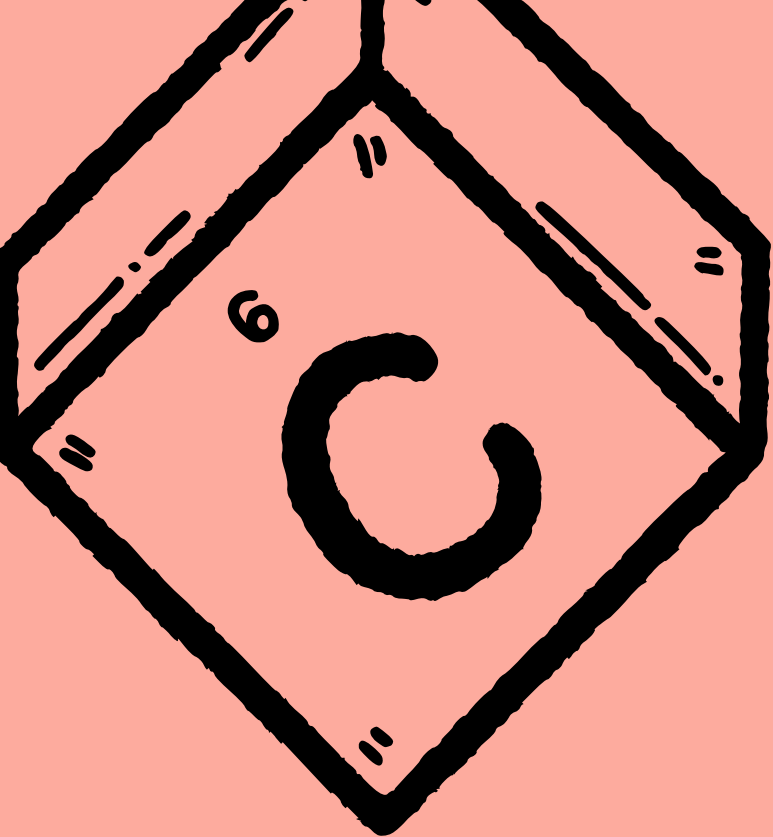
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water, There is only one phase of matter observed in a homogeneous mixture. An heterogeneous mixture is a combination of two compounds that are not uniformly combined throughout the mixture, and heterogeneous mixture has different processes and compositions this mixture can be seen by naked eye or by a microscope an example could be milk and cereal, some characteristics of this mixtures :they can be Easily separated into their original parts, Has two or more distinct phases, it's compositions are in different parts.

There are some processes of creating mixtures but separate processes too. Let's talk about the combination and separation methods. How do you know a mixture is a of two or more chemical blends mixed together but they can combine and separate but how this happens ? Separating mixtures: separating mixtures can sound very easy if you thanked in an heterogeneous mixture but what about homogeneous mixtures, there are some processes of separating mixtures that some work for both and some not one process is hand picking this process could be used in an heterogeneous mixture like apple and banana you can separate both Easily, as it sound you do it with your hand you take a bowl a separate both, well this method it easy but there's a method like sieving, the process of sieving could be used in both mixtures because when you use sieving you normally used it to separate tiny pieces of big or big from tiny etc, and homogeneous mixture you can use the process of sieving is flour of baking powder or something like that , but instead in a heterogeneous mixture could be rice from tiny rice or like that, another process is evaporation this process is mostly used in homogeneous mixtures, in this process heat is

something you need so like if you need to separate salt water you could use this method by but it will be resulting in only salt if you want both mixtures you can see the distillation process well but that's not the matter first you need to pure a teamperture where water evaporates this depends on the city you are for example in bogota is 100 celcius but in Medellin it could more or less this depend in height of were you re of the sea level,this is called the boiling point where water evaporates. Now let's talk about combination methods. One method is shaking. This method could be used by putting powder and baking powder in a bowl and shaking it until it's mixed. It can work with liquids too but not all liquids. Another method could be hitting this method first in solids by melting them and then converting them into liquids and mixing them, the last method is trituration. This method is used in solids by smashing them and putting them in smaller pieces and then easily combining them. Mixtures are a very interesting topic to learn, they are very useful for life science and even companies. Having more clarity in combining and separating mixtures now you can separate or combine them, you can easily now recognize what type of mixture it is and use the different methods to separate them. This can work because many kids or even scientists can recompile information. In conclusion mixtures are one very important topic in chemistry and us very interesting too.



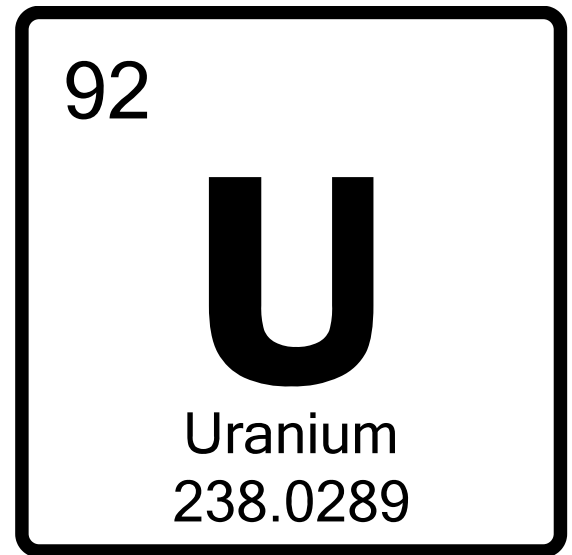


POEMS



Uranium

Salomon Sanchez



There are so many poems about uranium.
That I can't get it off my cranium.
Uranium is so radioactive to people.
That can kill people in a steeple.

You can imagine so many things with uranium
that there is no space for more.
But you can't buy uranium in a store.
In Saskatchewan it is so easy to find uranium.
But it is not so easy to find titanium.

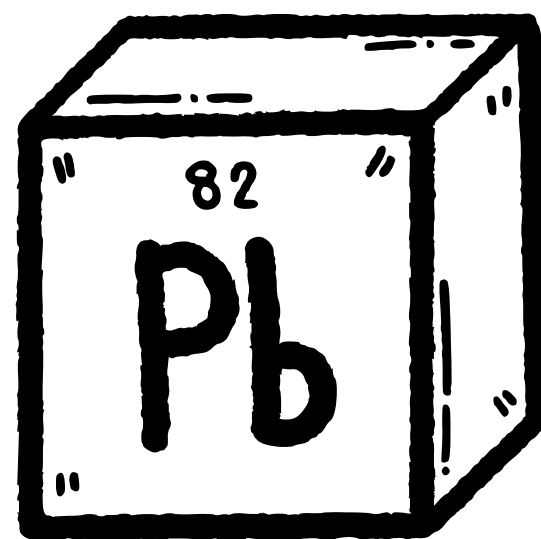
Uranium is so dense.
That you can't use it for a couple of cents.
It's a silvery metal 19 times denser than water.
But that doesn't mean uranium is hotter.

Uranium is naturally radioactive.
That can make people active.
It was discovered in 1789 by Klaproth.
And he was from Germany in the north.



Lead

Emilio Toro



Pb means lead.

That is toxic for humans that can make them be
dead

It can cause a range of health effects on humans
well that's what AI said

Also, it can cause a problem on the brain
that can make you dead

Lead is soft

Like the animals of a Croft.

It is made of silvery white or grayish elements that
means that it grayed, like a koala that is soft.
or like some hair that can be soft

We youse lead for many things.

Widely used in lead-acid battery for the vehicles so
this is serius like losing some rings.

Or killing some kings

Also by construction used in roofing and shot due
ho its density and many more things

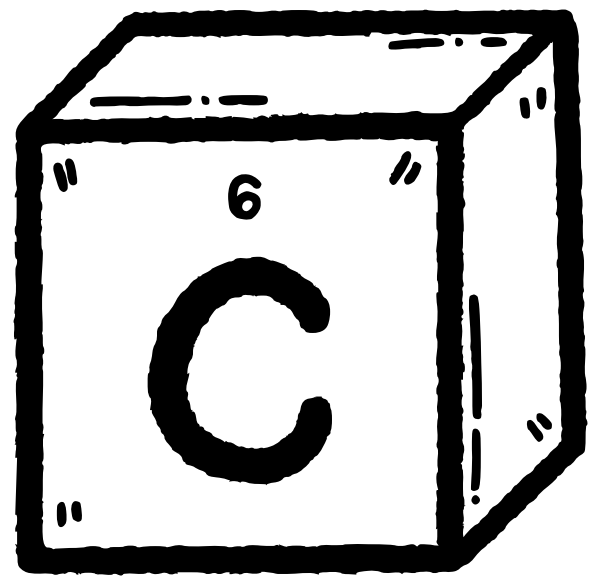
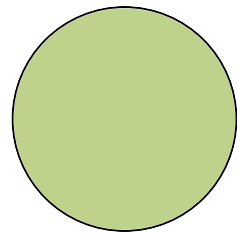
We could said that Pb is many things

But it can make you to don't breath

Pb is from latin Plum bum like his atomic number
is eight and two.

His period is six like the years of my new shoes.
And they are also solid like the chemical atom Pb

Carbon



Matías Castellanos

Carbon is one million times better than sodium.

C for carbon with atomic number six.

Carbon is like number 1 on the podium.

The thing that destroys the earth that we need to fix.

Carbon in a car bomb that makes BOOM like a cartoon.

Use in technology, aerospace, and medicine.

This can send you to a psychology session with Edison.

Carbon is happy to be used everyday as graphite in pencils.

It was discovered by Antoine Lavoisier that developed chemical theories.

Carbon on earth's crust in minerals like graphite and diamonds.

Carbon in the atmosphere as carbon dioxide.

Carbon in the ocean dissolved in water as bicarbonates and carbonates.

Carbon on fossil fuels like coal, petroleum, and natural gases.

I am very useful.

I am used everyday.

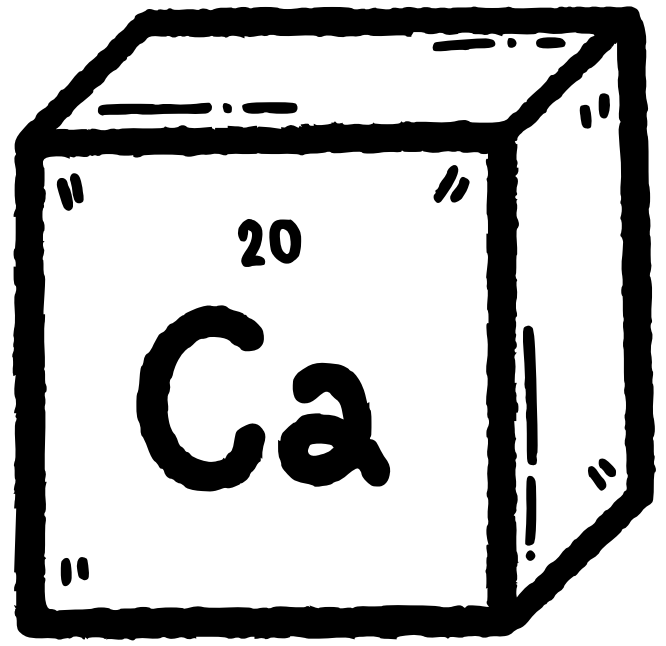
I can be mad or peaceful.

I am everywhere, but I am not in hay.

I am used to create synthetic diamonds, carbon fiber, and carbon nanotubes.

Calcium

Belén Muñoz



Calcium's metal, strong and bright,
but leave it out. It fades from sight.
It's in my bones. It's in my teeth
And even rocks way underneath.

Sir Humphry Davy, sharp and smart.
Found Calcium, his greatest art.
With fire and sparks he made it show.
By breathing quicklime long ago.

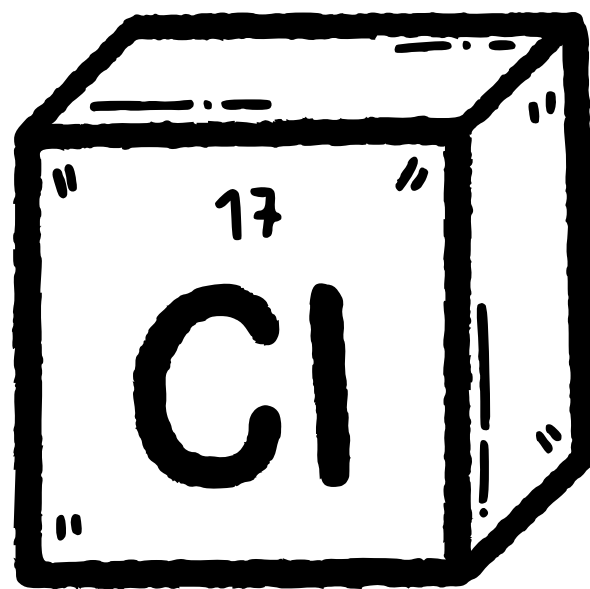
It makes cement, and helps glass shine.
It 's in your milk. It keeps you fine!
It's in the stars, the sea, the sand.
It's pretty much in all the land!

Be careful. Drop it into rain,
It might explode, (which sounds insane)!
Still, calcium's the best. No doubt.
The world would break if it ran out!

So drink your milk. Eat something green.
Keep your bones strong, like a steel machine!
Calcium helps you stand up tall.
Stay healthy, strong, and never fall!

Chlorine

Joaquín Mora



Im sitting in my lab wondering
about cl. I asked my assistant to bring
it. He searched and found it. My waiting
was over. I saw it through the microscope.

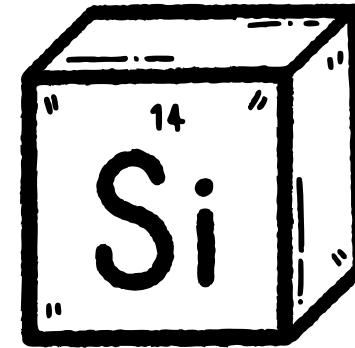
When I saw a lot of things :
Some circles and some rings
that opened and closed like wings.
It had different colors
Like red and blue.

When I finished looking,I wondered
a lot of more things like it's numbered
and found that was number 17
and it's density)3.214

And kept searching and found
that it's state at 0c is gas ,
and it's boiling point is -34.040.
And I know there are thing beyond
but this are some

Silicon

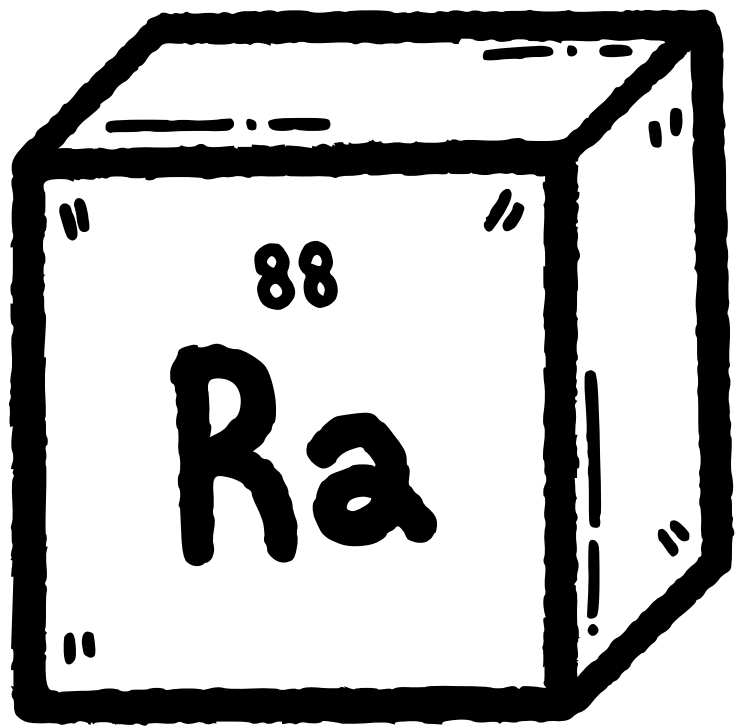
Isabella Lopera



I am found in the sand and in the stones.
Clear like the glass it shines so bright.
I am as resistant as Superman's bones.
A nature stone, pure and white.
I talk everyday with the machines,
helping them think faster.
I am the heartbeat of the new machines,
that can prevent more than a disaster.
I am the second component of the earth's crust,
mixed with the oxygen like spice dust.
I need to separate with oxygen to do my job,
and I work so organized like the kernels of a cob.
I am so smart I could do your homework in a
second.
In my job i make microchips, the brain of almost
every device.
Jöns Jacob Berzelius founded me, that was really
nice!!!
Did you guessed who I am? The quiet element with
no limit!! The silicon

Radium

María Sanz



Dear Radio,

I am used in a gas to cure the harshness of cancer.
I am in the darkness of soil and in the hardness of a
rock.

I am in the dry walls designed for your walls.

I am in groundwater used for maintaining a wet
world.

I am light and soft as the air.

I am in poor and abandoned areas left behind from
the modern cities.

I am in old watches used to read the our .
I am in instruments used to make your playlists.
I am a magnificent element discovered by the
intelligent and pacific French lady called Marie
Curie.

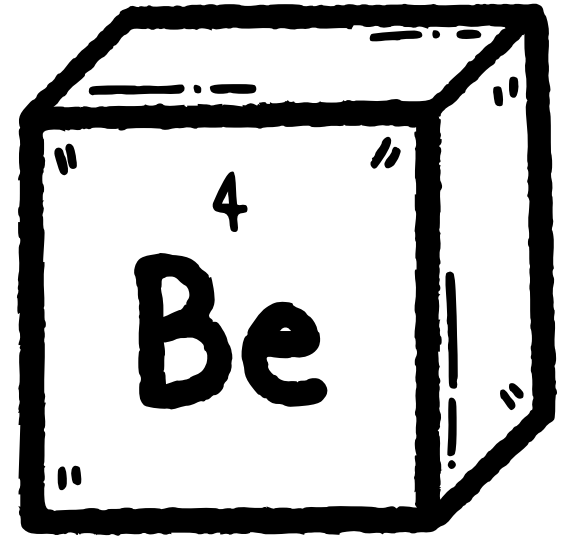
I am a natural element now considered as a natural
hazard.

That has the great potential and capacity of
causing death.

I am a soft gas that floats in the air.

Beryllium

Catalina Bustamante



I really think that I am gray and strong, but very long.

It is interesting to know about me, and it is bad to know about be.

We start talking about beryllium, and we talk about ilium.

The chemical properties are important, and the focus part is transportant.

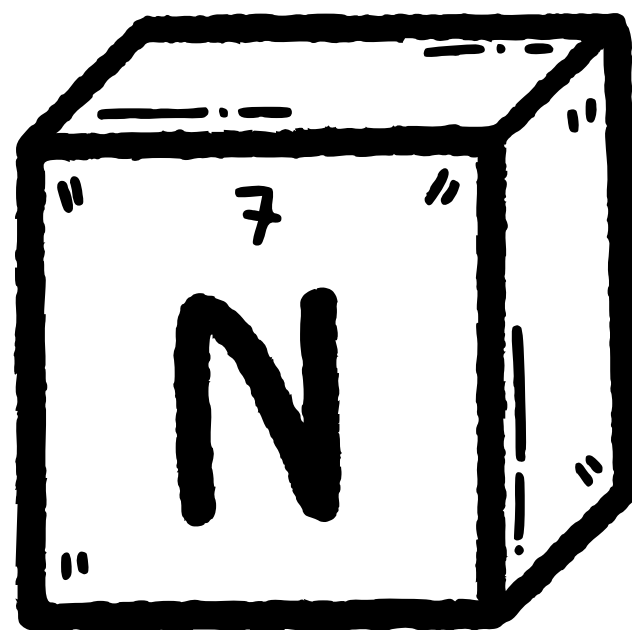
When we talk about the uses, you need to investigate about the reduces.

And if you have a use that is alloys, you have to think about ferralloys.

So beryllium is (Be) and it is on the periodic table, so now you would be able to understand much better, when you see, the letter.

Nitrogen

Maria José Cortes



Hi, my name is Nitrogen
I am the sister of Hydrogen
You can find me in all the stations, specially on
summer

And 7 is my atomic number

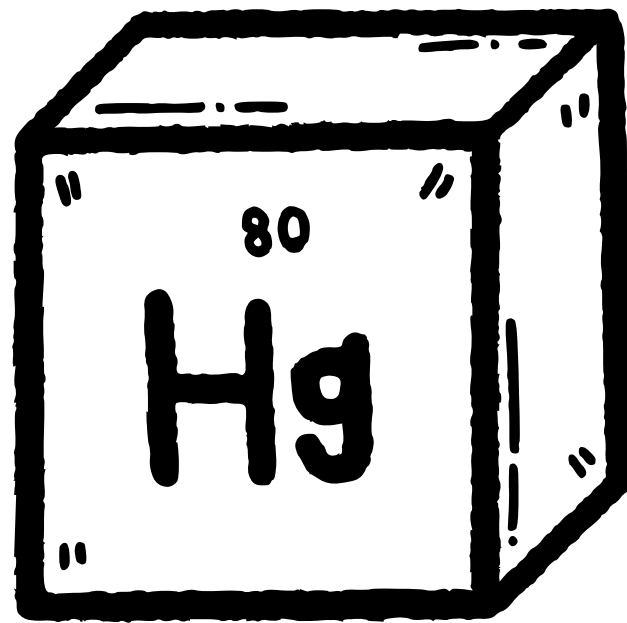
You can find me as N in the periodic table
As you can see I am label
In period 2, group 15
Where Nitrogen is seen

Nitrogen fixation occurs in nature
And this helps in my creation
A greater amount of me is fixed by the action of
bacteria
But I also help in the cooking in the cafeteria

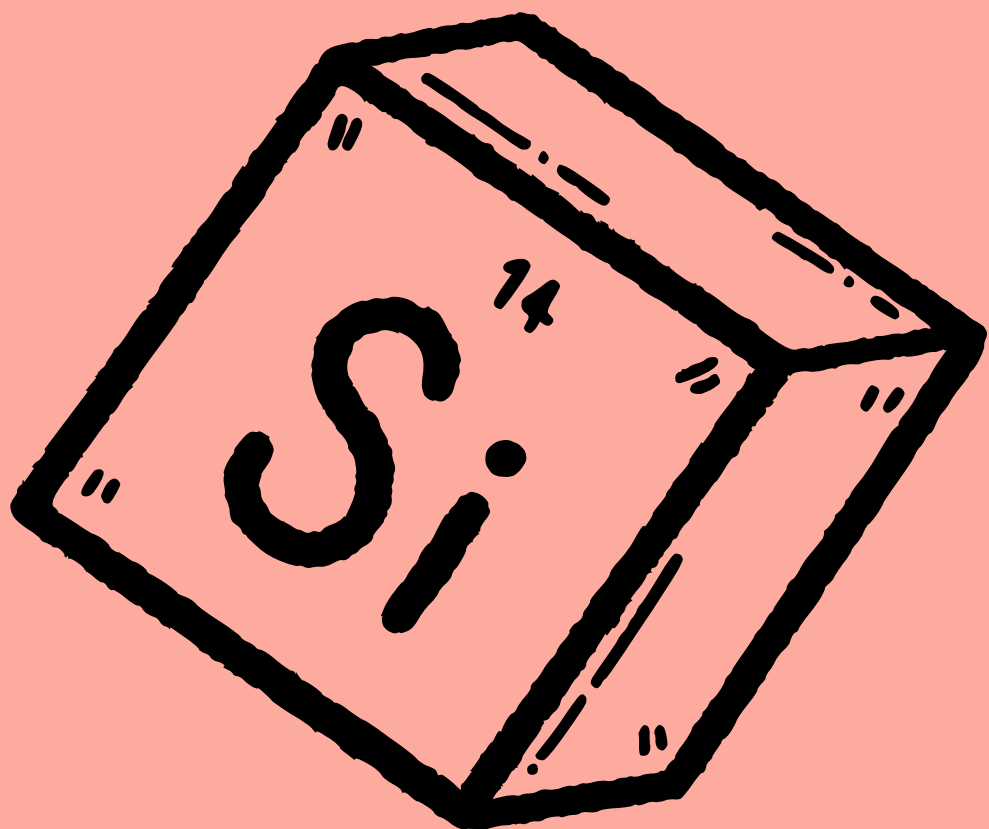
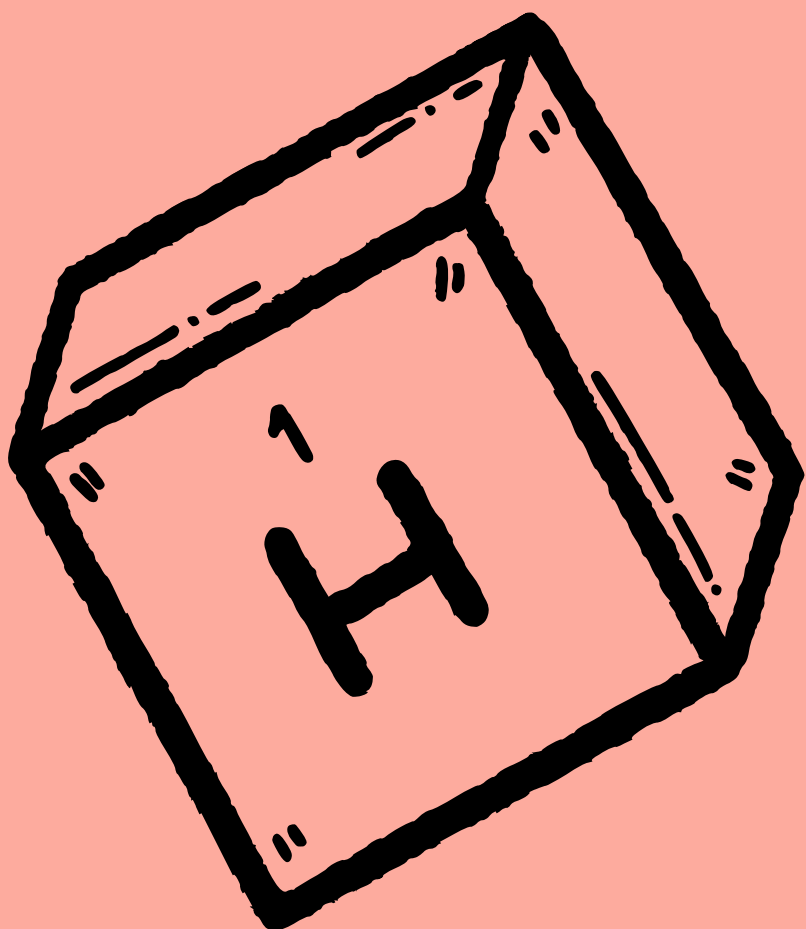
You can find me everywhere
For example in the air
I am so important to all the things around me
So now you understand what I mean

Mercury

Antonia Sanchez



I am mercury,
I travel across the country.
My atomic number is eighty,
But I'm very mighty.
I have properties,
They are chemical and physical.
I am in a lot of societies
My thinking is very logical .
I'm in the periodic table,
But I feel so damn unstable.
Hg is my symbol,
I am also very single.
My symbol means hydragyrum,
Meaning water-silver.
I have lots of uses,
My story is always confusing.
One of my uses is thermometers,
Even if you run kilometers
I can be in any place.



CREATIVE WRITING



Democritus

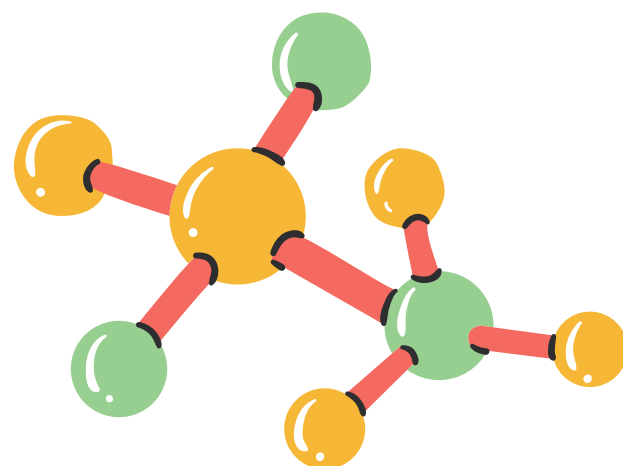
Matías Castellanos



My brain, once in a while, remembers how my life as a scientist was. That unique smell of my laboratory, and the architecture of the place was as perfect as a diamond. Now, imagine that you were with me in my experiments. When I was younger, we entered my lab everyday, with anxiety of what we were going to discover for the rest of the day. We couldn't stop discovering new things and every topic engaged us a lot. But there was 1 in 1 million topics I was more interested in. Atoms. I believed that tiny particles moved through empty space, which I called, "The void". I told you that without this "void", matter wouldn't be able to move or even exist. Since atoms were, in my time, too small to see, I couldn't prove they existed with experiments. I tried a lot to prove my hypothesis but I couldn't. Instead, I thought carefully about the world. I noticed that things could decompose into smaller pieces guessing they must be made of tiny building blocks. Now, you support me in my discovery to show it to the world, but many people, like Aristotle, believed there was no such thing as the void. Imagine being disapproved by a person as significant as Aristotle. Wouldn't feel right to you. I disagreed and said that without empty space, movement wouldn't be even possible. Even though most people didn't believe me at the time, later scientists proved I was right. I was one of the greatest scientists of all time.

Antoine Lavoisier

Belén Muñoz



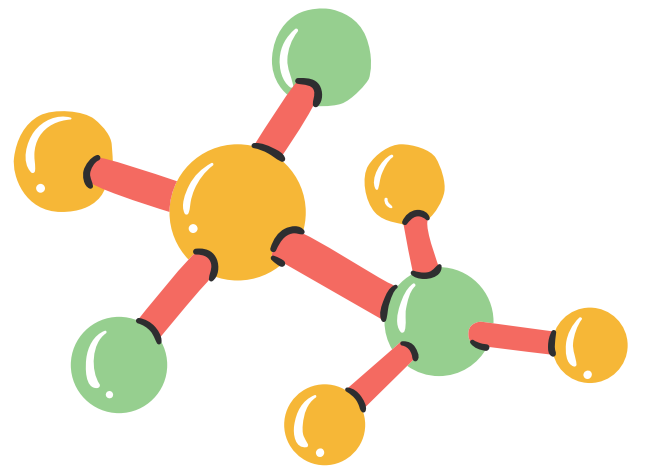
I could hardly sit still as I watched the shimmering mercury heat up in my glass flask. My hands trembled with excitement; I just knew I was about to prove something groundbreaking. People always said that when something burns, part of it disappears forever, but that never made sense to me. If my theory was right, matter never really goes away, it just changes into something else. As the mercury bubbled and sizzled, a mysterious red powder, called calx, started forming on top. My pulse quickened. I carefully measured the weight of the flask, the metal, and the air trapped inside, using my precise balance scale. Then, I heated the calx again, watching in fascination as it transformed back into mercury, releasing a gas I would later identify as oxygen. The total weight hadn't changed at all! It was like the metal had only put on a disguise instead of disappearing. "This is impossible", I murmured, my voice barely above a whisper. But the numbers didn't lie. My heart pounded like a drum. I tested my theory further, decomposing water into hydrogen and oxygen using sealed glass tubes and a combustion chamber. Again, the mass remained the same. Every time, no matter how much things decomposed or transformed, the weight stayed the same. It was like nature was playing a clever trick, but I had figured it out! I grinned, feeling absolutely ecstatic, and threw my hands in the air!

“Matter is eternal!” I shouted. The idea of things vanishing into nothing was wrong! My discovery, what I would call the Law of Conservation of Matter, would change chemistry forever. I, Antoine Lavoisier, had uncovered a new law of science. It took perseverance to get there, but I had done it. This was the biggest discovery ever! The old beliefs about burning and disappearing matter had plagued scientists for too long. I had finally found the truth! Now I would help neutralize the wrong ideas and show the world how chemistry really worked. This was just the beginning; I was going to help people see the truth about the world around them.



Antoine Lavoisier

Thaliana Niño



From a lot of experiments, I witnessed how chemicals work and react to each other as if each chemical element was dancing its own bit. Always being careful to document everything, I wanted to understand chemical reactions better. Each time I composed one sentence in my book, I felt the joy running through me, like a spark of illumination, remembering the joy and hard work of those great discoveries. In my book, I have endeavored to make chemistry a precise science, like a perfect machine, based on clear understanding. One of my most significant science contributions was to make the names of elements simpler, giving them more specific and convenient names, such as oxygen and hydrogen, so that they would be more understandable and easier to study. In my *Traité Élémentaire de Chimie*, I tried to make the complex chemistries of chemistry easier for all to understand, breaking the ideas down into simple ones, as one unravels a tangled string. In doing so, I hoped to leave a trail for future generations of scientists to continue to develop science.

Antoine Lavoisier

María Sanz



I can still remember the exciting feeling that I could experience each day I was in the lab. Always trying to discover and research new things and elements that could help my community. I always tried to do my best in the things I liked the most, I am referring to chemistry. My craziness and curiosity lead me to different challenges that when achieved they lead me to exit. I was always trying to mark a difference using my skills in the lab with all the scientific instruments and substances. I was so obsessed that this thing helped me find two of the most important Elements known. I mean Hydrogen and Oxygen. These are two of the most known and useful elements. I always liked to receive advice and help from experts. As I discovered new things and helped my community, everyone started to know me and talked about me. I love my job and I know that sometimes I am going to make mistakes. But as they say, mistakes are a new path for new learning to get in.

John Dalton

Nicolás García



When I first step one foot on my laboratory I feel as happy as spending time with my family at christmas. My appreciation for those Tiny wonderful partículas called atoms, the creators of all the universe, made me discover that each element has a different type of them. My extraordinary discovery let me study more and made me do many experiments with them. But one of them made me do the law of multiple proportions. This law made me think that when elements combine they do it so simple like in whole-numbers and ratios, this proves my theory that atoms can combine in predictable ways. They are real. The Colors I see with my eyes are so strange to me that I can even confuse a rainbow with a gray cloud. I am a person with color blindness. I confuse red with green, the same colors as my brother. This disability made me study its characteristics and write a paper about it. In my honor the disability was called daltonism. Gases were my best friends, so I wanted to know them. I did a lot of experiments but one of those made the earth upside down by discovering that each gas exerts its own pressure independently. I carefully measured the gases and how their pressures change in different conditions. I discovered an extraordinary pattern that demonstrates each gas in a mixture adds pressure independently of the others. My discoveries are ones of the most important discoveries of all

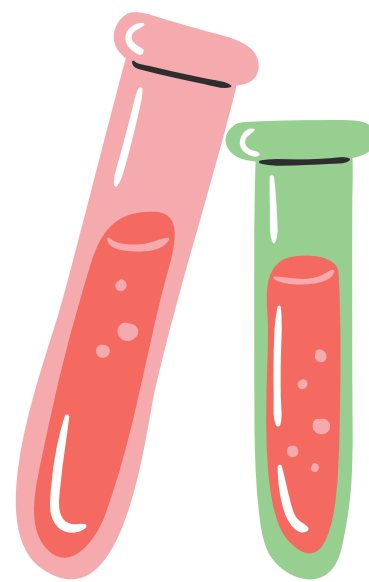
cosmos's one simple but vibrant discovery was understanding how air works in space.

My brilliant discoveries made chemistry wonderful as shining stars.



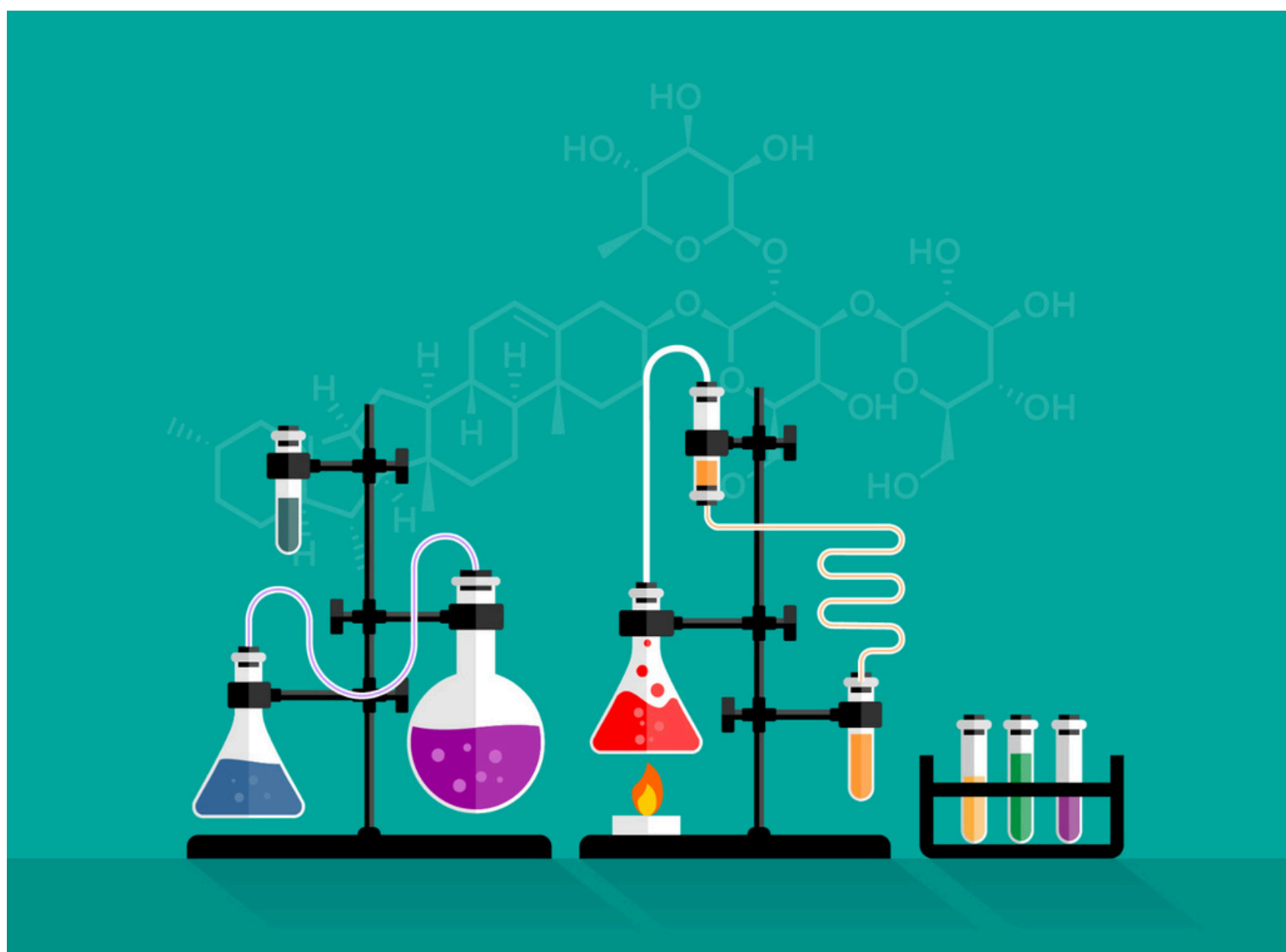
Antoine Lavoisier

Isabella Lopera



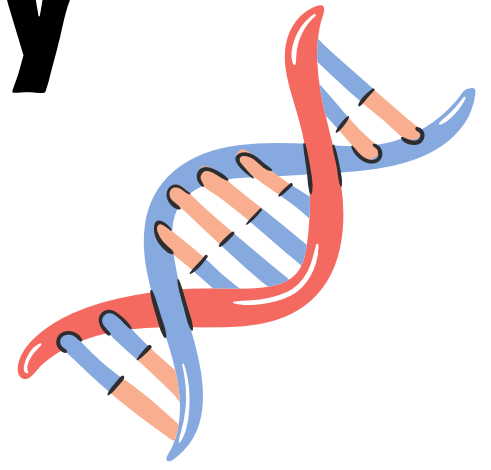
I remember when I was young, I was born in 1743. I wanted to be a lawyer just like my father but it didn't go as planned. Someone persuaded me to become a chemist and then I forgot about being a lawyer. My passion for chemistry was so powerful like the sun!!! Back in time one of my best discoveries was the Law of Conservation of Mass that means that matter cannot be created or destroyed in a chemical reaction, basically it means that matter stays the same but changes state. At that time all the chemists were thinking about the theory of the phlogiston so they were very confused, but while they were doing that I started to do my experiments in my laboratory back in France. to prove the phlogiston theory wrong. To prove my theory I worked so hard like a rock to do my experiments!!! First I used precise balances to carefully measure the mass of substances before and after chemical reactions. My careful and precise data showed that the total mass remained constant. I almost made a million tries to be so precise with the data!!! I also made experiments in sealed containers, preventing gases from escaping. This allowed me to show that mass was conserved even when substances changed form like for example solid to gas. And lastly I identified and named oxygen and explained its role in combustion. I used a flame and a candle for the combustion . By understanding that gases like oxygen are involved

in chemical reactions. That was how I discovered the Law of Conservation of Mass. When I discovered that, I was very excited to discover more things!!!



Joseph Priestley

Salomón Sanchez



Hi I'm Joseph Priestley and I'm going to tell you about how I discovered oxygen. First I heated different substances like mercury oxide, in a sealed container. I experimented in many ways with mercury oxide. The mercury oxide is a red powder that with the glass experiment it gets very hot creating gas. When I heated the mercury oxide it broke apart and created gas. When I was testing the gas I collected it in a jar. And then I noticed that gas helps things burn. I found out that gas from mercury oxide burns a candle hotter and brighter. I realized that this gas is special because it was different from the normal air we breathe. Also I experimented with air and plants. I discovered that plants seemed to "create" this special gas. I placed a plant in a container and noticed that after a while, the air inside became good enough to light candles. And also I discovered that candles with gas are as hot as a flame. I learned that gas helps things to burn. Another example of things burned by gas is oil and other types of fuels. This affects living things in many ways. I put a mouse in a jar with the gas, and the mouse lived longer than with regular air. This showed the gas was very good for breathing. That was later named oxygen. And we now know it is what humans and animals need to survive. That was how I discovered oxygen (O).

Joseph Priestley

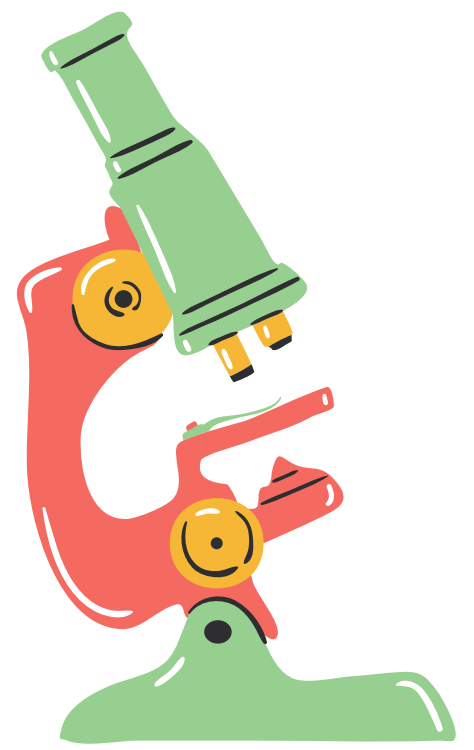
Emilio Toro



I Am Joseph Priestley and I love chemistry by my curiosity to learn more things. I remember the day when I took a powerful magnifying glass and I used it to focus sunlight into a red powder called mercuric oxide. I thought about what could happen if I put in more heat like the heat of sun. When I put it hotter I see a special gas it was muddled. I see that gas I feel curious of know what it is. I want to learn more about that mysterious gas. Was so big the curios that make me think that if I don't search it I will die. I diligent for know what it is so I tested, putting a candle and mouse inside a jar with the gas. The candle burned extra bright like the stars in space, the mouse stayed alive more time than normal, so I know that this mysterious gas was something serious. I did not know how to name that suspicious gas but I follow an old scientific idea called the phlogiston theory, and thanks of that experiment I named it dephlogisticated air. The red powder did also change into liquid mercury, shiny like a light, silver metal. Now you know that the discovery of (o) oxygen was discovered with a queer experiment, and if you didn't know it was an accident. But when I saw my discovery again I was very ecstatic that I discovered the dephlogisticated or more famous oxygen.

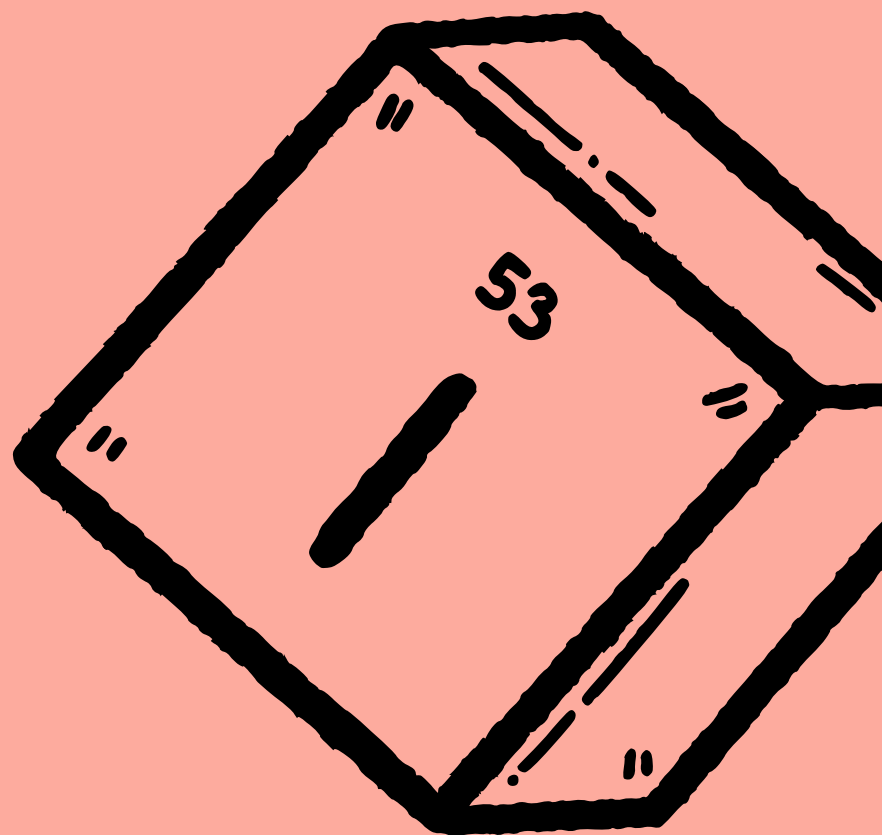
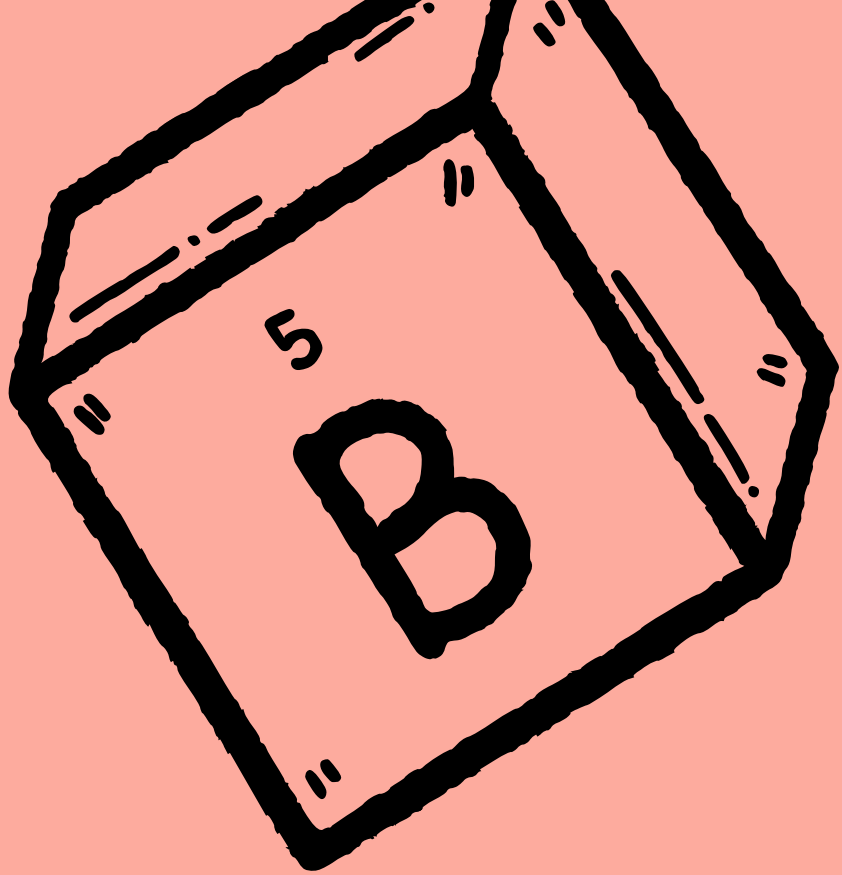
Antoine Lavoisier

Catalina Bustamante

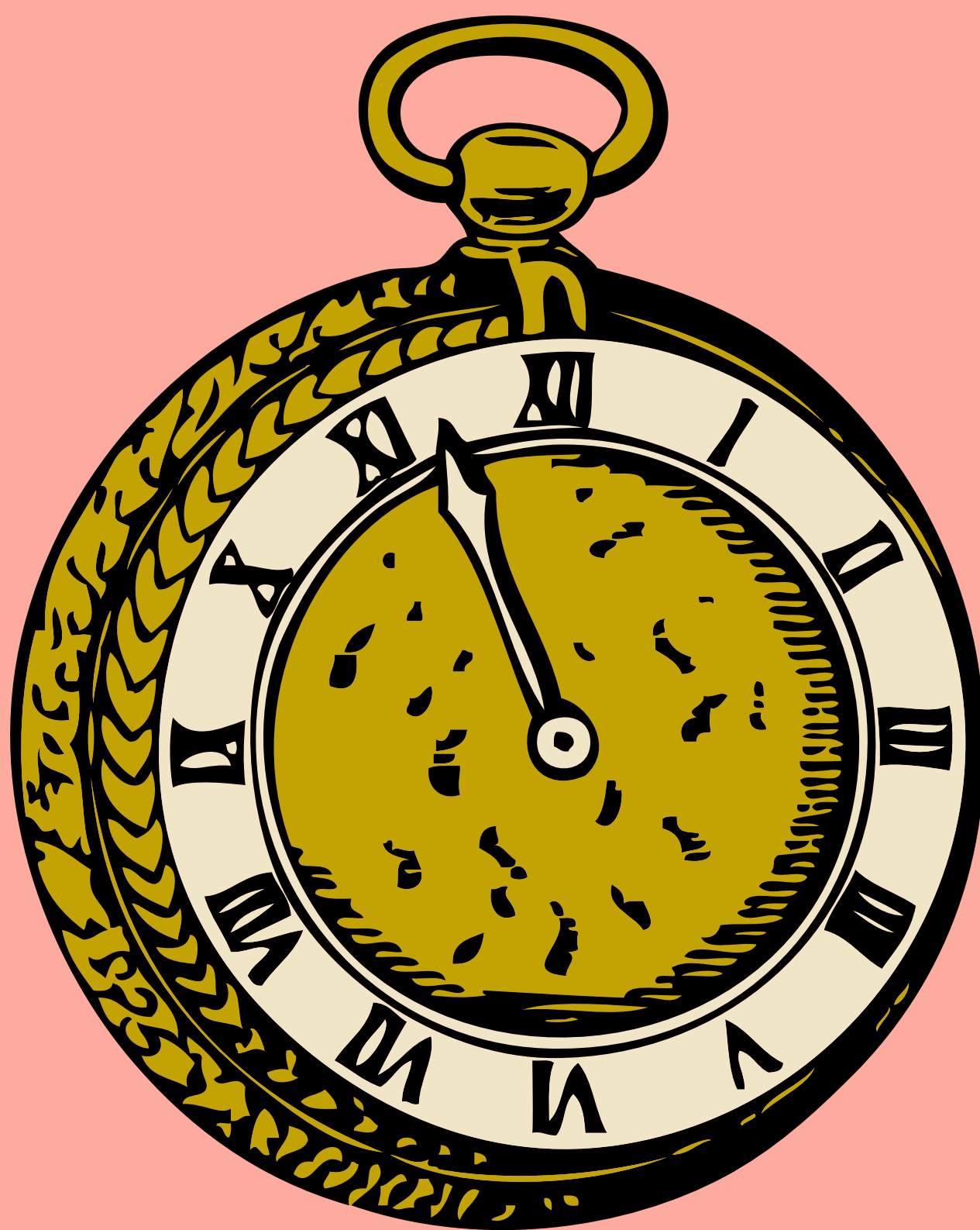


When I was little my dream was to be a very famous scientist and to have a lot of experiments like my father did. When I grew up, one of the discoveries I made was the Discovery of the role of oxygen in Combustion that consists of phlogiston theory and demonstrated that combustion to a substance combining with oxygen. That realizes chemistry by knowing the concept of chemical reactions requiring oxygen. The other day, I was in the lab and I burned different materials like, phosphorous, sulfur, and measured their weight before and after burning. I noticed that the total weight was still the same, showing that this was combining with the burning object. Then, I was conducting an experiment that it's called Proved air have different gases, I showed that the air was not one thing it was made of different gases. I discovered that one oart of the air (oxygen) helps things burn, although another part (nitrogen) does not. In the afternoon I was thinking about what I am going to name to the gas that I create. So I start thinking and I said "I am going to name that gas that helps things burn oxygen", and explained that burning is a chemical reaction where oxygen combines with another substance. All this helps me understand fire and many of the discoveries in chemistry. My passion to make all that experiments was to understand the truth about

how things work in nature. I was passionate, I spent years testing, measuring and thinking deeply. My hard work helped people understand science better and I want to help the world by discovering the real rules of nature.



TIMELINE



The first chemists and the birth of chemists:

Ancient Egypt 3000 BCEc332 BCE

The battle of Kadesh took place in 1274 BCE between Egypt and the Hittites.

In all the battles that took place, developments in science started forming.

The Egyptians traded things like resources with other civilizations.

Priests and scribes had the most knowledge.

2. Greek and Hellenistic Contributions: from Philosophy to Science

(C. 500 BCE – 30 BCE)

Located ..

on Greece and later the Hellenistic world, including Egypt, Persia, and India after Alexander the Great's conquest

Notable Figures:

- Empedocles (c. 450 BCE): Proposed the four elements theory (Earth, water, air, fire)
- Democritus (c. 400 BCE): Introduced the concept of atoms (atomos) or the smallest unit of matter
- : Zosimos of Panopolis (c. 300 CE): An Egyptian-Greek scholar who wrote early alchemical texts.

Chapter 3

Year: sixth century BC,

5th century BC, 4th century and

1st century BC.

Names of the scientists: Anaximander,

Thales,

Anaximenes, Heraclitus, Democritus,

Epicurus, and Lucretius.

Events: They think that E, A, F and W were the four elements.

They thought that everything was made of those elements.

The European Renaissance: The Shift from alchemy To chemistry

14th – 17th Century CE

Italy, France, England and Roman Empire

*The birth of modern chemistry: Lavoisier discovered oxygen and the law of Conservation of mass.

*Pharmaceutical chemistry: Paracelsus used chemicals like mercury and lead to treat diseases

* Colonization brought new raw materials and wealthy funding further scientific advancements

THE FIRST CHEMISTS AND THE BIRTH OF CHEMISTRY

750 – 1400 CE

Islamic Golden Age

- The Crusades (1096 – 1291 CE)
- The Abbasid Translation Movement (8th – 10th century CE)
- The Mongol Siege of Baghdad (1258 CE)
- First chemistry Laboratories
- Discovery of acids and alkalis
- Early distillation and purification methods
- First systematic chemical nomenclature
- Refinement of medical chemistry
- Ibn Sina (980 – 1037)

Year: The event happened around 1743 – 1794 in France.

Scientist: The main scientist was named Antoine Lavrente Lavoisier.

Event: Discovered oxygen and hydrogen

1627–1691

CHAPTER 6–7

ROBERT BOYLE

- For Boyle there was one physical substance which he called "universal mater" that were small pieces that made up everything.
 - For Boyle everything was a combination of the elemental atoms.
 - Boyle found out that if you increase the pressure on volume will release.
- a gas trapped in a container, the
- Boyle devised a way to tell the difference

1677-1810.

Chapters 8-9

Joseph Priestley- Benjamin Franklin

Stephen Hales- Henry Cavendish

Antoine Lavoisier

Priestley and Franklin meet, Priestley decide to be a scientist

Priestley builds a laboratory to find how to trap gas

Priestley perfects "pneumatic trough" made by Stephen Hales

Priestley isolates oxygen

01/08/1774 Priestley put calx of mercury underneath a glass and trapped gas

Cavendish discover hydrogen through an experiment similar to Priestley's

Cavendish puts oxygen and hydrogen and formed water

Antoine Lavoisier said that these two scientists were wrong

Chapter 10

Year: The event happened around 1743-1794 in France

Scientist: The main scientist was Antoine Lavoisier

Event: The discovery of oxygen and hydrogen, and he proved John Priestly wrong.

THANKS



Do you have any questions?



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