

THE ELEMENT TIMES



COLEGIO LOS NOGALES

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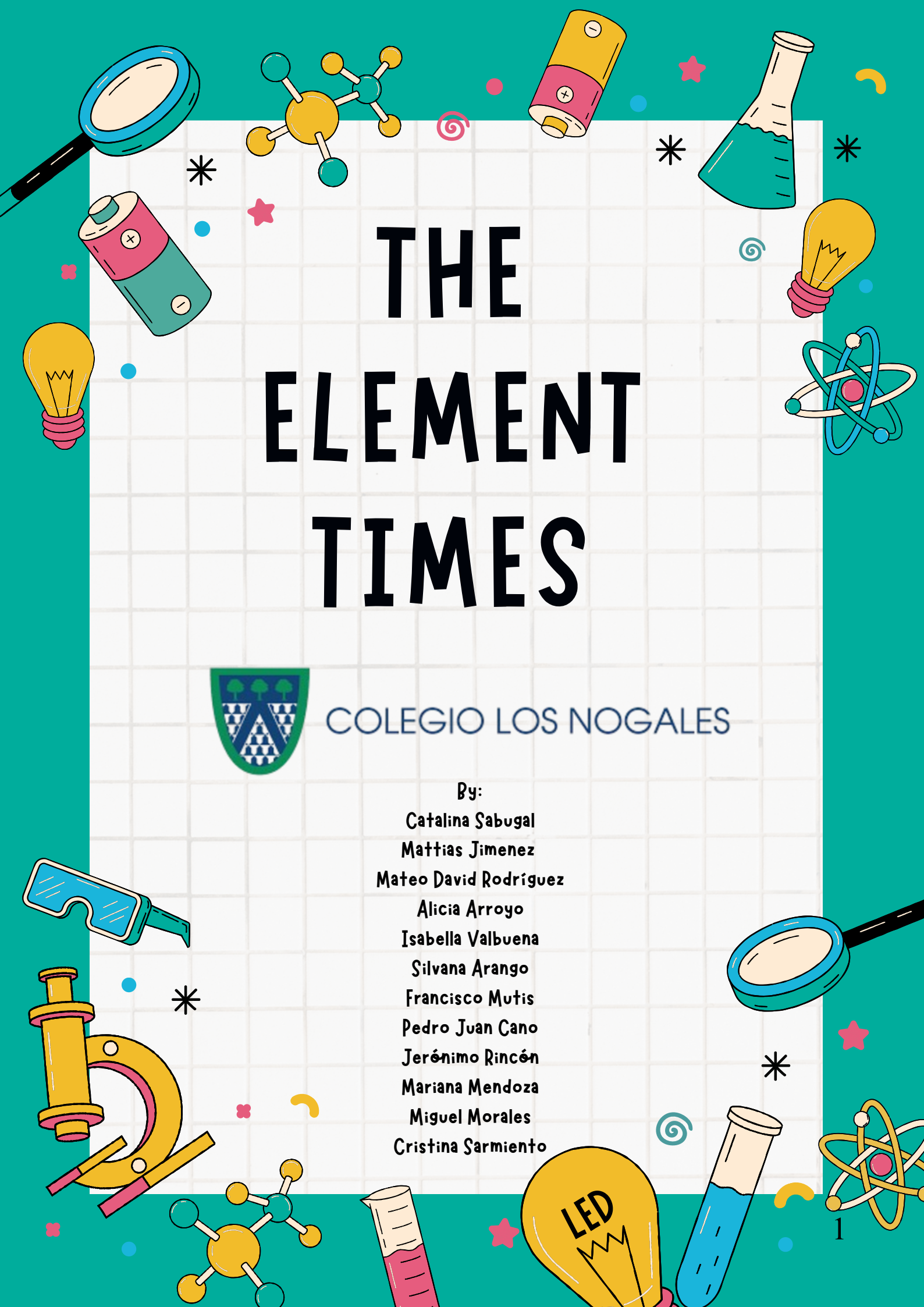
Pedro Juan Cano

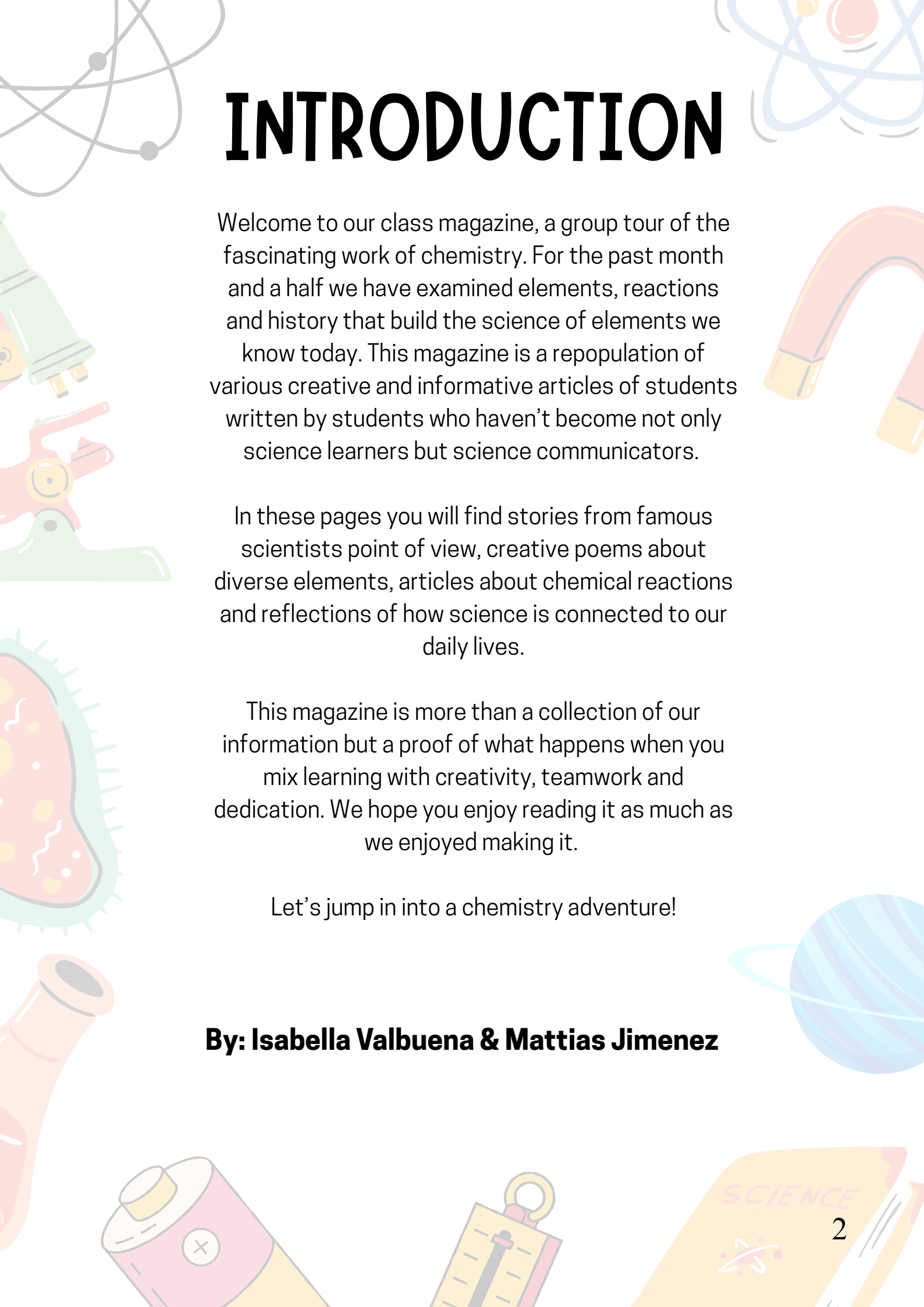
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INTRODUCTION

Welcome to our class magazine, a group tour of the fascinating work of chemistry. For the past month and a half we have examined elements, reactions and history that build the science of elements we know today. This magazine is a repopulation of various creative and informative articles of students written by students who haven't become not only science learners but science communicators.

In these pages you will find stories from famous scientists point of view, creative poems about diverse elements, articles about chemical reactions and reflections of how science is connected to our daily lives.

This magazine is more than a collection of our information but a proof of what happens when you mix learning with creativity, teamwork and dedication. We hope you enjoy reading it as much as we enjoyed making it.

Let's jump in into a chemistry adventure!

By: Isabella Valbuena & Mattias Jimenez

Timeline

Year: 2600 BCE.

Name: Imhotep

Event: Imhotep a high ranking priest engineer, and a physician known. One of the earliest of scientists also contributed to the development of medicine



Year: 1279-1213 BCE

Name: Ramses II

Event: He led Egypt during its peak of military and architectural expansion, commissioning massive temples and infrastructure.

Year: 1274 BCE.

Name: the battle of Kadesh

Event: Fought between Egypt and the Hittites, marking one of the largest chariot battles in history. It resulted in the first known international peace treaty.



Persian Conquest.

Year 525 BCE.

Event: The Persian conquest Egypt, marking the end of native Egyptian rule into the Persian science.

Year: 499 BCE-449 BCE.

Name: Athens and Sparta.

Event: Athens and Sparta fought Persian empire ensuring Greek independence.



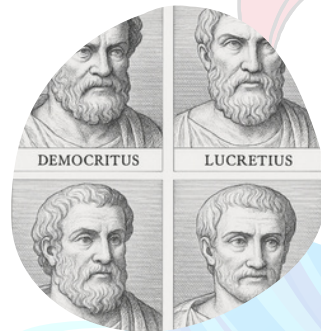
Year: 450 BCE.
Name: Empedocles.
Event: Four Element Theory.



Year: 431-404 BCE.
Name: Peloponnesian War.
Event: A devastating conflict between Athens and Sparta that weakened both side, leading to economic decline and reduce.

Year: 400 BCE.
Name: Democritus.
Event: Concept of atoms.

Year: 350 BCE.
Names: Democritus, Epicurus, Lucretius, Anixmader, Aristotle.
Event: The theory that everything (including tire, air, water, earth) was made of tiny bites (atoms) of hot, cold, dry, moist, but In each thing the shape and size change forming the object, person or animal it self. And Aristotle and Anixamander agreed with the theory .



Year: 336-323 BCE.
Name: Alexander Degrey.
Event: Conquest of Alexander Degrey spread Greek knowledge across Egypt, Persia and India.

Year: 323-30 BCE.
Name: Zosimos of Paropolis.
Event: Distillation and sublimation techniques.



Year: 300 CE.
Name: Zosimos of Panopolis.
Event: Egyptian-Greek scholar who wrote early alchemical texts.

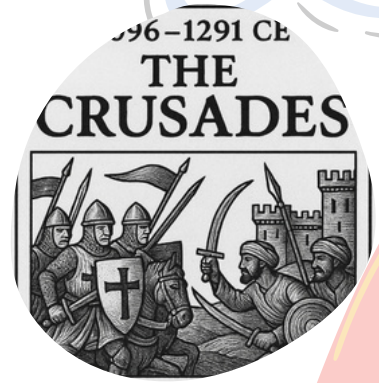
Year: 721-815 CE.
Name: Jabber Ibn Wayyan.
Event: Considered the father of chemistry. He developed distillation, crystallization, and early acid classification.

Year: 854-925 CE.
Name: Al-razi.
Event: A physical alchemist who experimented with chemical reactions to create medical treatments.

Year: 8th-10th centuries CE.
Name: The Abbasid translation movement.
Event: scholars in Baghdad's House of Wisdom translated and expanded on Greek, Persian, and Indian texts.

Year: 980-1037 CE
Ibn Sina (Avicenna).
Wrote the Canon of Medicine.
A comprehensive text that informs chemical reactions.





Year: 1096-1291 CE.

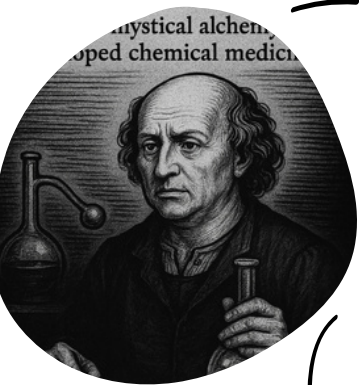
Name: The crusades.

Event: A series of religious wars between the European Christian states and Muslim empires. Increased contact between the Islamic world and European helped transfer scientific knowledge to the west.

Year: 1258 CE.

Name: The mongol siege of Baghdad.

Event: the destruction of Baghdad and its libraries marked the decline of the Islamic golden age, disrupting scientific progress.



Year: 1493 - 1541 CE.

Paracelsus.

Reject mystical alchemy and developed chemical medicine.

Year: 1517-1648 CE.

The Protestant Reformation.

Led to division in the catholic church and the rise of scientific independence.

Year: 1648.

Name: The Thirty Years' War.

Event: A destructive war in Europe that, despite chaos, led to increased Medieval and military advancements.





Year: 1627-1691.
Name: Robert Boyle.
Event: Introduced modern chemistry and experimental methods

Year: 16th-17th CE.
Name: The Scientific Revolution.
Event: Marked a shift from religious-based explanations to the empirical research.

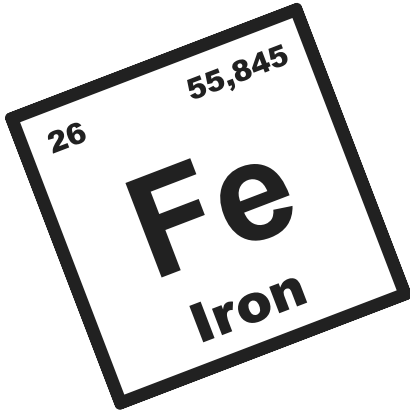
Year: 1747-1794.
Name: Antoine Laurent Lavoisier.
Event: Lavoisier proved that air goes into heated mercury because the air in the bell jar shrinks from 50 cubic inches to 42 cubic inches.



Poems



Iron



Who I am

Ancient humans got me from meteors
Before they knew how to extract me
For ore.
You can get me from a store.

I can be as beautiful as diamond in the sky
I'm not like an apple because i don't dry
I was used in medicine and in metal production.
I can work for construction too.
I need a lot of heat to melt.
I can be shaped like a belt.

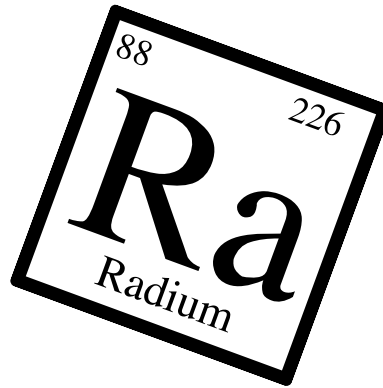
My color is silvery gray
If I was radioactive the people would stay away.
I am very popular today.
In the periodic table I am Fe.

I was used for more.
I rhyme with android.
I was used in the century 4.
I am stronger than steel
I could live in a fairy tale or I could be real.
If you got it right I am iron.

Francisco Mutis



Radium



Guess who I am,
I was not discovered in Amsterdam,
Neither by the Chinese,
I was truly discovered by the Curies,
But not in the 1780's,

I was supposed to cure cancer,
But I was not the real answer,
Cause I provide it,
I need to admit,

The Radium Girls got sick thanks to me,
It was not because of green tea,
It was because of my radioactivity,
I am sorry for that activity,

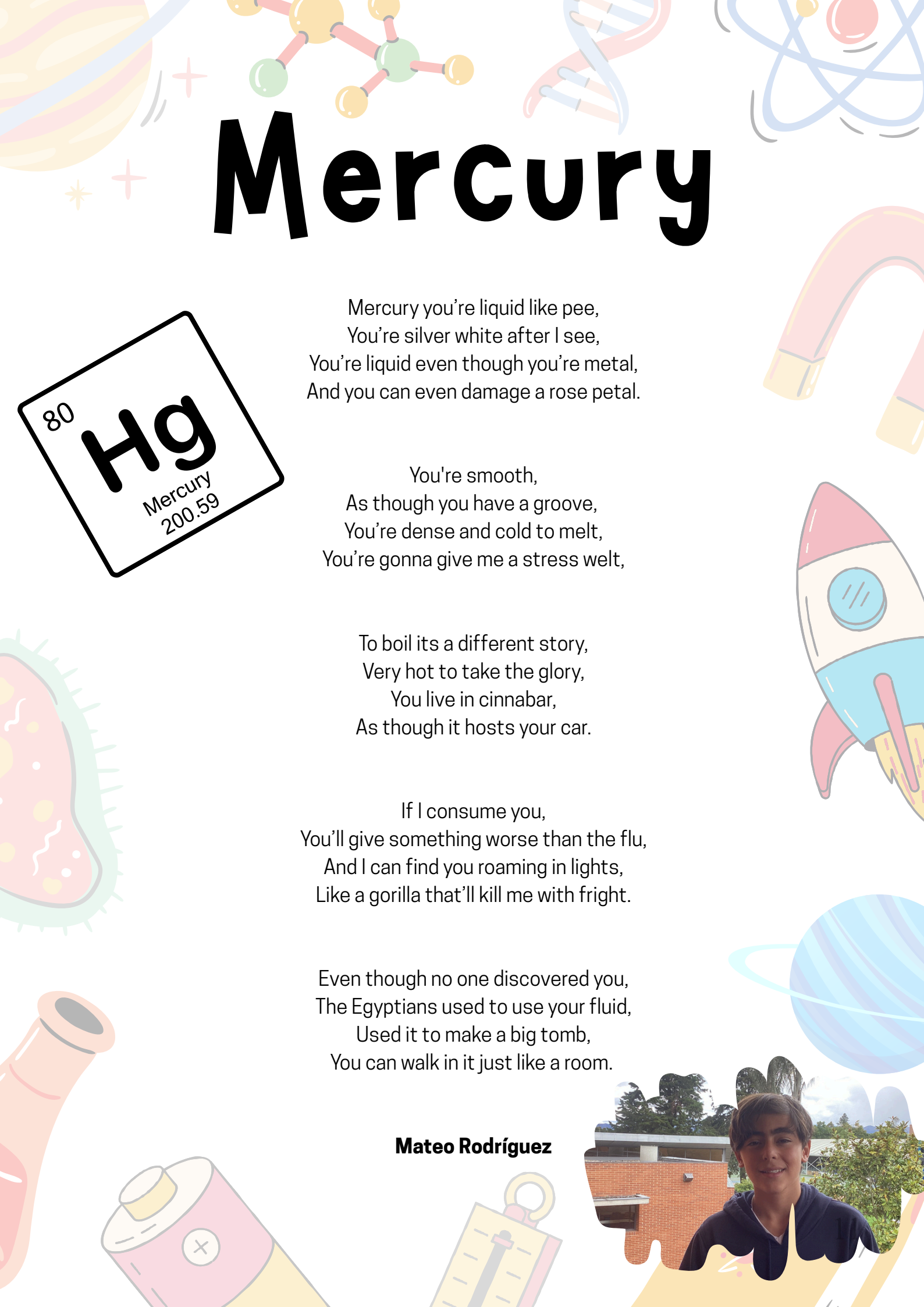
You will get anemia,
But not esquizofrenia,
In case of none protection,
You would get a serious infection,

I glow,
Even like a beautiful bow,
Even though not like the one of Monroe,
But I still glow,

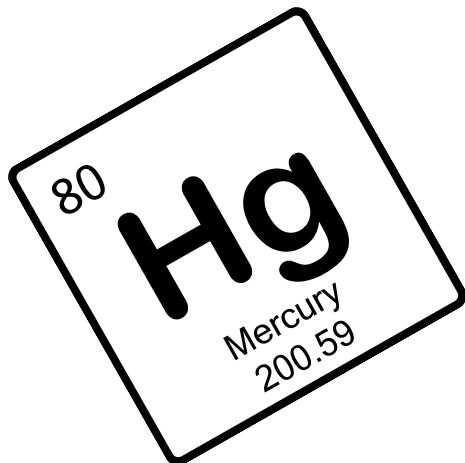
In the 1898,
I have the pleasure of being in this world,
I almost went to the under-world,
I am like the day glowing every day,
I promise I am as bright as a star in the night.

Cristina Sarmiento





Mercury



Mercury you're liquid like pee,
You're silver white after I see,
You're liquid even though you're metal,
And you can even damage a rose petal.

You're smooth,
As though you have a groove,
You're dense and cold to melt,
You're gonna give me a stress welt,

To boil its a different story,
Very hot to take the glory,
You live in cinnabar,
As though it hosts your car.

If I consume you,
You'll give something worse than the flu,
And I can find you roaming in lights,
Like a gorilla that'll kill me with fright.

Even though no one discovered you,
The Egyptians used to use your fluid,
Used it to make a big tomb,
You can walk in it just like a room.

Mateo Rodríguez



Potassium

Too soft, but not like a knife.
Extremely reactive,
But not very active.
I am Potassium, and this is my life.

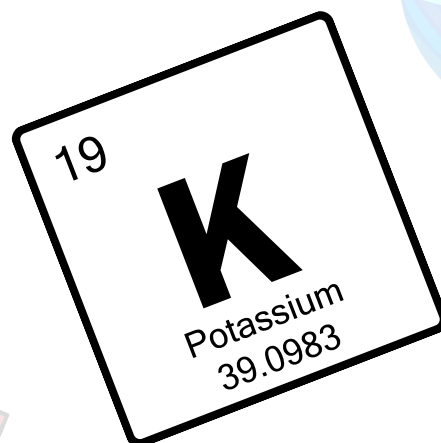
My atomic number is nineteen.
20 °C is my physical state.
I feel like a city with normal climate,
And also as warm as something that I ate.

Like a silvery white metal.
Very solid in a temperature room.
Potassium is a gold metal,
But softer it is softer than an immense spoon.

It was discovered in 1807,
By an English chemist named Humphry Davy.
I can be used in many ways.
Things like fertilizers or fireworks.
Also like a source of oxygen,
But when I do it, I feel like it's hard work.

Conductor of heat and electricity,
Producer of hydrogen, gas and heat,
Potassium is an awesome nutrient,
That works for a great athlete.

Miguel Morales



Iodine

I am essential, like salt in a stew
Invisible, but I fulfill my promise with great commitment
I started with my poem with great emotion
and I finished it without inspiration.

A trace in your food, yet my power is true,
Like seasoning broth with a magical brew

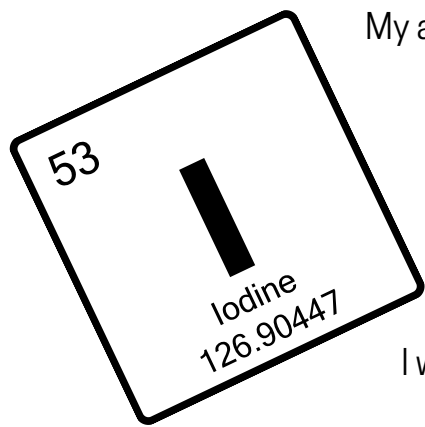
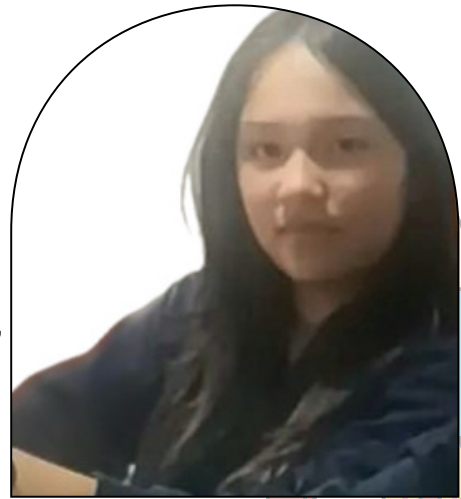
With the atomic number fifty three in line,
Some names started with "I" just like mine
My appearance is shiny and dark, I can turn to a gas,
A mystery in a chemistry class

I am vital, like stars in the night
Silent and hidden, but guiding the light.
I was discovered by Bernard Courtois,
I was identified as an element by Joseph Louis.

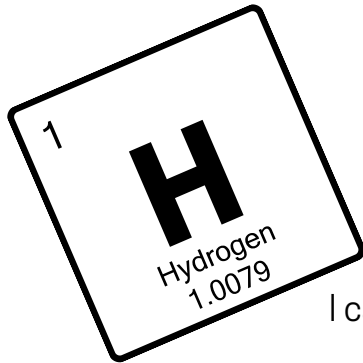
I am found in the sea, in fish and salt,
A lack of it leads to the thyroid's fault.
So don't forget this element's might
Though small in amount, helps you feel right.

A trace in your food, yet my power is true,
Like seasoning broth with a magical brew

Isabella Valbuena



Hydrogen



The poem of "H"

My name is Hydrogen.
I rhyme with nitrogen.
I can make your voice sound like a mouse .
I can turn into Helium ,
and I am the sun's premium.

My name means water -former.
I am like a transformer.
I can turn into water .
I can go in a bottle.

I was found by Henry Cavendish.
I can help you cook a dish.
I am as useful as Al.
I am the first in the periodic table,
and I can't be transported through a cable .

I am the fuel of the future.
I can power your Uber.
I am as transparent as glass,
and I am a gas.
I am very useful.
I can be in a carnival but remember I'm flammable

Silvana Arango



Carbon

Carbon is everywhere.
also in biosphere.
I'm created by natural.
And always admiral.

I'm am non-metallic,
That means I don't have metallic.
But a little bit radioactive.
And very attractive.

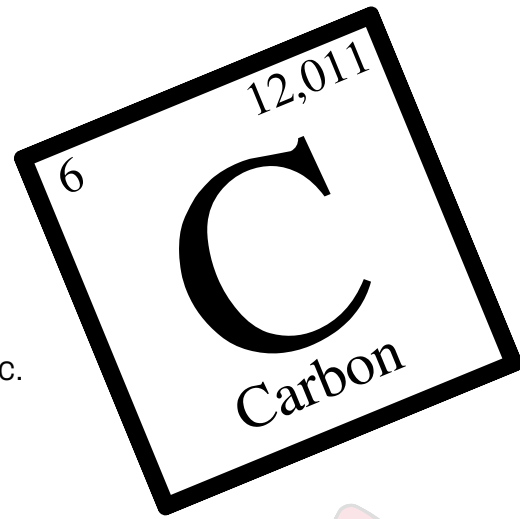
My color is black.
And I'm sometimes attacked.
My atomic number is 6.
And my boiling point is also big.

I was discovered by Teofrasto.
And appear in an arrow.
I'm used in Graphite.
But also in fabric.

I'm very surprising.
And also so exciting.
Earth is Carbon - based,
But also Carbon- Pasted.

This poem is special
But also gerential.
Carbon is exciting.
Like is used in handwriting.

Pedro Juan Cano



Helium

Poem of Helium

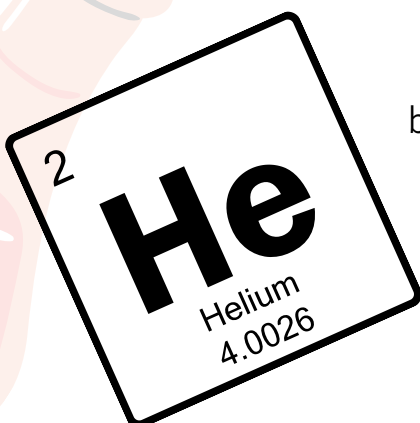
Hello I am Helium you can call me He,
I am in balloons so you can hear my beat,
I am the second most abundant element after
my brother H,
I am non-flammable, but H is because he is
always at the beach,
I am a little reactive, not like chlorine that is
bleach.

I am colorless, tasteless and odorless but not
nameless,

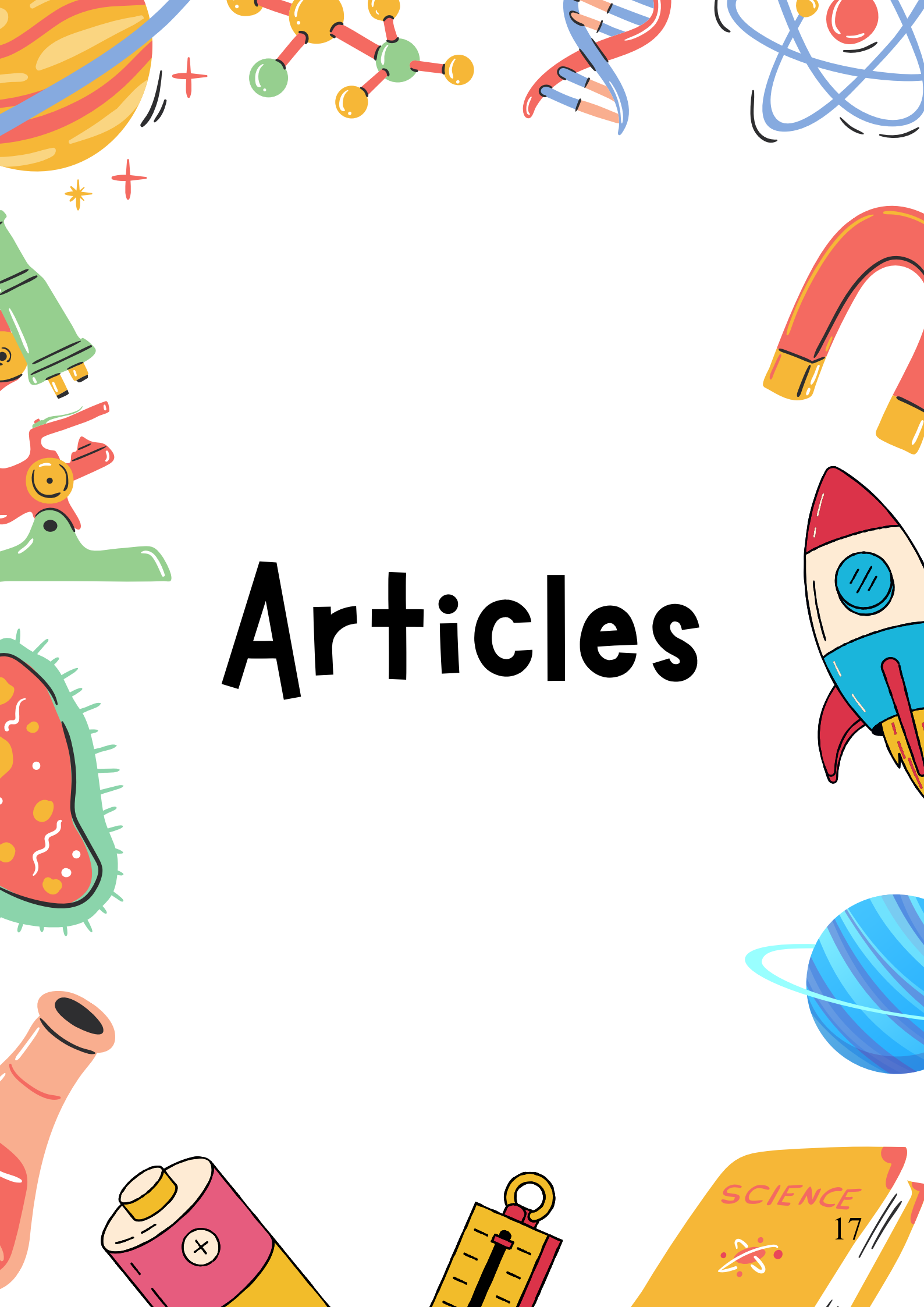
I am a gas so i am weightless,
I was discovered in 1868 in the sun's spectrum,
that sounds like electrum,
I rarely form compounds like other elements.

I am in the 18 group of the periodic table with
neon that never sleeps,
My atomic number is 4.0026 a long number for
me,
My boiling point is - 268.93 C that's very cold,
Not like my founding place that is like gold.

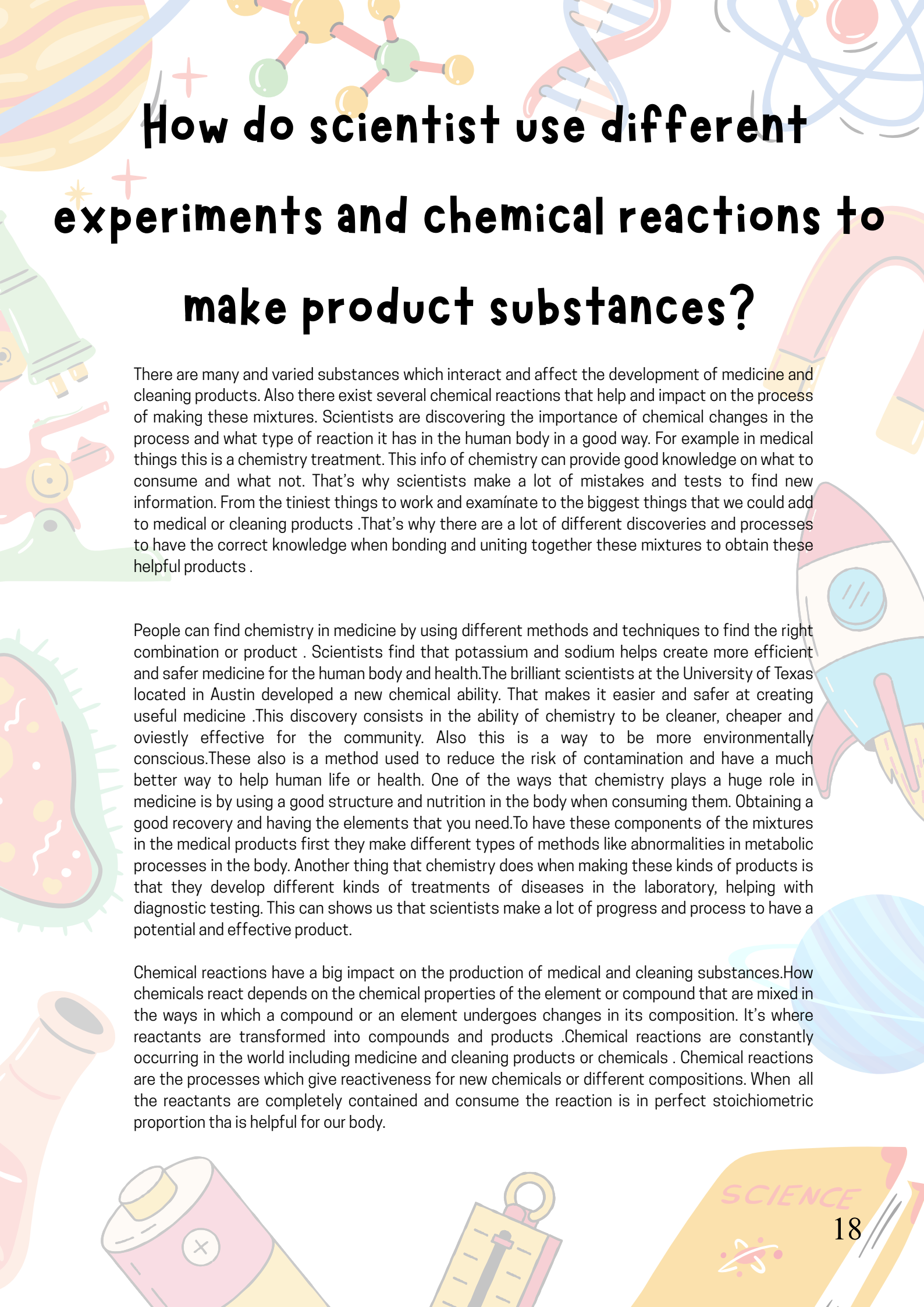
I have many uses like I help scientists
researches involving low temperatures but I
don't like it,
I am the second most lightest element and the
first is my brother so I quit,
I also help deep-sea divers breathe because
they use me and O underwater so is permit
And I am most of the time in the United states
because there is abundant water, I think that you
get it.



Alicia Arroyo



Articles



How do scientist use different experiments and chemical reactions to make product substances?

There are many and varied substances which interact and affect the development of medicine and cleaning products. Also there exist several chemical reactions that help and impact on the process of making these mixtures. Scientists are discovering the importance of chemical changes in the process and what type of reaction it has in the human body in a good way. For example in medical things this is a chemistry treatment. This info of chemistry can provide good knowledge on what to consume and what not. That's why scientists make a lot of mistakes and tests to find new information. From the tiniest things to work and examine to the biggest things that we could add to medical or cleaning products. That's why there are a lot of different discoveries and processes to have the correct knowledge when bonding and uniting together these mixtures to obtain these helpful products.

People can find chemistry in medicine by using different methods and techniques to find the right combination or product. Scientists find that potassium and sodium helps create more efficient and safer medicine for the human body and health. The brilliant scientists at the University of Texas located in Austin developed a new chemical ability. That makes it easier and safer at creating useful medicine. This discovery consists in the ability of chemistry to be cleaner, cheaper and oviestly effective for the community. Also this is a way to be more environmentally conscious. These also is a method used to reduce the risk of contamination and have a much better way to help human life or health. One of the ways that chemistry plays a huge role in medicine is by using a good structure and nutrition in the body when consuming them. Obtaining a good recovery and having the elements that you need. To have these components of the mixtures in the medical products first they make different types of methods like abnormalities in metabolic processes in the body. Another thing that chemistry does when making these kinds of products is that they develop different kinds of treatments of diseases in the laboratory, helping with diagnostic testing. This can shows us that scientists make a lot of progress and process to have a potential and effective product.

Chemical reactions have a big impact on the production of medical and cleaning substances. How chemicals react depends on the chemical properties of the element or compound that are mixed in the ways in which a compound or an element undergoes changes in its composition. It's where reactants are transformed into compounds and products. Chemical reactions are constantly occurring in the world including medicine and cleaning products or chemicals. Chemical reactions are the processes which give reactiveness for new chemicals or different compositions. When all the reactants are completely contained and consume the reaction is in perfect stoichiometric proportion tha is helpful for our body.

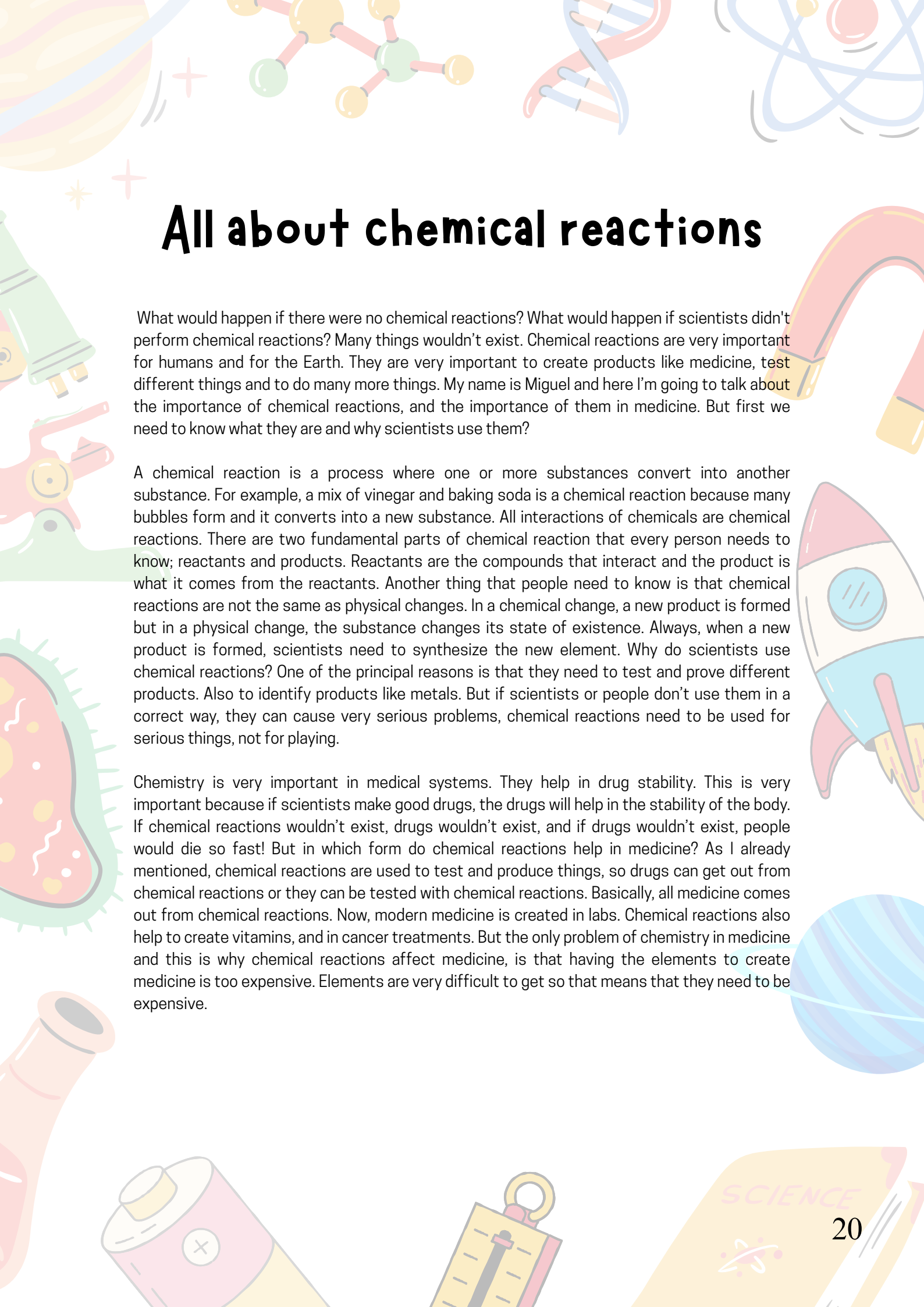
Also it is used to study its action, knowledge about its efficacy and potency at given concentration or those is insufficient to obtain a proper power. These things fundamental in medicine help us realize impacts in drug discovery and the synthesis to understand how drugs affect and work in the body and how they are metabolized. These chemical reactions help us in analyzing new diseases and tag them when making the results of the medical drug. These real life experiments about medical and cleaning substances help us illustrate more effectively the importance of chemist data obtained. Also they are represented in equations which represent the change from the reactants.

Behind the effectiveness of the cleaning products, there's a fascinating world of chemistry. The importance and benefits of these chemicals, help you gain a better understanding on how they are effective, powerful and safe to use. One of the most important things that scientists use to create these compounds and acetic acid is the incredible power of sodium and hypochlorite. Caustic soda is also important and has high HP value offering highly effective fat for you and grease removal properties. The most common example of these products are corrosives. Corrosives are hazardous materials that can damage or destroy materials. Also making it easier to remove and clean through the chemical reaction. Some examples of corrosives are: toilet bowl cleaners, oven, cleaners, lime away, and vinegar. There are also cleaning agents or hard-surface cleaners that are currently chemical compounds. These are used to break down and remove contaminants or bacteria. Finally most of the cleaning agents contain and have at least some surfactants that affects its function when used.

In conclusion, in the very beginning of this process chemicals reactions and chemistry have a lot to do with the creation of these two products. Also taking into account chemical reactions are fundamental for testing the potential of these substances and the accuracy that they have. This is made to help us understand how these products impact and affect the human body and how they are metabolized. One of the most important facts is that it provides good knowledge on what features are safer to use, such as chemicals and medicines for the human body or to clean things. Another thing that is super important that scientists figure out is that potassium and sodium make these products safer for us. So at the end we can see that the development of these products takes a lot of testing and processes. These to see if they have the correct chemical reaction or equation to have a nice result and success.

By: Jerónimo Rincón





All about chemical reactions

What would happen if there were no chemical reactions? What would happen if scientists didn't perform chemical reactions? Many things wouldn't exist. Chemical reactions are very important for humans and for the Earth. They are very important to create products like medicine, test different things and to do many more things. My name is Miguel and here I'm going to talk about the importance of chemical reactions, and the importance of them in medicine. But first we need to know what they are and why scientists use them?

A chemical reaction is a process where one or more substances convert into another substance. For example, a mix of vinegar and baking soda is a chemical reaction because many bubbles form and it converts into a new substance. All interactions of chemicals are chemical reactions. There are two fundamental parts of chemical reaction that every person needs to know; reactants and products. Reactants are the compounds that interact and the product is what it comes from the reactants. Another thing that people need to know is that chemical reactions are not the same as physical changes. In a chemical change, a new product is formed but in a physical change, the substance changes its state of existence. Always, when a new product is formed, scientists need to synthesize the new element. Why do scientists use chemical reactions? One of the principal reasons is that they need to test and prove different products. Also to identify products like metals. But if scientists or people don't use them in a correct way, they can cause very serious problems, chemical reactions need to be used for serious things, not for playing.

Chemistry is very important in medical systems. They help in drug stability. This is very important because if scientists make good drugs, the drugs will help in the stability of the body. If chemical reactions wouldn't exist, drugs wouldn't exist, and if drugs wouldn't exist, people would die so fast! But in which form do chemical reactions help in medicine? As I already mentioned, chemical reactions are used to test and produce things, so drugs can get out from chemical reactions or they can be tested with chemical reactions. Basically, all medicine comes out from chemical reactions. Now, modern medicine is created in labs. Chemical reactions also help to create vitamins, and in cancer treatments. But the only problem of chemistry in medicine and this is why chemical reactions affect medicine, is that having the elements to create medicine is too expensive. Elements are very difficult to get so that means that they need to be expensive.

How do chemical reactions create useful products? In a chemical reaction, atoms are rearranged, and they create different products with different properties. In a chemical process, the way the atoms are bonded changes, forming new substances. Also products that are created from a chemical reaction, are completely new and they can have completely new properties. But how are the products created? If you mix the substances together or and make the experiment, the new substance will get out. This is what is explained in the paragraph. All these processes create the chemical reaction. The reaction depends on factors like temperature, pressure and the concentration of reactants. That reaction starts when two or more molecules interact. They can last long periods but they can also last seconds. Something that is very important is that every chemical reaction has an equation. For example, for a mix of vinegar and water, the equation is $\text{CH}_3\text{COOH} + \text{H}_2\text{O}$.

Chemical reactions are very important for humans and their existence. Without chemical reactions many things wouldn't know what the Earth is and many things would be impossible to do. They can have some defects but they are fundamental to creating, testing, and analysing new products. Imagine, what would happen if drugs wouldn't exist, many people would have problems and medicine would be very bad! In conclusion, chemical reactions are one of the most important things on Earth.

By: Miguel Morales



How do the properties of materials change after a chemical reaction happens?

This article is about how the properties change after a chemical reaction and learn about the chemical reaction that happens around us. Chemical changes occur when bonds are broken or formed between molecules or atoms. This means that one substance with a certain set of properties like melting point, color, taste, and the temperature, is turned into a different substance with different properties. For example: mechanical property, thermal property, electrical property and magnetic property. Chemical reactions is something very interesting and also special but this note is easy to understand, can be easy for some people, specifically for alchemists, atomics scientists but for others it is more difficult because it is not common for them, including me.

The materials have different properties that determine how they behave under various conditions. For example mechanical properties such as strength, elasticity, and hardness, affect how materials hold up under force. Thermal properties describe how well materials conduct heat; for instance, metals like copper conduct heat easily, while wood does not. In addition, chemical properties describe a substance's ability to react and form new substances when exposed to certain conditions or other substances like corrosion resistance and stability. In addition Magnetic properties describe how a substance interacts with a magnetic field. These include ferromagnetism, paramagnetism and diamagnetism. The last is Optical property refers to how materials interact with light, like transparency and refraction. But there are more types of materials properties. The properties of materials can be categorized depending upon the variable or a constant under consideration, are categorized into the following types: Acoustic properties like the speed of sound, sound reflection. Atomic properties are categorized into the following types: atomic mass, atomic number, atomic weight. Chemical composition and internal structure determine its mechanical and physical properties.

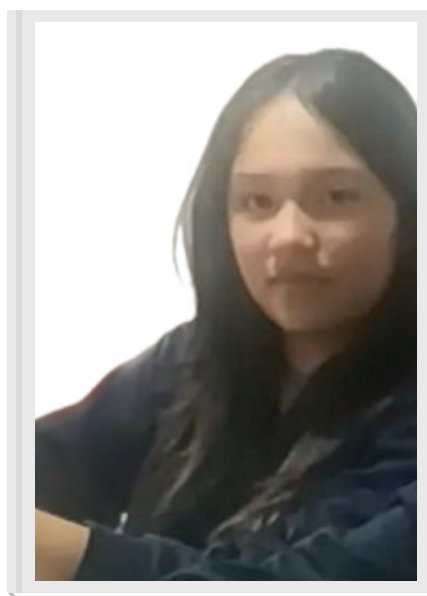
Chemical reactions are the process by which chemicals interact to form new chemicals with different compositions. This is the process where reactants are transformed into products. Chemistry is an attempt to classify and better understand these reactions. A chemical reaction typically represents the change from reactants to products. There are different types of chemical reactions for example: precipitation reactions, acid base, or neutralization reactions, oxidation-reduction reactions, combustion reactions, photosynthesis reactions and others more. Examples of chemical reactions in everyday life: burning of paper and logs of wood, digestion of food, baking a cake and various metabolic reactions that take place in the cells. A chemical reaction is in which the bonds are broken within react molecules and new bonds are formed within product molecules in order to form a new substance. Chemical reactions are all around us. The compounds that interact to produce new compounds are called reactants whereas the newly formed compounds are called compounds and a nomenclature was developed to simplify how we express a chemical reaction in the form of a chemical equation.

The difference between a physical reaction and chemical reaction is composition. In a chemical reaction, there is a change in the composition of the substances in question, in a physical change there is a difference in the appearance, smell, or simple display of a sample of matter without a change in composition. Common physical changes are: texture, color, temperature, shape and change of state. Physical properties are: luster, malleability. Common chemical changes are: change in the temperature, change in color and noticeable odor. A burning candle is the best example of physical and chemical change as a tool for slowly vaporizing and burning wax. As they heat up, the rising carbon atoms emit light. This heat produces a light effect called incandescence, and it is the same kind of thing that creates light in a light bulb. In a physical change the appearance or form of the matter changes but the kind of matter in the substance does not. In a chemical change the kind of matter changes and at least one new substance with new properties is formed

In a physical change the nature of the substance, the particles of which it is composed and the numbers of particles remain unchanged. In a chemical change the properties of the new substances are different from the original, the particles are different and the number of particles can change. While the distinction between physical and chemical change is a useful one it should be seen as more of a continuum.

To conclude the difference between a physical reaction and chemical reaction is composition. In a physical change the appearance or form of the matter changes but the kind of matter in the substance does not. In a chemical change the kind of matter changes and at least one new substance with new properties is formed.

By : Isabella Valbuena



How do scientists use chemical reactions to create useful products like medicine and cleaning supplies?

How do scientists use chemical reactions to create useful products like medicine and cleaning supplies? What is a chemical reaction you may ask, and how does it create useful products? This will answer all of the questions you might have. This article's purpose is to teach how scientists use chemical reactions to create useful things for us. This topic is important because it helps you understand how scientists create things we might use every day. And to get how chemical reactions are very useful.

First of all, what is a chemical reaction? Chemical reactions create new substances. These are used to make new chemicals, plastics, medicine and are used in cooking. Large temperature, change of color and bubbles are examples of what happens when there is a chemical reaction. Baking a cake is another example of a chemical reaction because when you bake a cake, after the baking it is impossible to separate the ingredients again. And chemical reactions happen when a substance transforms into a new substance. An example is, when we eat we have a lot of chemical reactions in our digestion. We have acids in the stomach that breaks down food. Another example is plants use chemical reactions in photosynthesis transforming carbon dioxide and water into food and oxygen. And a famous chemical reaction is combustion is a chemical reaction where energetic molecules with oxygen produce carbon dioxide and water. This happens when we burn a candle. So now you have an idea of what a chemical reaction is.

How do scientists use chemical reactions to create medicine? There are a lot of steps to create medicine. First the researchers work to design compounds to treat diseases, symptoms and help the patients to feel better. Then they optimize the structure and properties of the molecules to get better interactions with other specific molecules. And last but not least they check compounds, biological activity and the toxicity to be sure that the drugs are safe for humans. There are also some reactions in medicine. The most popular reaction used in drug discovery is called amide coupling. The common amide is formed by coupling an amide and carboxylic acid. The University of Michigan College of Pharmacy discovered a way to produce a carbon-carbon instead of an amide. The carbon-carbon bond forming discovery makes more stable medicine. All of this is very important for our health plus it's kind of interesting to know how medicine is formed. So now you have an idea of how scientists use chemical reactions to create medicine.



And last but not least how do scientists use chemical reactions to create cleaning products? So how do cleaning products work? Oxidation-reduction are behind the effectiveness of many disinfectants and stain removers, they work by using oxygen to break down and remove stains and organic materials. When an oxidizing agent, like hydrogen peroxide or bleach is applied to a stain, it lets out oxygen molecules, these break down the big stain to smaller pieces [less colored or less smelly] as a result it gets easier to clean. Acids are substances that release hydrogen ions when dissolved in water, which work well for removing greasy, oily, and acidic stains. And what is actually in a cleaning product? Acids are chemicals with pH below 7 and are good for cleaning stains and surfaces. Alkalis are chemicals with pH above 7 and are very good to clean grease. When the alkali react with the fat acids and oils they form soap molecules that trap the grease and break them down. And this is how a cleaning product works.

A chemical reaction creates new substances. Scientists use chemical reactions to create medicine by investigating and trying what happens if you put chemicals together. Also they see what chemical reactions happen in our bodies when you take a medicine. And cleaning products work by using oxidation, oxidising and acids. Next time you are cooking taking a medicine or cleaning now you will know how it works and the science behind it.

By :Silvana Arango





How chemical reactions help in medicine and cleaning supplies?

Chemical reactions is a process in which one or more substances that are called reactants are converted to one or more different substances and are called the products. A chemical reaction rearranges the constituent atoms of the reactants that are to create different substances as products. Some reactants can be hydrogen or peroxide and many more. The evidence of chemical reactions includes a large temperature change or bubbles or a color change. For example when a chemical reaction makes bubbles means that it gives a gas so you see bubbles. If the new chemicals are different colors from the original chemicals there will be a color change from a chemical reaction. "A large energy change – Many chemical reactions give off lots of energy, like burning, and a few absorb energy, so they feel cold". Physical changes such as melting, boiling and dissolving do not make new chemicals; they are easy to reverse. For example, no matter what its physical state, water is the same compound with each molecule composed of two atoms of hydrogen and one atom of oxygen. Those are some chemical reactions.

In our life we need many things that make our life better. For example medicine. Medicine is crucial for our health and life, also another food that helps us is cleaning supplies. To create medicine and cleaning supplies pharmacists need chemicals and chemical reactions to create medicine and cleaning supplies. For example, from acetone to hydrochloric acid various types of organic and inorganic chemicals that are used in the pharmaceutical industry. While some of these chemicals are unsafe or even poisonous when used in combination with others, chemicals play an essential role in synthesizing all sorts of drugs and medicine because they use a special process to do it, not poison. In the way of cleaning supplies there are also a list of special chemicals and chemical reactions. The cleaning supplies are also important because they help us to be more clean and away from bacteria. Chemicals commonly used for decontamination and cleaning of surfaces are listed below. For example hypochlorite solutions are classified as irritant and corrosive. But also chemicals are bad for our health if we use them in excess. For example Chlorine solutions should never be mixed or stored with cleaning products containing ammonia, ammonium chloride, or phosphoric acid. Combining these chemicals will result in the release of a chlorine gas, which can cause nausea, eye irritation, tearing, headache, and shortness of breath. If you are exposed to an unpleasantly strong odor following the mixing of a chlorine soliton with a cleaning product. Those are the main chemicals use is medicine and cleaning supplies.



Chemical reactions are not only in science, they are also in everyday life. For example digestion of food, boiling an egg, baking a cake and many more. Also there are chemical reactions in science laboratories. For example descomposición is when you descompone a chemical or other thing. Also the combination that is when you combine two or more chemicals together, and many more examples. Some examples of resolute chemical reactions involved in daily life are physical changes such as boiling and dissolving. For example to make gelatin you need to dissolve the gelatin. Also to boil an egg you need to boil it and that is a chemical reaction in daily life. Also there are reactions that are not in daily life. For example bubbles or things like that. Some examples of chemicals used in medicine are tranquilizers, analgesics, non-narcotic analgesics, narcotic analgesics. Also antimicrobials, antibiotics, antiseptics and disinfectants are examples of chemicals used in medicine. You need to take care of the exes of medicine because you can get intoxicated. Hydrogen peroxide, Quaternary Ammonium Compounds, Ethanol are some examples of chemicals used in cleaning supplies. But also you need to take care with those chemicals because if you use them a lot and you are very exposed with those chemicals you can have damage to your health. Those are examples of chemical reactions and chemicals used in medicine and cleaning supplies.

In conclusion, chemical reactions are very important. Because they are very important to the fabrication of medicine and cleaning supplies. The solutions of the chemical reactions are some chemicals used in medicine and cleaning supplies. But also you need to take care. Because if you use or you are very exposed to excess cleaning supplies. Also if you manipulate directly with the chemicals of the cleaning supplies you can have bad things in your hands. Also if you eat those chemicals you can get intoxicated. And in terms of medicine if you have an excess of medicine you can get intoxicated. So in resume do not eat the chemicals and follow the recommendations.

By : Mariana Mendoza





Science At Home

This text would explain how chemical reactions occur in everyday life. Also, there would be parts that explain how they look and the good ones and the bad ones. It's important for people to understand the chemical reactions that are in house daily. If people don't know the importance of how chemical reactions work and affect in the house, what would happen? Maybe people would be in danger, they could mix some elements that don't work well together. But also we would be talking about some chemical reactions that occur in everyday life activities like cooking or cleaning. It would be important for people to know what is happening when they make these activities and something reacts. Some would be good reactions but there are always bad reactions also, and how can we avoid the chemical reactions that don't work good for preventing something bad from occurring.

How different chemical reactions happen in everyday life? Everyday activities interact with chemical reactions, like combining different things. Also, these activities interact with chemical reactions. Chemical reactions work and proceed in everyday life activities. When combining different things or mixtures in everyday life there are chemical reactions. Chemical reactions, is when a substance has a change in its chemical composition to create something new or substance. The substances in a mixture change when combining with other substances. Chemical composition of a substance before and after the chemical reaction occurs, thanks to the mixture of another substance. Procedure of the chemical composition of a substance when adding a new and different substance. This reacts and makes a new substance made of two or more different substances. Finally, making a new substance that can also be mixed with others to make more.

You may think about how chemical reactions in cooking work. Science on food when cooking makes chemical reactions. When cooking and combining different materials chemical reactions work. Chemical process of two or more different ingredients when cooking in everyday life. Procedure of cooking chemical reaction in everyday meals. Maillard reaction produces flavor and aroma when cooking the meal cooking process. Maillard reaction procedure in cooking for giving an aroma and taste to a meal. Everyday activities in cooking produce Millard reactions for good aroma and taste. Chemical composition changes when Millard reaction occurs in everyday meals. So the chemical composition of something is very important to the chemical reaction of two substances. In this case cooking can be a scenery of this chemical process.



As we have chemical reactions in cooking, we have them in cleaning. Surfactants change how water behaves, when surface tension reduces. By the way, Surfactants' chemical reaction process changes water behavior for everyday life cleaning. Chemical composition of water changes thanks to the chemical composition of surfactants that react with water. Very important is that surface tension is reduced thanks to the chemical reaction of surfactants in water. Also, we have different important factors in cleaning, one of them PH. Ph between 4.5 and 8.0 to clean wool is incorrect, these factors and others resulted in students getting a somewhat distorted view of pH as it related to cleaning. When ph is very discontroled in cleaning, it can damage something's when cleaning in everyday life thanks to its chemical composition. Understanding how ph chemical reacts with other products, we can avoid damaging things in a place that is daily in cleaning. Ph is ignored by many people but it is a very important part of why chemical reactions occur in everyday situations like cleaning.

Finally, chemical reactions are very important when it comes to making everyday life activities. Many chemical reactions are made when combining two or more substances with different chemical composition. This is important to know because chemical reactions can also be dangerous. And we need to have in mind these to protect ourselves. When cooking, you can remember these, so ingredients you mix can't react in a bad way. Instead you can make good decisions for making it tasty and delicious. Or in cleaning, making it easier and effective to clean some spaces that are more difficult to clean. Always using the rule of PH, to facilitate things. Finally, is it very important to have in mind all of these, for what? For having a better and easy life understanding all these topics.

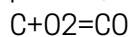
By: Pedro Juan



Chemistry in our lifes

In our life we see different jobs like teachers, lawyers, judges, ingeniers, and doctors. Many of these jobs are in some way connected with chemistry, for example, vaccines help to cure illnesses and even stop pain and these vaccines were created thanks to chemistry and doctors. We even create things to kill bacteria like soaps and detergents thanks to discoveries of molecules and even some theories that we create that allow us to make good products that are accessible. What do you think when you see a soap? Maybe you even don't notice it, but beyond that little soap was a lot of investigation, discovery of molecules and even in the process of creation they may have used chemistry. It is crazy but we owe a lot to chemistry, and we can be grateful, by the simple action of noticing their work. For this reason the question that will be answered in this investigation is how medicine and cleaning are connected to chemistry.

But for explaining how they are connected we should explain better what chemistry is. Well chemistry is the study of matter and its properties. This is a short and quick explanation but we need to understand it better to then know its connections to medicine and cleaning, we also need to understand what is a chemical reaction. A chemical reaction is when 2 substances interact and as a consequence they create a new one for example H_2O is the result of a chemical reaction because when hydrogen(H) joined with oxygen(O) make this new substance better now as water. Many chemical reactions come also with a physical reaction, for example a candle absorbs heat and as a result produces wax, so absorbing heat is a chemical reaction while producing wax is a physical reaction. When you wash your teeth you are creating a chemical reaction called neutralization, because the toothpaste has a base that neutralizes the acids produced by bacteria in your mouth, so by cleaning your teeth and avoiding dental cavities you are using chemistry. Chemical reactions are represented in equations that can facilitate the understanding of the chemical reactions, this equations are made of 2 or more reactants that when mixed make up a product, a example is:



This equation is Carbon and Oxygen that mixed up creates carbon monoxide. These equations make the study and creation of these substances. Chemical reactions are basically the creation of new substances by the mix of other substances.



It is estimated that 1 of 5 years of our life is thanks to medicine. Who creates the drugs, and vaccines? This is a question that seems easy but it is not, we can suppose they are doctors and scientists, but they don't do it alone, they use several techniques and tools like chemicals and knowledges of atoms and other things, so we can say that chemistry, doctors, and scientists are like a team made for saving our lives. For example there was a medicine that had a frequent dose of 6 doses a day, and thanks to the discovery of Carbon-Carbon scientists make the dose 1 time a day. Chemistry also makes medicine more accessible replacing expensive materials for others that are easier to find. We not only use chemistry for drugs, we also use it for knowing better reactions of our body for example metabolism, metabolism which is basically how your body gets energy and how it uses it. Chemistry also helps to transplant body parts, because it helps to preserve them, making their life outside the body longer, also it helps the compatibility between receptor and donor. All vaccines from anesthesia to vaccines for curing diseases are all created by the team we just mentioned. Chemistry makes the medicine easier and decreases the possibilities of feeling pain or dying because of an illness. Now we know that chemistry is almost the basis of medicine.

A soap may seem a stupid discovery, but are you sure? Think of the things you do with a soap, you even clean yourself with it. Our life is easier thanks to cleaning supplies not only soap but detergents and many other materials and discoveries that make more accessible and safe the simple fact of cleaning. Detergent was created because soap materials, especially animal fats, were very expensive and hard to find, so they created an alternative thanks to chemistry and scientists. Humanity has not only made discoveries of materials for cleaning but we have discovered how the material properties affect cleaning and how we can solve that problem. For example there is a thing called surface tension. This is basically how a material produces tension in a way that water and other liquids do not trespass the material. We solve this by using active agents that reduce surface tension making cleaning easier. We also have discovered that the atom of hydrocarbon in cleaning supplies repels water and the other side attracts it so when you add the water, the hydrophobic side trying to repel it forms a sphere which the same side of other molecules, so dirt is trapped and water is able to remove it in an easier way. From what we know the mix of elements and some discoveries make cleaning easier.

Chemistry is all around us, it even saves our lives. Cleaning is easier thanks to chemistry and we have a lot of products that make good and accessible products. And we also make surgeries possible thanks to chemistry. We should not forget that we owe much of our current knowledge to chemistry, and that many vaccines and cleaning materials are thanks to chemistry and that the process back is not only the fabric but the discovery of all these elements. And chemistry not only helps us but it helps that vaccines and other cleaning materials are more sustainable and better for nature and animals. As a conclusion, we owe chemistry a lot of things and we need to recognize the hard labor of them when we clean and even when we want to cure an illness or even be more healthy.

By: Cristina Sarmiento





Descriptive texts

I am...

Hi, I am Antoine Lavoisier and I will explain a little about my history. In my life I have made many discoveries like the law of conservation of mass or disproved many things like phlogiston theory. But the most important was naming and classifying chemical substances that took place in France in the 1700s. I helped list the first chemicals like oxygen, hydrogen and sulfur. But to achieve this we need to do a couple of things. First we need to make a clear system to name chemicals, an example of this system is when we named water we say it was oxide of hydrogen because it is made of hydrogen and oxygen. Then we make a list of substances that can not be broken out in a simpler form like oxygen, hydrogen and nitrogen. So we call these substances elements, these are like prime numbers in math. Finally I make the world see chemicals in another way, because people think that when there is a chemical reaction the chemicals disappear and make another substance. So I prove that chemicals in chemical reactions only rearrange in the reaction and not disappear. It was pan comido like it says in Spanish but people don't understand it. These steps together make the discovery possible. The goal of this discovery was to make clear how to organise substances so people in the future if they discover more substances they can organise them in a right way. It looks like an element where a dog comes to me. I discover and list 33 elements of the periodic table. But I did all this until 1794 because that day in the guillotine of the French Revolution I died.



Mattias J.

I am...

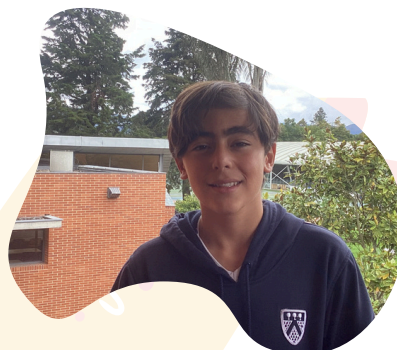
Antoine Lavoisier, the guy you should credit for finding WHY things **burn like a freaking V8 engine after you rev it too hard**, is gonna tell you a story. I remember that one cold day in plain November of 1777 I was on my way to my lab and I went outside into the cold and windy November air, that's it, AIR! I realized this and ran into my lab. About exactly 3 years later I went to my lab and analyzed the room. The many containers which I had sealed and burned wood and other things inside,

realizing that since the weight didn't change, it must be something in the air helping with combustion, in the opposite side of the room I saw the other experiments I'd been doing, which included studying the air with the complicated machinery that jingled and whirred in the cold night wind. In front of me was my current project, finding a way to prove my infallible theory, fire isn't magic, it's just oxygen burning. Those idiots years before thought they solved every doubt with that Phlogiston non-sense, but I, I can see the truth, and today I WILL prove it. I looked at my fancy, gleaming machinery and as I approached it I knew I would be working relentlessly for at least the next 20 hours. That day (and night), I solved all of the world's doubts, my discovery



would be otherworldly, I would be worshipped like a god, as I should. I took in slow and contained breaths in order for the thing I had worked on for the last 4 years to finally be finished. A capsule that I could remove the air from remotely and from the outside. I ran out onto the windy night and saw a tree, perfect for my little experiment. I went into my shed, which I had conveniently built relatively close to the lab. I stumbled in and grabbed the axe out of the corner of the shed, the cold wood of the handle freezing me. On my way out I tripped on a plank that was jutting out of the dark floor and I fell on the cold, wooden floor. The freezing sensation even settled more into my bones. I slowly stood up, even though I felt a great sense of anticipation, my bones felt broken. I grabbed the fallen axe and returned to the birch wood tree. Swing after swing, I felt the anticipation growing, **I finally chipped a piece the size of a building** and ran into my lab. I dropped the cold and dry piece, which felt as if it was **struggling to get out of my hands**, into the machine. I pressed a series of buttons on it and it suddenly whirred to life. I grabbed a torch, burnt the wood and made the flame linger on it, and closed the hatch to the machine... never knew I'd be ended by a similar one.

Mateo David Rodríguez



I am...

When I was younger I discovered gas, that helps in the understanding of gases like hydrogen, oxygen, carbon dioxide, and more. That day when I got to my lab, I saw that everything was in the right place to start the experiment. I took the wood that was at the top of my table, and took it down to burn it. The wood felt rough and heavy, even if it was just a small piece. When I put the wood on the ground everything gets messed up like if a lot of children with mud have been there.

Anyway, I had to continue, I got the matches and lit them one by one as if my life depended on it. When the wood got burned there wasn't smoke there was a kind of air that none one can see, as the smoke came out that "air" left me in shock. At that moment I felt heat coming out of that "air" and the flames started to dance fast and wild meanwhile the air stopped. It felt like I was on a roller coaster on the last turn.

I started to investigate why, how, and to what that thing was, that was making me crazy as a psychopath, and I felt that my mind was going to explode with all the questions. I started to investigate and that led me to another experiment, although I was nervous. I used scientists' tools to not get hurt if something goes wrong. I mixed vinegar and chalk, and that created bubbles that I collected and saw how that "air" was pushing the water out of the bottle that I put the experiment in. I got to the conclusion that that air was something that I named gas. I think on the qualities that the gas has and based on the word chaos I decided to name it like that. Also that is how I discovered gas, and that was the first time that anyone used the word gas to describe it.

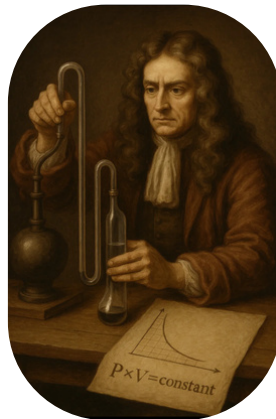


Catalina Sabugal



I am...

In the 1660's in Oxford, England I worked with my assistant Robert Hooke. Together we developed and designed different kinds of experiments with gases or different things. We also made and produced the air pump used in my experiments. To make this experiment and law I specially used a J-shaped glass tube covered in one part. When the tube was open to the air it could be filled with mercury while in the tube the corvette end trapped a fixed amount of air. For example if I add more mercury into the open end it will increase the amount of pressure in the trapped air. I plotted this changes and reactions to notice a clear mathematical relationship when pressure went up, volume went down. I discovered this depending on gas behavior. My ideas mattered because science was undergoing a transformation from ancient ideas like alchemy. To understand more experimental and mathematical science. My work proved that "air is not nothing" (ChatGPT) many believe that. But air was a very important substance like a family that could become compressed or measured. That's why with this experiment I discovered my law with these experiments like the compressibility of air and the behavior of gases under pressure. These all discoveries and adventures in chemistry make me a very powerful and passionate scientist. For those who don't know my mathematical science is $P \times V = \text{constant}$. My law or equation made an impact because the law is a monster transforming and changing things everywhere. Finally I wanted to tell you how this impact one of the things is in "solidified the experimental method as the gold standard in science"



Jeronimo R.



I am..

It was a really exciting day, and I couldn't wait to start my experiment with mercuric oxide, the red powder that I've been studying. I set it under a big magnifying glass to focus sunlight on it and heat it up. As it got hotter, a gas started to fill the glass jar. When I looked inside, I was amazed, the gas made the candle burn brighter and last longer than usual. It was like the flame had more power, almost like it was stronger than before. I felt like I had discovered something big. I wanted to test the gas even more, so I decided to put a mouse inside the jar. I gently placed it and waited. To my surprise, the mouse didn't struggle with the air and it lived longer than normal. This told me that the gas was special, something important (because of the mouse's behavior). It was like I had found a secret treasure hidden right in front of me. I didn't know how to name this gas yet, later, this gas would be called oxygen. The air in the jar seemed to whisper its secret to me, like it was telling me to keep going. I could tell that this discovery could change a lot of things. I was so excited, because it could change science forever. My heart was racing as I realized that I had made an important discovery. The more I thought about it, the more I knew that this was just the beginning. It felt like I was on the edge of something huge. The gas seemed to be calling me to discover more, and I couldn't wait to learn what else it could do. I knew that my experiment would help to understand the world better. I felt amazing to know that I discovered something new and important.



Alicia Arroyo

SCIENCE

37

I am...

I remember my lab as new, since I got here. Today I'm making my own experiment. I am trying to do something different so I'm burning carol but my result was ash. So now I'm thinking where it goes, after a lot of time redoing the same process I saw something that escaped during the combustion. It was like an invisible spirit wandering out of the carol. I wonder how this spirit could get captured would it be easy. Well apparently it is not easy to get captured because it cannot be confined. After trying to see what this mysterious Spirit was I saw that the fermentation liquids release bubbles. And this is how I identify it as a kind of gas but this was not the first gas y discovered. So I recognize that I was the first one to produce gas during fermentation and burning but I also realize that I created a new type of substance distinct from air. So I was wondering what to call this and after thinking "GAS SYLVESTRE". Is wonder full how you can discover so many things from only one source.



Fransisco M.





I am...

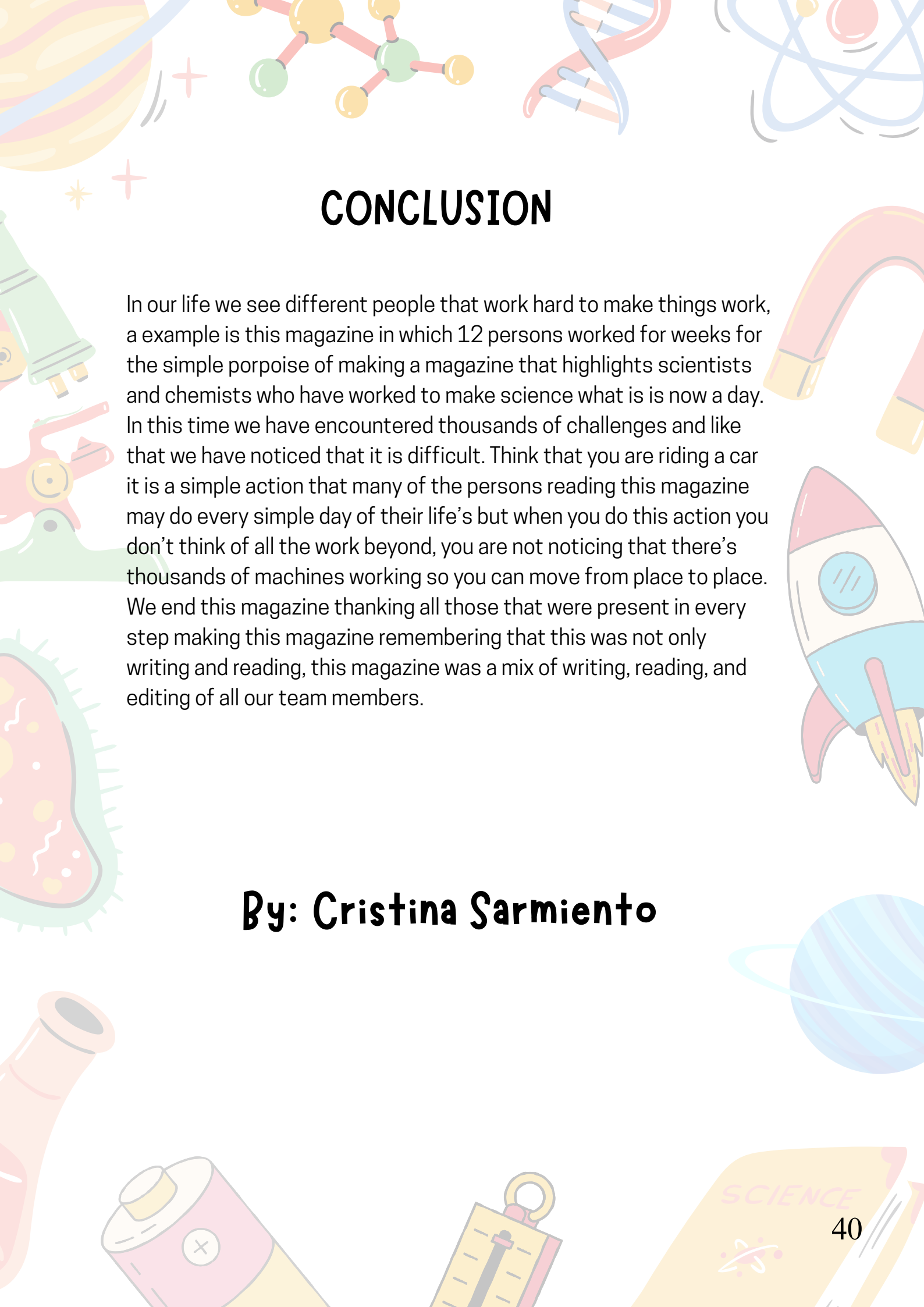


I remembered the day people told me that I was a very powerful star in the dark that light up the world of chemistry. I don't only do normal experiments, I became and was called the father of modern chemistry, thanks to changing people's way of seeing science. Before I was born, people thought things burn thanks to a strange thing called phlogiston. I wasn't sure of that, so I started testing and learning very carefully. And finally, I discovered that when something burns it needs oxygen, not that silly material. Thanks to that discovery, people start thinking differently about how fire really works. But that was not the finish line. I also discovered that matter doesn't disappear, it can only transform. An example is: when you burn a teddy bear, it transforms in ash and smoke but the total weight stays the same. I called this law the law of conservation of mass. That means: you can't create or destroy something, you can only transform it. This helps scientists understand better how matter works. Another amazing thing I made was renaming chemical elements easier. Before, scientists used confusing and strange names for chemical elements. I made new names with other scientists like carbon dioxide or hydrogen. So everyone can talk and discuss science topics easily and not get lost in a maze of words. I remember that I used my tools super carefully, like they knew they were part of something great. Some people think that I was so smart that it felt like I had the entire library of the universe. I believed science should be fair and exact, it shouldn't be bad. Thanks to me we know many new things that help science evolve, I also show that science is about testing, safety and never giving up.



Pedro Juan Cano





CONCLUSION

In our life we see different people that work hard to make things work, a example is this magazine in which 12 persons worked for weeks for the simple porpoise of making a magazine that highlights scientists and chemists who have worked to make science what is is now a day. In this time we have encountered thousands of challenges and like that we have noticed that it is difficult. Think that you are riding a car it is a simple action that many of the persons reading this magazine may do every simple day of their life's but when you do this action you don't think of all the work beyond, you are not noticing that there's thousands of machines working so you can move from place to place. We end this magazine thanking all those that were present in every step making this magazine remembering that this was not only writing and reading, this magazine was a mix of writing, reading, and editing of all our team members.

By: Cristina Sarmiento

Credits:

Authors:

Catalina Sabugal

Mattias Jimenez

Mateo David Rodríguez

Alicia Arroyo



Leader of time line

Isabella Valbuena

Silvana Arango

Francisco Mutis



Leader of descriptive

Pedro Juan Cano

Jeronimo Rincon



Leader of poems

Mariana Mendoza



Leader of article

Miguel Morales

Cristina Sarmiento

Photographers

Silvana Arango

Catalina Sabugal

Mateo David Rodríguez

Photos

Chat GPT

Canva