

# WHAT DO I WANT TO BE WHEN I GROW UP?

Some examples of scientific and technological studies and  
their possible professional opportunities



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# AND YOU, WHAT DO YOU WANT TO BE WHEN YOU GROW UP?

How many times have you been asked this great question and how many times have you changed the answer?

Sometimes it is not easy to discover what we want to do or to identify the potential that is within each one of us. Therefore, it is important to know the options offered by the different study disciplines and to bear in mind that there are no jobs for men and jobs for women, neither easy nor difficult. The choice is entirely up to you.

With this document organized in three sections: Architecture and Engineering, Health Sciences and Science, we want to show you some of the many possible career options you can choose if you choose to study related to the fields of science and technology.

What can I do if I study physics, chemistry or biology, what career options do I have if I choose mathematics or statistics, what exactly does an aeronautical engineer or a topographer do, and what is the use of domotics and artificial intelligence?

These and many other questions are answered in this illustrated document which we encourage you to explore. Perhaps you will find in science and technology an answer to the big question.



# ARCHITECTURE

**Architect in an architecture studio:** if you like to create new worlds and enjoy the design of the shapes that surround us, you may be a potential architect without knowing it. If you study Architecture you can set up your own studio and carry out projects for companies, institutions or individuals.

**Architect for construction companies:** you can be part of a construction company's team and make relevant decisions regarding the construction of a building. You will participate in its design and have the opportunity to make it efficient and sustainable.

**Architect for the administration:** another way out for you to study architecture is to be part of the administration in the different areas of urban planning, mapping etc. In this way you can perform tasks such as keeping track of the maintenance of the oldest buildings in a city or coordinating the construction of public facilities.  
de comunicación y trabajo? ¡Pues éste puede ser el camino!

**Architect in interior design and new spaces:** surely you have noticed that architecture conditions the forms of communication in all spaces. For example, in your class, you will see that all the chairs look at the teacher so that you can pay the maximum attention to him and the blackboard is located in front of you so that you can see it correctly... Would you like to be an architect who facilitates new forms of communication and work for society?...this could be the way!



## ROADS, CANALS AND PORTS

Do you have a favorite city? Have you thought about why you like it so much? If it is because of the design of its buildings, you may be interested in becoming a road, canal and port engineer.

You will be able to work for private sector construction companies which project to carry out different constructions such as bridges, canals or any other type of work.

Studying Road Engineering will also give you the opportunity to work for public institutions, such as city councils or states, coordinating works related to the improvement of cities or towns, such as: roads, ports, railways, airports...

## MINE

The beauty of the world we live transcends everything imaginable, in this case, even under the ground! If you'd like to discover and investigate what mysteries and precious stones are hidden underground, Mining Engineering would be a good way to get started. If you study it, you will be able to work with companies that extract minerals or metals, for example, by monitoring how these materials are obtained in quarries or mines. Another possibility is to study the land that can harbor resources that generate energy, such as oil, gas or coal.



## FORESTRY

Protecting the ecosystem is a task in which all we must be involved. Thanks to the work of Forestry Engineering, there are many more possibilities to achieve it. If you like natural environments and want to help with their conservation, you could study Forestry Engineering. It will allow you to work for the preservation of trees and other plants that occupy the soil of a forest. You can also work for the public administration and raise public awareness so that we can all enjoy them in the best conditions. Save the world!

### AGRONOMY

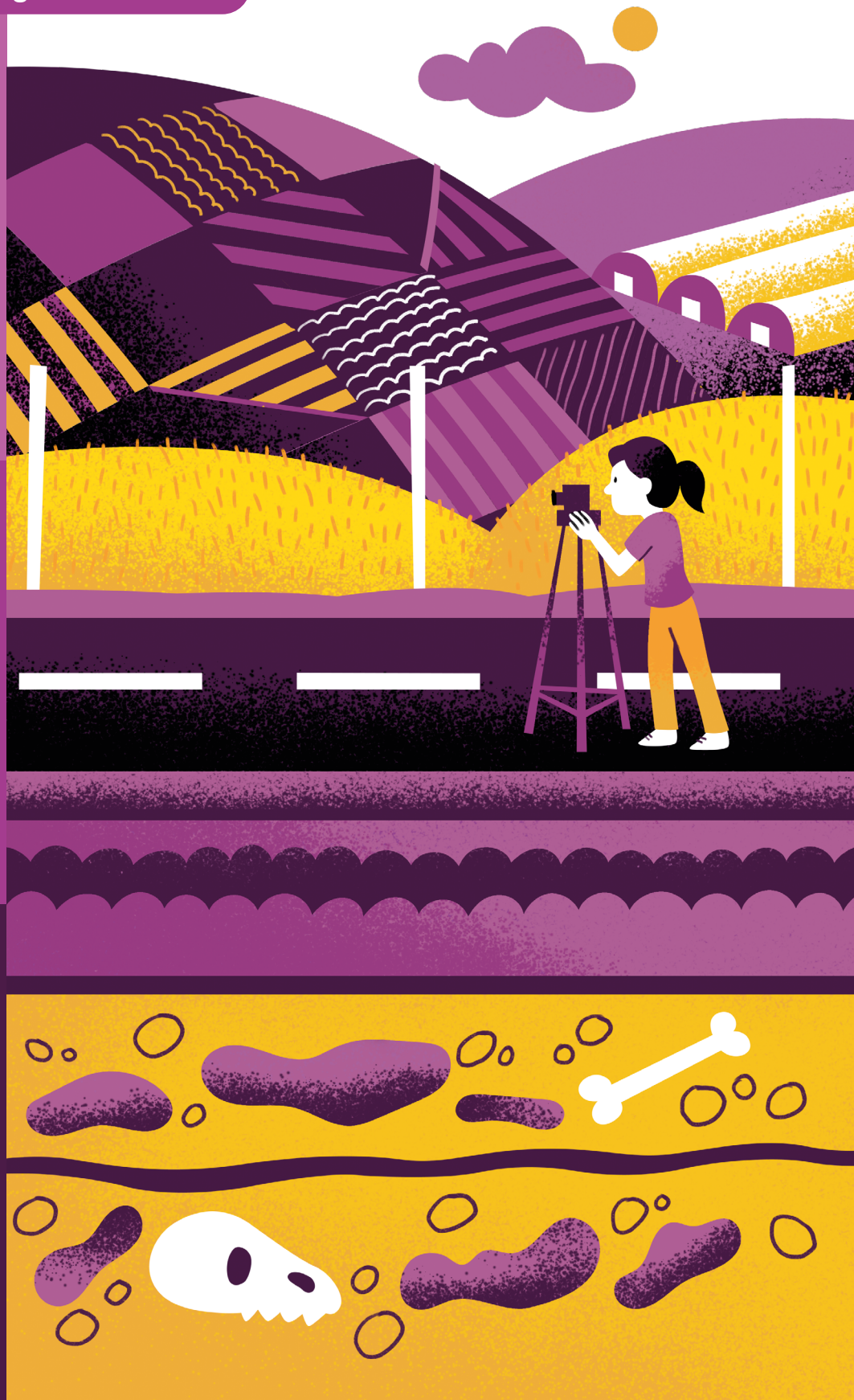
If you like the world of agriculture, farming and stockbreeding, and are interested in biology, geography and mathematics, you can study Agricultural Engineering. With these studies you will be able to improve the production process of food, agricultural or livestock products. Your work will help farmers and ranchers to work more efficiently.

### TOPOGRAPHY

Have you ever seen a person measuring the ground with a slightly odd machine? The topograph is in charge of measuring the soil and drawing up plans and basic maps to start any type of construction. For example, you can study the land on which a road is built to prevent it to crack or deform itself in the future.

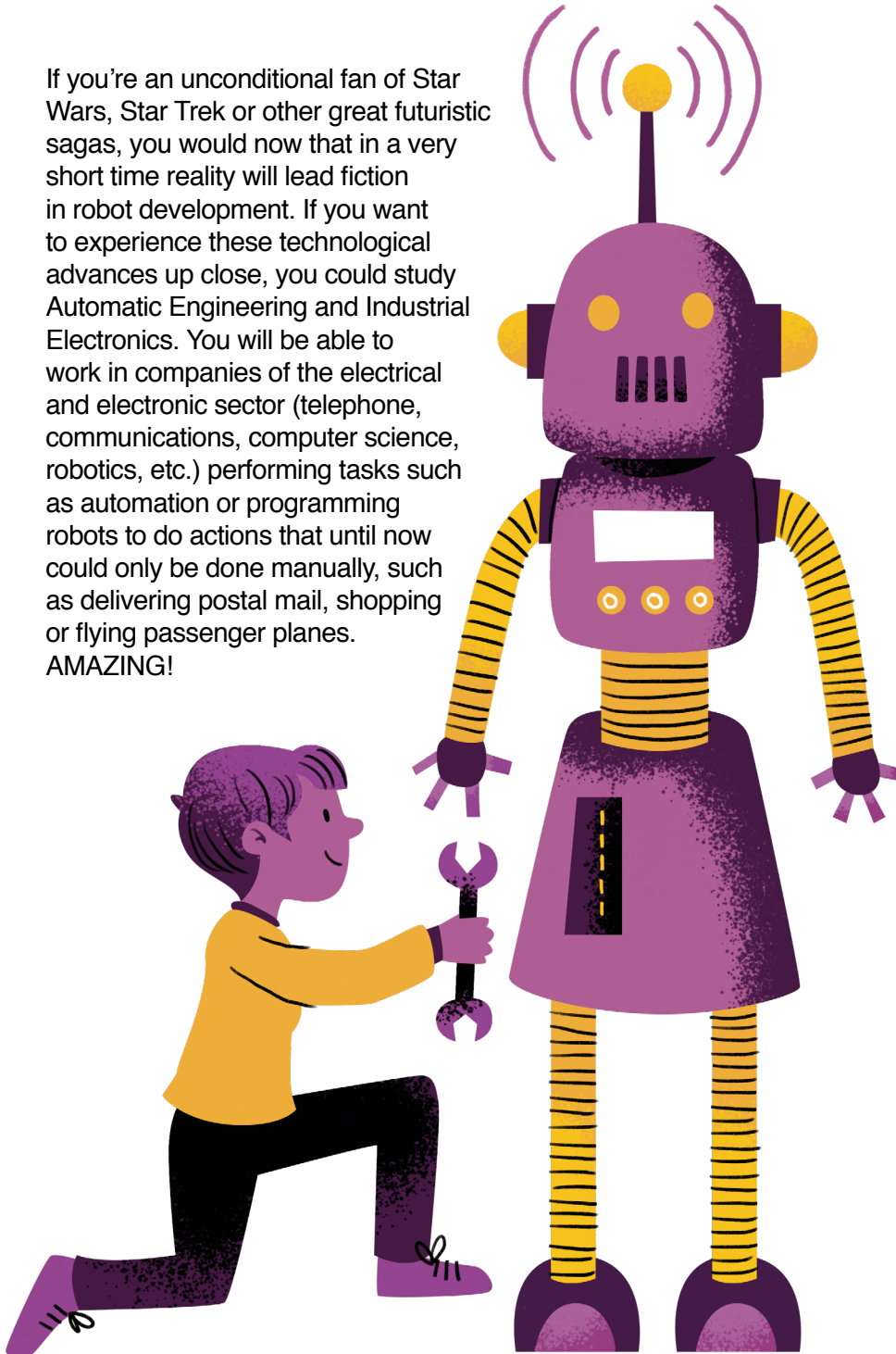
### GEODESY AND CARTOGRAPHY

If you are fascinated by ground phenomenons and the study of the earth, you can study Engineering in Geodesy and Cartography. You will be able to analyze the Earth's surface, its composition and structure. You will also be able to locate materials inside the Earth and study land on which buildings such as bridges or roads are built.



# AUTOMATIC AND INDUSTRIAL ELECTRONICS

If you're an unconditional fan of Star Wars, Star Trek or other great futuristic sagas, you would now that in a very short time reality will lead fiction in robot development. If you want to experience these technological advances up close, you could study Automatic Engineering and Industrial Electronics. You will be able to work in companies of the electrical and electronic sector (telephone, communications, computer science, robotics, etc.) performing tasks such as automation or programming robots to do actions that until now could only be done manually, such as delivering postal mail, shopping or flying passenger planes. AMAZING!



## TELECOMMUNICATIONS

If you are one of those who think that our smartphones do not work by magic and you would like to understand how they are made, your path is to study Telecommunications Engineering. However, as you know, its manufacture does not end here. We must also ensure that they are able to transmit and receive signals so that they can work correctly, and it seems impossible to decipher how we manage to communicate and have Internet on our mobile phones. Well, if you study telecommunications, you'll find out everything you need to know in order to achieve it. You'll also understand how other devices such as TVs and radios send and receive signals, and you'll be able to work in a multitude of companies, such as mobile phone manufacturers and telephone companies.

### IMAGE AND SOUND

Have you ever wondered how TV works? Or your speakers? If you study Image and Sound Engineering, you can answer these questions. These professionals have the objective of guaranteeing a good emission of images and sounds thanks to the use of technology. An image and sound engineer can work independently in video production companies, television stations or radio studios, among others. Also in private or public companies that need professionals to carry out audiovisual projects, such as, for example, films or entertainment series.

### NAVAL

I'm sure you've been amazed at the size of some boats and the fact that they can float so easily. If you're interested in this aspect, you could study Naval Engineering. These studies will allow you to work on the construction of boats and make them work properly. That would be amazing, wouldn't it? You will also be able to participate in organizational tasks in the ports to ensure that the transport of goods is carried out in the right way.

### AERONAUTICS

Do you love airplanes, rockets, satellites and space travel? Then there's an engineering you might be interested in: Aeronautics. Afterwards, you will be able to work on multiple projects such as airport projection and design. Also in the manufacture, maintenance and development of planes, helicopters, satellites, and other activities newly created, such as creating and flying drones.



## INDUSTRIAL

If you're a restless person who loves to invent new things, being an industrial engineer can be the profession that makes you happier. You will have the opportunity to work in positions of great responsibility, in which the technological innovation of the company will depend on you. You will be able to pursue your career in industries of all kinds. For example, in the automotive industry, where you will have the opportunity to create the different parts of a car. You will also be able to develop the creation of 3D objects and generate products that we use every day, as well as organs for transplants.

## CHEMISTRY

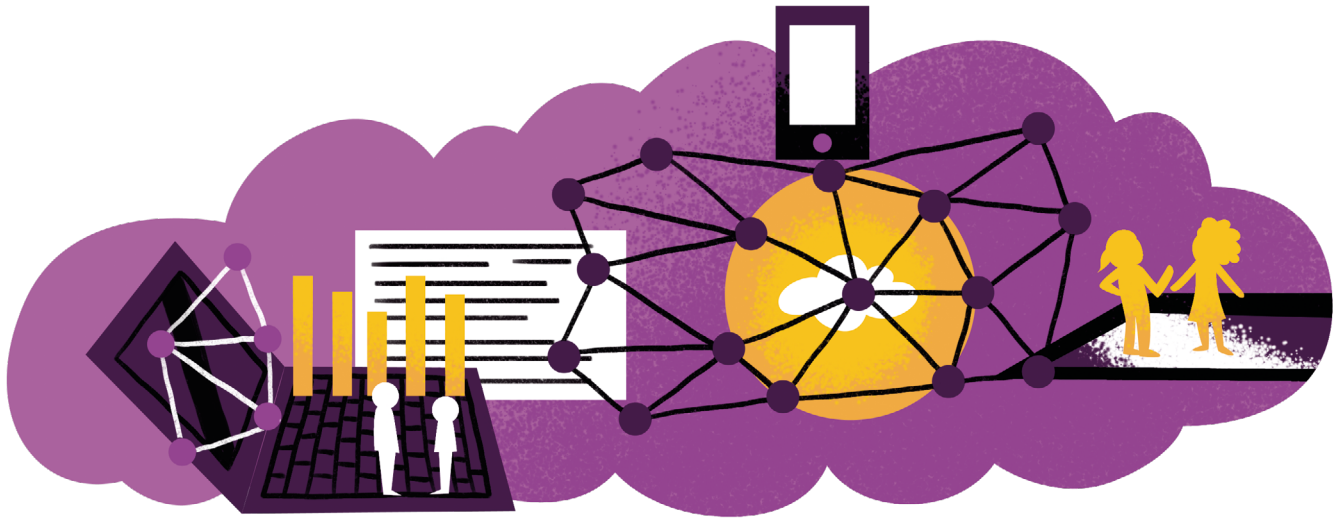
In addition to scientific possibilities, chemistry is also related to engineering. If you study Chemical Engineering you will be able to transform raw materials into ready-to-use products. Chemistry can be used to create a wide range of products for everyday use, such as plastics, paints, paper, medicine, cleaning products and detergents. You will also be able to work on the development of the equipment that allows you to produce the above-mentioned products.



## RECYCLING

Recycling waste and doing certain actions that help environmental sustainability is essential, but having professionals to facilitate this action is much more so! If you study Recycling Engineering, you will be able to devise new systems to recycle and create packaging easier to reuse and more profitable.





## COMPUTING

**Developer/programmer:** the fact that computing is the engine of new technologies is something you are probably not discovering now, but if you study Computer Engineering, you will discover thousands of things that have not yet been invented and that will revolutionize the technological world. As it is one of the most sought-after studios in the world, you probably won't be short of work if you choose to study it. You will be able to specialize in Software Engineering and develop programs for the creation of all types of businesses such as, for example, mobile applications that allow us to buy clothes, consult our bank account, order food from home..., and which make so easy our lives. You will also have access to other career opportunities such as the creation of leisure-related software, such as video games, mobile applications and other tools.

**Hardware engineer:** another possible career path is technical or hardware assistance, where you can offer your services to solve problems that companies or individuals have with their devices (pc, tablets, smartphones, etc..) or be the creator of new computer equipment even faster and more efficient than the current one.

**Expert in Internet systems and BIG DATA:** one of the great opportunities that can offer you Computer Science or That can offer you studying CS or science is working on projects related to new ways of communication on the Internet. You can develop applications hosted in what is called the “cloud”, or in projects related to the growing demand for Big Data, which is, so you can understand it better, to host on the Internet a large amount of data from all of us so we can access and interpret them at any time. Also, you could work with projects related to Blockchain, a technology that can be used to carry out any transaction or communication on the Internet with great security guarantees.

**Cybersecurity Engineer:** As human capabilities increase regarding technology and the Internet, new advances in cybersecurity are also needed to ensure that our data is protected on the network and our communications with the rest of the world are as secure as possible.

**SEO/SEM Specialist:** Nowadays, getting a company to appear in the top positions when we search the internet is probably on of the most important task on the web. If you study computer science you will be able to specialize in improving SEO/SEM so that your client's websites will be visible and impact more people.

**Biomedical engineer:** if you like mathematics, physics, electronics, programming and also biology and medicine, this is your discipline. Biomedicine is related to tasks that will be very important in the future, such as the regeneration or even the design of artificial organs for people who need transplants.

**Home automation and artificial intelligence engineer:** engineering can do wonderful things, such as lighting the fireplace at home with your mobile phone from work. Really? Is that possible? If you study Domotics, you will discover that it is already happening and much more can become a reality. On the other hand, there is artificial intelligence, which, for the sake of understanding, consists of creating machines which learn from their own mistakes and successes. Yes, yes, as you heard well, so do humans. It will undoubtedly be one of the technologies that will revolutionize the world and you could play a role in it. Will you dare?



## DID YOU KNOW THAT...?

*The first humanoid robot in history was called Elektro and was exhibited at the 1939 New York World's Fair. It was the first time that a robot with a human appearance could be seen. At the time robots only*



*appeared in films and fiction novels. Elektro surprised everyone. He looked like a "metal man": aluminium skin, 2.10 metres tall and weighing 120 kilos. He could see and distinguish colors thanks to photoelectric cells. He was also able to move. He took steps back and forth, raised his arms, counted on his fingers, sang, spoke over seven hundred words, blown up balloons and smoked cigarettes. Elektro was a symbol of technological development and innovation after years of economic crisis.*

## NURSING

Nurse, would you like to be in touch with those who need it the most? If so you should focus your studies on careers such as nursing, where you can work in public and private hospitals, helping the sick to have a speedy recovery.

Within Nursing, you can choose different specialties, such as, for example, midwife. By doing so, you'll help bring lives into the world. It sounds exciting, doesn't it? Another possible option is to become a surgical care Nurse, o assist in operations and emergency medical care.



## PHARMACY

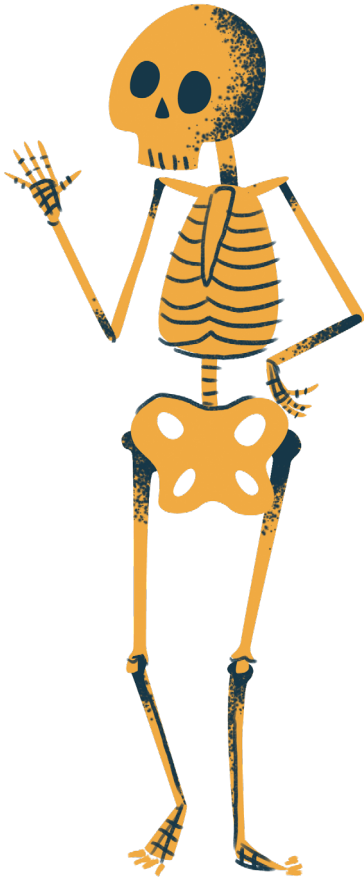
**Pharmacist:** would you like to be part of the network of pharmacies that are always close to our homes? would you like to be that person who helps others with the medicines they need? Perhaps your vocation is to study Pharmacy and be part of one of the many pharmacy establishments that are distributed in our country or to set up your own.

**Pharmaceutical chemistry:** like many fields of science, studying pharmacy will bring you closer to the goal of saving lives. By carrying out these studies you will be able to work in pharmaceutical laboratories and participate in the development of drugs. In addition, you will be able to investigate new solutions for diseases that are still untreatable - can you imagine becoming the person who discovers the cure to cancer?

## PHYSIOTHERAPY

**Physical therapist:** If you are a lover of the human body and you would like to know how each of your muscles, bones or joints work you may want to study Physical Therapy. Afterwards, you will be able to work as a freelance or as part of a team that treats different types of injuries, such as traumatology or sports injuries, paediatric conditions or heart and respiratory pathologies. You can also specialize in acupuncture, treating the elderly or people with bone or joint problems.





## MEDICINE

**Doctor:** You've probably seen a movie which inspired you to become a doctor and save lives. If, in addition to inspiring you, it marked destiny, then you might want to study medicine. Doctors are the professionals responsible for the care of health, the treatment of illness and the recovery of lost or affected functions. You will be able to work in both public and private hospitals, can we count on you?

**Personal medicine:** new technologies allow us to be closer to each other, to be more connected and be safer. In this sense, technology can offer us applications which allow us to be in contact with a personal doctor 24 hours a day, would you like to be a doctor linked to new technologies? then you can do it!

**Nanomedicine doctor:** how does it sound to be able to help people with skin or bone problems? Then you might be interested in specializing in nanomedicine. This branch of medicine will allow you to create implants such as bones, cartilage or artificial skin. Nanomedicine makes it possible for these implants to be perfectly compatible with the body in which they are placed and to prevent them from being rejected by the body.

## SPEECH THERAPY

**Speech therapist:** If you choose these studies, you will be able to work in the field of healthcare, helping people to improve pathologies which prevent normal speech, for example, by helping children improve their learning and communication skills.





## ODONTOLOGY

**Dentist/odontologist:** our mothers have told us more than once that our teeth must be clean, but the truth is, that not only the mothers say it, also the dentists! If you are interested in this branch of Health Science, you can work as a dentist in a private practice or in a public hospital. You will diagnose and treat tooth decay and gum disease, and if your teeth shine, your health will shine!

## VETERINARY

**Vet:** Are you an animal freak? Does your mother scold you for putting your dog in bed? Would you like to always work amongst animals? Then there's no need to tell you: you will love studying veterinary medicine. You will be able to set up your own veterinary clinic where you can take care of all the animals that need it.

**Veterinary Technicians:** In addition to animal care, if you choose to study Veterinary Medicine, you can also work in the industry of products created for them, as it is a niche market, growing significantly. You may also be interested in becoming an animal health inspector or a quality inspector of products made for animals.



## PODIOLOGY

**Podiatrist:** whatever you study, you will surely leave your mark on this world. If you are also interested in knowing everything about your footprint, your foot and its shape, you should study Podiatry. You will be able to work in private clinics helping patients with pathologies. It will also allow you to choose sports medicine and offer different rehabilitation services.

## NUTRITION AND FOOD SCIENCE

**Dietician and nutritionist:** we all like to eat good things, but sometimes the good things are not so healthy and you have to listen to the professionals to stay in shape. If you are passionate about the world of food and everything related to the properties and origin of foods, you can turn your passion into your work if you choose to study Nutrition.

You will be able to work in the clinical field helping people in need of improving their food habits, at the community level, by developing guidelines for citizens to receive better information on nutrition; or in research, where you can find out what the most appropriate foods are - yum, yum!



## BIOTECHNOLOGY AND GENETICS

**Geneticist:** do you imagine being able to prevent high-risk pregnancies or diagnose diseases and birth defects? In that case, studying genetics can be very interesting for you. Through samples taken from the bone marrow and amniotic fluid, geneticists can prevent and detect early on numerous diseases. You can also work in research institutes, medical, pharmacological and veterinary centres. The field of work of a geneticist is very broad and includes different specialties, such as molecular or cellular genetics.

### DID YOU KNOW THAT...?

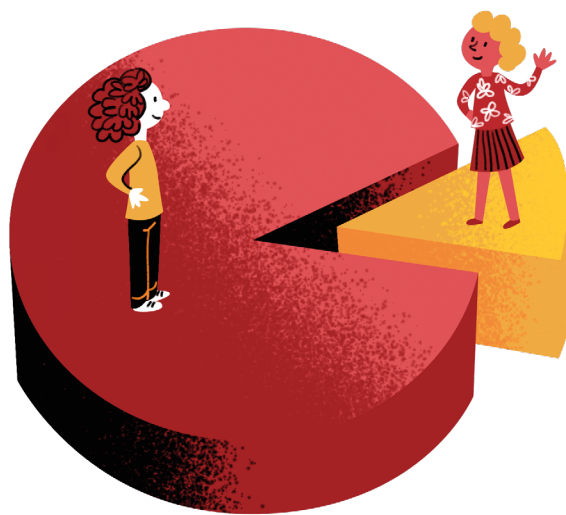
*It is possible for a person to have two different types of DNA. These are exceptional cases known as “human chimeras”, a term that alludes to the imaginary monster of mythology which had the head of a lion, the belly of a goat and the tail of a dragon. This is because, during a very early stage of pregnancy, twins can exchange cells with each other inside the mother’s womb. As a result in certain parts of your body, for example, some organs may detect DNA different from what would be found if blood were tested.*



# MATHEMATICS

If you've ever been the class delegate and like to organize and coordinate, you may be able to achieve your professional goal with math. For example, by coordinating and establishing delivery routes for a transport company, or by optimising the warehousing of a large area.

Mathematics also have place for those who want to pass on their knowledge to others. If you've always liked helping our friends out, now you can prepare yourself to teach what you know wherever you want. However, if you choose this subject, you can also choose some of the following career opportunities: university research, consulting, IT and telecommunications companies, banking, finance and insurance, and public administration.



# STATISTICS

**Applied statistics:** if you always liked numbers and making estimates based on different data, studying statistics might be a good option. For example, it would allow you to work in a company calculating the possible variables for a successful project. Also measuring the impact such projects can have on the market.

**Big Data:** Do you like to analyze each event in detail and know why it happened? Then maybe we're looking at the next big market researcher. If you study Statistics you will be able to analyze perfectly the behaviors and events that happen in the world. The study you extract out of it, will serve to make better products and services.

**Statistics in the public sector:** with statistics, you can also be part of the National Statistics Institute, of autonomous communities and city councils, in charge of carrying out sociological studies of citizens, which are then used to create new laws and regulations that help improving the lives of all.

**Marketing technician:** science can involve you in very different disciplines. One of them is marketing, which needs experts who know how to handle statistics and numbers to carry out market research on advertising campaigns. An example would be the compilation of statistics focused on the consumption habits of society, such as researching the brand of soft drinks most consumed by Spaniards.

# BIOLOGY

Forget the science game and get going studying biology. You will be able to know the different species of living beings and the environment that surrounds them, see how living organisms affect the environment or are affected by it.

If you choose Biology, you can specialize in studying a type of environment and all the living things that inhabit it. Marine biology, for example, studies plants and animals living in the ocean, while cellular biology studies the smallest part of a living being: cells.



## BIOCHEMISTRY

The white coat is not just for doctors! If you would like to save lives, you can also research in hospitals how to find new ways to cure the sick by studying Biochemistry. You will be responsible for developing new testing techniques and investigating ways to counteract diseases.

Imagine that one day you are the one who invents a pill that cures a headache or a cold. You'll be able to work in pharmaceutical laboratories researching and creating new drugs to help eradicate diseases all over the world.

Have you ever noticed the small print behind potato packs? So you're one of those, huh? Well, you can make your hobby a job if you study biochemistry. Biochemistry covers a wide range of industries, such as food, pharmaceutical, beverage, and other biotechnology and agrochemical companies. You will also be able to carry out quality controls on all the food sold in the sales areas and make sure what the citizens eat is healthy, healthy!

## GEOLOGY

**Geologist:** Would you like to know what the ground we walk on is made of? You'll know all about it if you study geology. You will be able to carry out localization studies of natural resources to extract raw materials (oil, gas, minerals...). You will also study the characteristics of a plot of land to build on or see how much water is underneath it to decide whether to build a city on it, no less! Geology will also allow you to participate in the development of new communication technologies, as many of the devices require minerals to function.



## ENVIRONMENTAL SCIENCE

Would you like to actively fight climate change? Well, if you study environmental science, you'll be on your way of achieving it. You will be able to evaluate how the activity of companies and their production models affect the environment and propose measures to improve them and not damage the ecosystem.

By studying Environmental Sciences, you will be able to work in the most important state-level bodies for the control of good environmental practices. Through your work with these institutions, you will ensure that companies respect the main rules to guarantee better conservation of the environment in which they operate. For example, by controlling the treatment of waste and water they carry out.

Through this work, you will be able to lead environmental projects and help the entire population to take care of the world in which we live: managing air pollution, improving water and energy supplies, or collaborating in the efficient design of facilities.





## ANTHROPOLOGY

**Anthropologist:** If you are passionate about the cultures and diversity of people around the world, you may be interested in studying Anthropology. Anthropologists are trained to study any human activity or human fact, such as the production of goods or relationships. If you choose these studies, you will be able to access a wide range of work fields, providing support in different organizations such as hospitals, museums, governments or research centers.

## OCEANOGRAPHY

If you love oceans and marine fauna as a fish loves to swim in water, the oceanography is for you. You will carry out water analyses and environmental impact reports and be able to work with government organizations to carry out marine environmental studies. Oceanography helps us to make responsible use of marine resources.



# PHYSICS

**Computer application development**

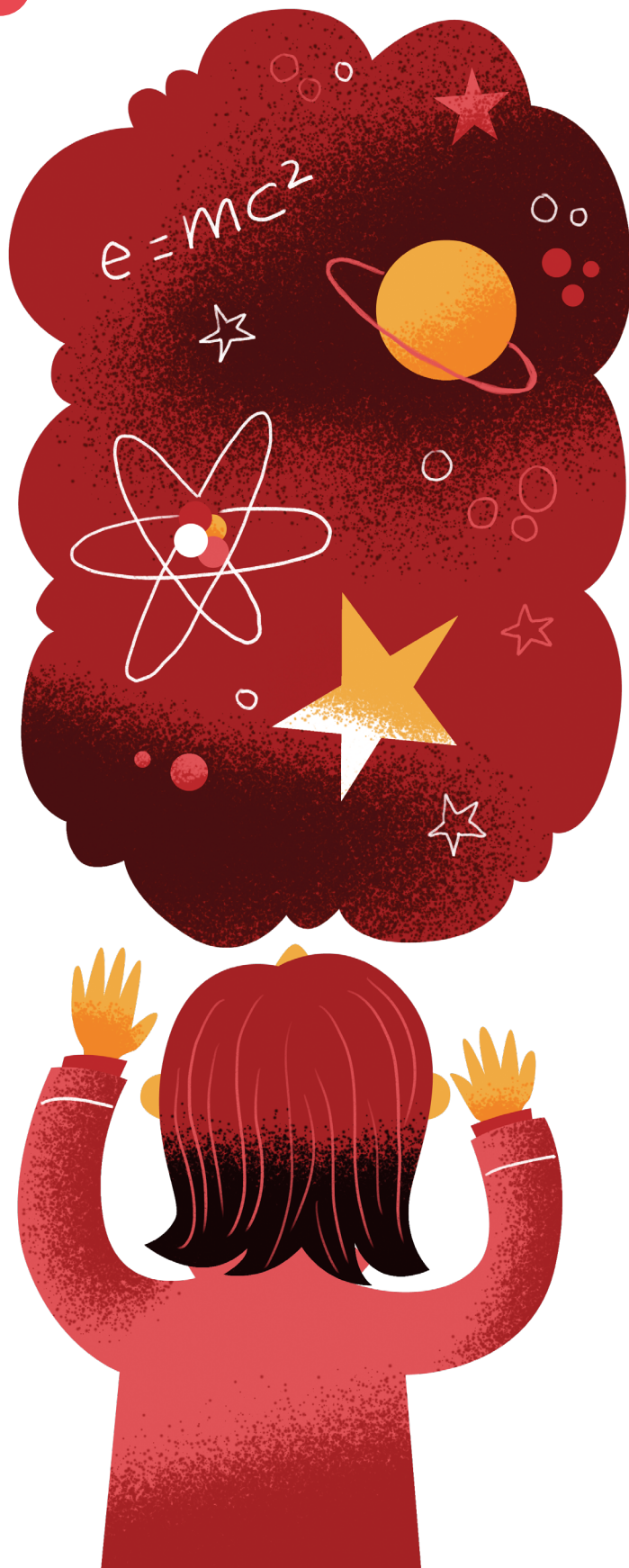
**technicians:** Are curious and good with numbers? would you like to be able to unveil great discoveries? maybe you're a potential physicist and don't know it! If you study physics, you can contribute your knowledge to the development of new applications which make life easier for human beings.

**Air and sea physics:** imagine traveling in an airplane that you helped create, or navigating in a boat that you helped build. Studying physics can take you as far as you want to go, helping teams of engineers with the calculations necessary for all types of transportation to perform their function in the most efficient way.

**Physics for space exploration:** you've probably looked at the stars with a telescope and thought about how long it might take you to get there. Studying physics will let you know and better yet, even do it! You will be able to analyze the trajectories, spatial events and study all kinds of behavior of the bodies in the universe. Pretty cool, huh?

**Geophysics:** if you are intrigued by how the earth works and want to know more about its origin, as well as the formation of its natural resources, then you may be interested in studying Geophysics. Some geophysicists monitor earthquakes and volcanoes, and their research serves to predict eruptions and earthquakes, and save lives. You can also discover more about other phenomena related to external geophysics, such as meteorology.

**Hydraulic physics:** do you like everything related to water? can you imagine designing constructions which allow its use and obtaining of energy from it? In that case, studying Hydraulic Engineering will allow you to enter this fascinating world.



## CHEMISTRY

**Research chemistry:** it will allow you to work for companies and research laboratories in which the synthesis of new compounds is studied. Who knows, you might be the next great chemist to discover the new fossil fuel that will replace wood and never have to cut trees down again.

**Business specialist:** if you like to mix science with action, you will find what you are looking for in companies dedicated to the design and engineering of chemical processes, arbitrations or expert opinions, or the control and elaboration of standards and specifications, both of processes and products.

**Laboratory chemistry:** If you're into a lab coat and gloves, chemistry can also open you the doors to labs where all kinds of substances are tested.

**Chemistry in the cosmetics industry:** good chemists are needed to produce quality cosmetics such as make-up, anti-wrinkle creams and other beauty products. Cosmetic chemistry is also very important to develop new, more natural and toxic-free cosmetics that take care of our skin. If you like the idea of being part of the world of beauty this job may interest you.

**Perfume and odour industry:** first impressions count and the smell we give off is an important part of it - would you like to be part of this industry and make new smells and aromas that everyone will love? Well, as you can imagine, Chemistry can open you the door to this profession where you can make perfumes for consumers or produce aromas for public establishments or shops.



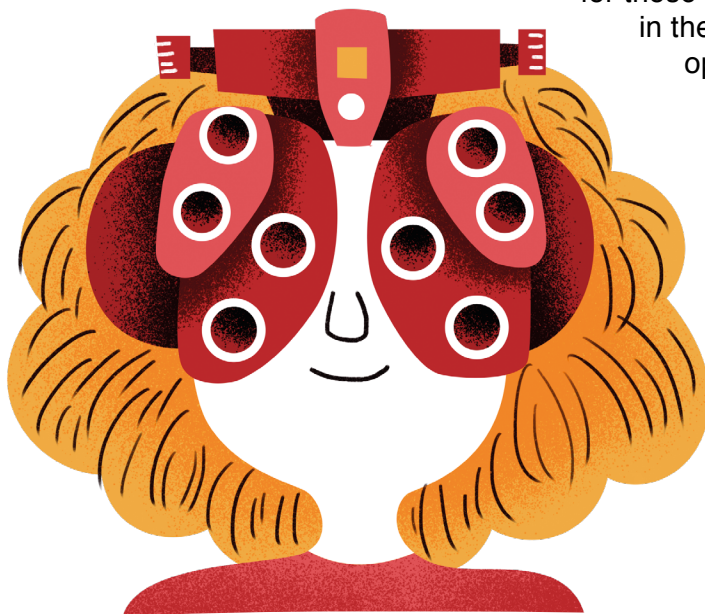
# OPTICS AND OPTOMETRY

**Corporate optics:** the world of automotive companies increasingly needs people who have studied optics to develop products such as headlamps or pilots lights. It's also necessary for, for the manufacture of renewable energy components such as solar panels and lenses or for companies developing digital lenses that allow us to visualize, through new devices, certain objects in augmented reality or virtual reality.

**Optics in communication industries:** although we do not know it, the communications industry is increasingly demanding more and more optics, especially for the development of

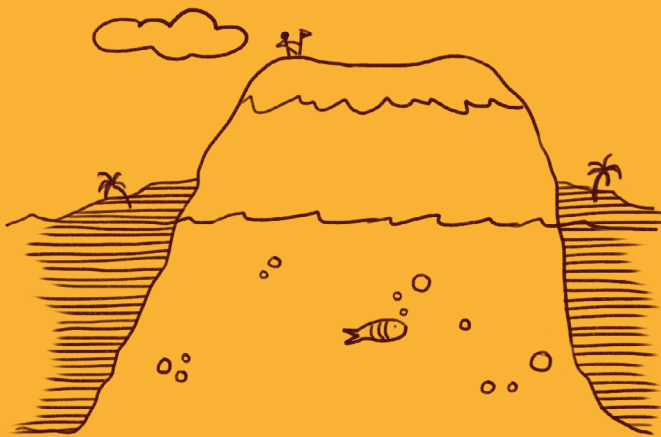
one of the world's largest communication networks, optical fibre. By studying Optics, you will be able to take part in one of the greatest revolutions of the current era: communication.

**Optometry technician:** you would be surprised to know how much the eye can do, by studying Optics and Optometry, you will be able to conduct multiple studies on the behavior of the human eye and how to improve its capabilities through lenses and new technologies. In addition to working as a director of optical facilities, you can also collaborate with the medical world to help improve vision for those who need it or participate in the research and design of optical materials.



## DID YOU KNOW THAT...?

The highest mountain on Earth is the Mauna Kea volcano on Hawaii island. That is because we usually take into account the rise above sea level. The Mauna Kea volcano rises up to 4,205 meters. However, the volcano has its roots in the Pacific Ocean, reaching a depth of 6,000 meters to its base. Thus, Mauna Kea's height would exceed 10,000 meters and thus making it the highest submerged mountain.



$$\frac{a^3}{x^2+a^2}$$



This document is part of the project Science and Technology in Feminine developed by APTE (The Association of Science and Technology Parks of Spain), which aims to increase the percentage of female students who choose the specialty of science or technology in secondary education and then choose careers in CTIM (Science, Technology, Engineering and Mathematics) or also called with its equivalent in English as STEM (Science, Technology, Engineering and Mathematics).

It is not intended to be a complete guide, but rather a compilation of some examples of possible career opportunities related to STEM studies.

At APTE we believe that science and technology parks can contribute greatly to increasing the presence of women in STEM degrees. The promotion of scientific and technological vocations is one of the activities in which these parks have been betting the most in recent years, above all, because of the impact they can have on the development of a competitive innovation system, for which it is essential to have 100% of society.

With the collaboration of:

