

# CHARLES DARWIN



Charles Darwin was born the day 12 of February in 1809 and he died the day 19 of April in 1882 , so he was 73 years old . He was an English naturalist and geologist . He discovered that all the human specie come from the animals , from the monkey .

## FAMILY

He was the fifth of six children . His parents were Robert Darwin and SussanaDarwin . His mother died when he was eight years old . His dad was a doctor and Charles wanted to study medicine too .

## SCHOOL

He went to the school like many other children and he studied natural history , so when he was at the university he knew exactly what he was studying and what were they talking about . He also studied medicine with his brother at the university , and knowing this , he started to think about his theory .

## THEORY

His theory was about the evolution , the human evolution . He said that the humans come from the animals . At first , just a small group of scientist believed him , because in that times almost all the people believed in God . That small group of scientist covered his theory and they help him to complete it . Not a long time after , in 1859 , he published his theory of evolution and that small group of people that believed him started to grow . Nowadays , he has helped all the scientist to know more of the history of the human specie and he has also evolutionate our specie .

## FAMOUS

When he published his theory he started to be famous and famous , and now almost all the people that have seen or studied the human history knows his name and what he did . For a lot of professionals of the human history he was the thing that was needed to complete their studies .

# THE DISCOVERY OF PENICILLIN

## INTRODUCTION:

Penicillin is a group of antibiotics which include penicillin G, penicillin V, procaine penicillin and benzathine penicillin.

The first medications to be effective against many bacterial infections caused by staphylococci and streptococci. Penicillin are still widely used today, bacteria have developed resistance following extensive use.

About 10% of people are allergic to penicillin ;however, up to 90% of this group may not actually be allergic. Serious allergies occur in about 0.03%.

## HISTORY:

Penicillin was discovered in 1928 when Alexander Fleming sat at his work bench at St. Mary's hospital after having just returned from a vacation at the Dhoon piled a number of his Petri dishes to the side of the bench so that Stuart R. Craddock could use his work bench while he was away.

Back from the vacation, many of the dishes had been contaminated. Fleming placed each of these in an ever-growing pile in a tray of Lysol.

Fleming's former lab assistant, D. Marlin Pryce stopped by to visit with Fleming. Fleming took this opportunity to gripe about the amount of extra work he had to do since Pryce had transferred from his lab.

To demonstrate, Fleming rummaged through the large pile of plates he had placed in the Lysol tray and pulled out several that had remained safely above the Lysol. Each would have been submerged in Lysol, killing the bacteria to make the plates safe to clean and the reuse.

Fleming noticed something strange about it. While he had been away, a mold had grown on the dish. That wasn't strange.



This particular mold seemed to have killed the staphylococcus aureus that had had been growing in the dish. Fleming realized that this mold had potential.

In 1940, two scientist at Oxford University were researching, promising projects in bacteriology that could possibly be enhanced or continued with chemistry. Australian Howard Florey and German began working with penicillin. Using new chemical techniques, they were able to produce a brown powder that kept its antibacterial power for longer than a few days.

Needing the new drug immediately for the war front, mass production started quickly. The availability of penicillin during World War II saved many lives that otherwise would have been lost due to bacterial infections in even minor wounds. Penicillin also treated diphtheria, gangrene, pneumonia, syphilis and tuberculosis.

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# Discovery of the vaccine.

For many centuries smallpox has devastated the world. But now we don't have to worry about because the work of Edward Jenner and then the developments from his endeavors.

Edward Jenner, (17 May 1749 – 26 January 1823) was an English physician and scientist who was the pioneer of smallpox vaccine, the world's first vaccine. He is often called "the father of immunology", and his work is said to have "saved more lives than the work of any other human". A member of the Royal Society, in the field of zoology he was the first person to describe the brood parasitism of the cuckoo.



The year 1996 marked the two hundredth anniversary of Edward Jenner first experimental vaccination. That is inoculation with the related cowpox to build immunity against the deadly scourge of smallpox.

The idea of invent a vaccine I think is that in his town there were a lot of deaths because the cowpox and he is a good chemist and he tried to build an immunity to stop the deaths, he tried and tried and finally he discover a immunity to the cowpox and save to all the persons in his town and also a millions of people in the world.

# CANCER

## WHAT IS IT?

In all kinds of cancer some body cell start to divide without stopping, around the tissue. Cancer can start anywhere in the human body. Normally cells divide to form new cells. When cells become damaged they die and new cells take their place.

## TREATMENT

There is no so cure. It can only be cured if all cancerous cells are killed or stracter. there are a few different treatment types that are used to try to kill cancer.

- Radiotherapy:** we use radiation treatment to try to kill cancer.
- Chemotherapy:** we use potent medicine to try to kill cancer.
- Surgery:** try to put out the cancer with an operation. After surgery, many patients need radiotherapy or chemotherapy to keep the tumor from growing again.

## KINDS OF CANCER

There are many kinds of cancer the common are **BREAST, BRAIN** and **LUNG**.

-**Breast cancer:** Breast cancer can also begin in the cells of the lobules and in other tissues in the breast.

-**Brain cancer:** can have a wide variety of symptoms including seizures, sleepiness, confusion, and behavioral changes. Not all brain tumors are cancerous, and benign tumors can result in similar symptoms.

-**Lung cancer:** is the **uncontrolled growth of abnormal cells** in one or both lungs. These abnormal cells do not carry out the functions of normal lung cells and do not develop into healthy lung tissue. As they grow, the abnormal cells can form tumors and interfere with the functioning of the lung, which provides oxygen to the body via the blood.

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*CHINESE*

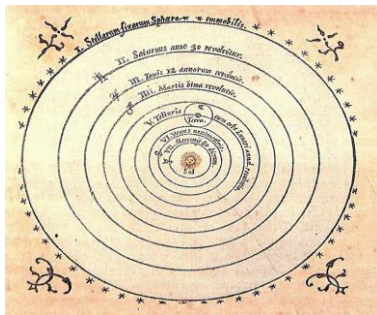
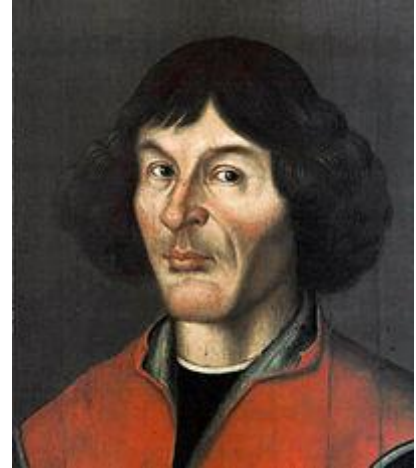
- Do you want to learn Chinese in a easy way?
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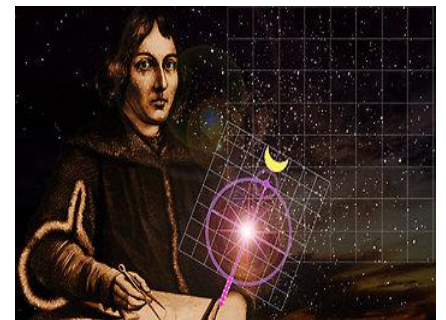
# Nicolaus Copernicus

Nicolaus Copernicus was born the 19 Februry in 1473 and he died the 24 May in 1543. He was a Renaissance mathematician and astronomer who formulated a model of the universe that placed that the Sun rather than the Earth at the center of the universe. The publication of this model in his book ``On the Revolution of the Celestial Spheres`` was published just before his death. It is considerededa major event in the history of the science, triggeringthe Copernican Revolutionand making an importantcontribution of the scientific Revolution.



He was a polyglot and plymath who obtained a doctorate in canon law and olsopracticied as a physician, classic scholar, translator, governor,diplomant and economist. Like his family, he was a third order Dominican. In 1517 he derived a quanty theory of money and in 1519, he formulated a version of what later became known as Greham´s law.

Nicolaus was born in Torún, Poland. His father was a merchant from Kraków and his mother was the daughter of a wealthy Torún merchant. Nicolaus was the youngest of four children. Copernicus never married or have children.



*Jaime Toro 1ºD*

# eolic energy

## history

eolic energy is the use of air flow through wind turbines to mechanically power generators for electricity. wind power, as an alternative to burning fossils fuels, is plentiful renewable, widely distributed, clean, produces no greenhouse gas emissions during operation, and use little land. the net effect on the environment is far less problematic than those of nonrenewable power sources.

## wind power

### onshore

onshore wind is an inexpensive source of electricity, competitive with or in many places cheaper than coal or gas plants.

### offshore

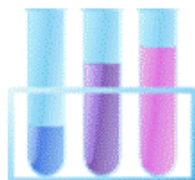
offshore wind is steadier and stronger than on land, and offshore farms have less visual impact, but construction and maintenance cost are considerably higher.

## wind farms

wind farms consist of many individual wind turbines which are connected to the electric power transmissions network.

Wind farm	Current capacity (MW)	Country	Refs
Gansu Wind Farm	6,000	China	[25][26]
Muppandal wind farm	1,500	India	[27]
Jaisalmer Wind Park	1,064	India	[29]
Fântânele-Cogealac Wind Farm	600	Romania	[34]
Whitelee Wind Farm	539	United Kingdom	[36]
Shepherds Flat Wind Farm	845	United States	[30]
Roscoe Wind Farm	782	United States	[31]
Horse Hollow Wind Energy Center	736	United States	[32][33]
Fowler Ridge Wind Farm	600	United States	[35]
Capricorn Ridge Wind Farm	662	United States	[32][33]
Alta (Oak Creek-Mojave)	1,320	United States	[28]





# The Sciences



ANATOMY  
ANTHROPOLOGY  
ARCHEOLOGY  
ASTRONOMY  
BIOLOGY  
BOTANY  
CHEMISTRY  
COMPUTER SCIENCE  
ECOLOGY

ELECTRONICS  
ENGINEERING  
ENTOMOLOGY  
FORESTRY  
GENETICS  
GEOLOGY  
MATHEMATICS  
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METEOROLOGY

OCEANOGRAPHY  
PALEONTOLOGY  
PHYSICS  
PHYSIOLOGY  
SEISMOLOGY  
TAXONOMY  
ZOOLOGY



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# SCIENCE PUZZLE

# NOBEL PRIZE

## ALBERT EINSTEIN

Albert Einstein was born the 14 March 1879, in Ulm, Germany and he died the 18 April 1955, in Princeton, NJ, USA.

He was awarded "for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect" in the year 1921, but being too remote from Sweden, the prize was given the year after. Albert Einstein received his Nobel Prize one year later, in 1922

Here is a little piece of the presentation speech Albert Einstein wrote:

*Your Majesty, Your Royal Highnesses, Ladies and Gentlemen.*

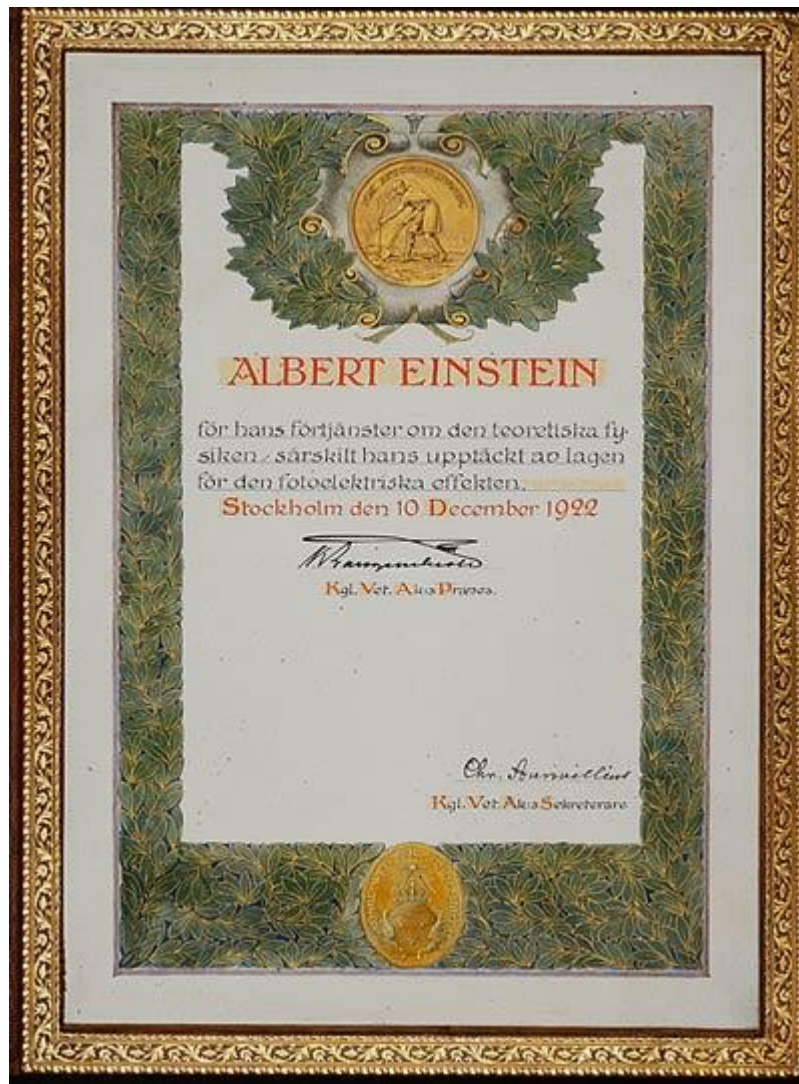
*There is probably no physicist living today whose name has become so widely known as that of Albert Einstein. Most discussion centres on his theory of relativity. This pertains essentially to epistemology and has therefore been the subject of lively debate in philosophical circles. It will be no secret that the famous philosopher Bergson in Paris has challenged this theory, while other philosophers have acclaimed it wholeheartedly. The theory in question also has astrophysical implications which are being rigorously examined at the present time.*

He was married to Mileva Marić between 1903 and 1919. They had three children, Lieserl who was born in 1902, Hans Albert who was born in 1904 and Eduard who was born in 1910. He married Elsa Löwenthal in 1919 and they lived together until her death in 1936.

After World War II, Einstein was an important person in the World Government Movement, he was offered the Presidency of the State of Israel, which he declined, and he collaborated with Dr. Chaim Weizmann in setting up the Hebrew University of Jerusalem.

# NOBEL PRIZE

*Some people think, Albert Einstein didn't win the Nobel Prize because of the theory of relativity, people think he argued too many times with the committee, so he received the prize explaining the photoelectric effect.*



# Make Slime with Glue and Borax

## YOU WILL NEED:

Elmer's glue (most kinds of white glue will work).

2 disposable cups.

Food coloring(you choose the colour).

Borax Powder(available at most large grocery stores near the laundry detergent).

A plastic spoon.

A tablespoon.

## WHAT TO DO?

Fill one small cup with water and add a spoonful of the Borax powder and stir it up.

Fill the other small cup with about 1 inch of the glue.

Add three tablespoon of water to the glue and stir.

Add a few drops of the food coloring and stir it up until mixed.

Add one tablespoon of the Borax solution you made earlier and stir well.

After the slime forms let it sit for about 30 seconds and then pull it off the spoon and play with it.

Tip:Keep your slime in a tightly closed plastic bag when you are not playing with it and keep it away from carpet and your little sister's.





# ISAAC NEWTON

## BIOGRAPHY:

-Birthday: 25 December, 1642, in Woolsthorpe locality, Lincolnshire country.

-Death: 31st of March 1727 (84 years) in Kensington's municipality, London, England.

-Field: Astronomy, physics and mathematics.

His parents were Isaac Newton and Hannah Ayscough. He didn't meet his father because he died in October 1642. His mother married Barbanás Smith, but he didn't like to take care of Newton so he left Newton with his grandmother. Newton lived with her until she died in 1653. When Barbanás Smith died, his mother came back to the familiar environment but it only lasted two years. Newton was sent to study in "The King's School's" at the age of twelve. There he studied Latin, something of Greek and the basic of geometry and arithmetic. Later, he started to be in contact with European scientifics. During this period, he stayed with the Clark family in the High Street. He had to share home with three other children, Eduard, Arthur and a girl. Newton used to be alone because his intelligent caused him difficulties. William Stukeley, one of his friends, started to collect information about him and concluded that Newton preferred the woman company. His friend Catherine Stoner had romance with her. He became the first student at school. In 1693 he suffered a

mental crisis, causing depression and paranoia. In 1979 scientist found in his hair, poisonous mercury, which explains his behavior changes and his illness.

### FIRST CONTRIBUTIONS

The most famous thing Newton did was the gravity law. It says that the force of attraction between two body mass is directly proportional to the product of their masses and inversely proportional with the square of the distance between them. The law includes a proportionality constant ( $G$ ) called the constant of gravitation. Its representation:

$$G = 6.67384 \times 10^{-11} \text{ N} \cdot \text{m} / \text{kg}^2$$

### OTHER INVENTIONS

- Doors for cats and dogs.
- The three laws of motions:
  - Inertia
  - Force
  - Action and reaction
- Theory about the apocalypse and the end of humanity by studying the Bible.
- Coins not counterfeited.
- New models of telescopes and made enormous advances in the use of lenses in telescopes.

## **EBOLA VIRUS DISEASE**

Ebola virus disease ( EVD ) also known as Ebola hemorrhagic fever or simply Ebola, is a viral hemorrhagic fever of humans and other primates. This disease was first identified in 1976 and it is caused by ebolaviruses, they have identified five Ebola virus species, four of them cause disease in humans.

### **SYMPTOMS**

The first symptoms start between two days and three weeks after contracting the virus. It starts with fever, sore throat, muscular pain, and headaches. Then, vomiting, diarrhea and rash. After that, the function of the liver and kidneys decrease. At this time some people begin to bleed internally and externally.

### **CONTAGIOUS**

People get Ebola through direct contact :

- Blood or body fluids ( urine, saliva, vomit, breast milk, semen, etc ) of a person who is sick with or has died from Ebola. Semen or breast milk of a person who has recovered from Ebola may carry the virus for several weeks to months.
- Objects with body fluids from a person who is sick with Ebola or the body of a person who has died from Ebola.
- Infected fruit, bats or primates.
- Possibly contact with semen of a man who has recovered from Ebola. ( Byhaving oral, vaginal or anal sex ).

### **MEDICAL SERVICES**

The medical services include quick detection of cases of disease, quick access to laboratory services, proper healthcare for infected people. Prevention includes cooking food before eating it, wearing proper protective clothing and washing hands when around a person with this disease.

There is no specific treatment or vaccine for the virus, but a number of potential treatments are being studied.

### **CURIOSITIES**

This disease has lots of curiosities :

- Ebola is one of the deadliest diseases known to humanity.
- It's difficult to diagnose because it has non-specific symptoms.
- Ebola can be caught from both humans and animals.
- It first appeared near the Ebola River, from which the disease takes its name.

# **Make plastic milk**

## **YOU WILL NEED:**

**One cup of milk.**

**4 tablespoon of white vinegar.**

**A bowl.**

**A strainer.**

**Adult help.**



## **WHAT TO DO?**

**Ask your friendly adult to heat up the milk until it is hot, but not boiling.**

**Now ask the adult to carefully pour the milk into the bowl.**

**Add the vinegar to the milk and stir it up for about one minute.**

**Pour the milk through the strainer into the sink - careful it may be hot!**

**Left behind in the strainer is a mass of lumpy blobs.**

**When it is cool enough the blobs off in water while you press them together. Now just mold it into a shape and it will harden in a few days.**



# MARIE CURIE

Marie Słodowska Curie was a Polish and naturalized-French physicist and chemist. She was the first woman to win a Nobel Prize, and the first person to win twice. She was part of the Curie family legacy of five Nobel Prizes. She was also the first woman to become a professor at the University of Paris.



She was born in Warsaw, the capital of Poland. She studied at Warsaw clandestine Floating University. In 1891, aged 24, she followed her older sister Bronisława to study in Paris. She shared the 1903 Nobel Prize in Physics with her husband Pierre Curie.



She won the 1911 Nobel Prize in Chemistry. Her achievements included the development of the theory of “radioactivity”, and the discovery of two elements, polonium and radium. She founded the Curie Institutes in Paris.

During the World War I...

...she established the first military field radiological centres. She named the first chemical element that she discovered-polonium



after her native country. Curie died in

1934, aged 66, at a sanatorium in Sancellemoz, due to an aplastic anemia brought on by exposure to radiation while carrying test tubes of radium in her pockets during research, and in the course of her service in the World War I mobile X-ray units that she had set up.



# A. L. S.

## Introduction:

·ALS, or amyotrophic lateral sclerosis, is a progressive neuro-degenerative disease that affects nerve cells in the brain and the spinal cord. When a muscle has no nourishment, it “atrophies” or waste away. “Lateral” identifies the areas in a person's spinal cord where portions of the nerve cells that signal and control the muscles are located.

## Characteristics:

·The cause is not known in 90% to 95% of cases. About 5-10% of cases are inherited from a person's parents. About half of these genetic cases are due to one or two specific genes.

1. ·A medication called RILUZOLE may extend life expectancy by about two or three months. The disease usually starts around the age of 60 and in cases around the age of 50. The average survival from onset to death is three to four years. 10% survive longer than 10 years. Most die from respiratory failure. The disease affects about 2 people per 100,000 per year. Descriptions of the disease date back to at least 1824 by Charles Bell. In 1869, the connection between the symptoms and the underlying neurological problems were first described by Jean-Martin Charcot's who in 1876 began using the term amyotrophic lateral sclerosis. It became well known, when it affected the baseball player Lou Gehrig, and later when Stephen Hawking gained fame for his scientific achievements. In 2014 videos of the ice bucket challenge went viral on the internet and increased public awareness.

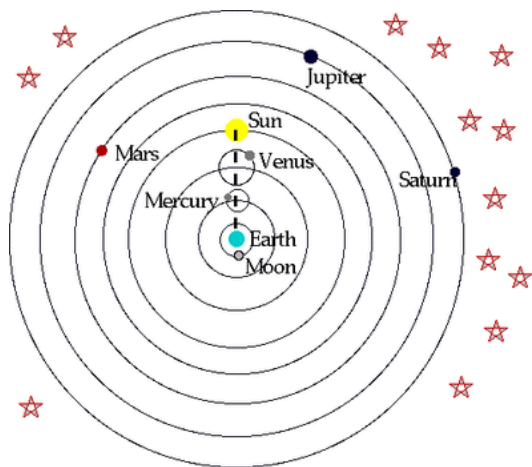
## What are the symptoms?

·The earliest symptoms may include fasciculations, cramps, tight and stiff muscles, muscle weakness, slurred and nasal speech, or difficulty chewing or swallowing. The parts of the body showing early symptoms of ALS depend on which muscles in the body are affected. When symptoms begin in the arms or legs, it is referred to as “limb onset” ALS. Other individuals first notice speech problems, termed “bulbar onset” ALS. To be diagnosed with ALS, people must have signs and symptoms of both upper and lower motor neuron damage that can not be attributed to other causes.

They eventually lose the ability to breathe on their own and must depend on ventilatory support for survival. Affected individuals also face an increased risk of pneumonia during later stages of ALS.

# HELIOCENTRIC THEORY

This theory was first proposed by Nicolaus Copernicus. Copernicus was a Polish astronomer. He first published the heliocentrism system in his book: *De revolutionibus orbium coelestium*, "On the revolutions of the heavenly bodies," which appeared in 1543. It is a cosmological model in which the Sun is assumed to lie at or near a central point, while the Earth and other bodies revolve around it. In the 5th century the Greek philosophers Philolaus and Hicetas speculated separately that the Earth was a sphere revolving daily around some mystical "central fire" that regulated the universe. Two centuries later, Aristarchus of Samos extended this idea by proposing that the Earth and other planets moved around a definite central object, which he believed to be the Sun.



The planets other than the Moon and Sun generally move West to East through the stars, but occasionally stop and move in the opposite direction (*retrograde* motion). In order to explain the retrograde motion of the planets, the geocentric model of the Solar System shown above puts the planets on small circles called epicycles. The center of the epicycle always moves West to East (counterclockwise on the picture) along a big circle known as the *deferent*, and the planet always moves counterclockwise on the epicycle, but the

combined motion leads to periods of retrograde motion when the planet is closest to the Earth.

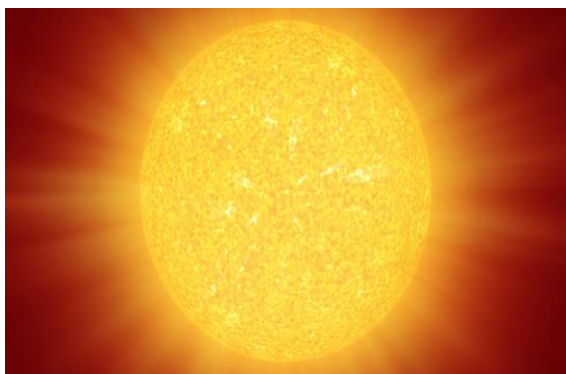
our understanding of the universe has changed over time. Different civilisations have created different models to explain what the universe is and how the universe began.

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## A TICKET TO TRAVEL TO THE SUN!

I have a ticket to travel to the sun, if you like to travel, do not hesitate to participate we will do a raffle. If you want to participate in the raffle ,you have to pay 20 euros. You have to take the ticket it in the street Pepito,12.This trip we hadn't ever done, is a bit dangerous but beautiful at the same time. You can see the orbits too much near .You have to take all the equipment to survive because the sun has too much heat. And the bonus is a trip to Pluton. I hope you have good luck .See you later

TRESGA'S MAGAZINE



Paula García Moreno 1ºD

# SANTIAGO RAMÓN Y CAJAL

## **BIOGRAPHY:**

Santiago Ramón y Cajal was the father of neuroscience and won the Nobel Prize in 1906 for medicine.

He was born in Aragón in 1852. He had problems at school but he was very good at drawing.

His father got angry with him and finished his studies at the school and began to work with a barber but it didn't work well: he wanted to be an artist and returned to high school in Huesca.

In 1868 began to study medicine at the university of Zaragoza where his father was a professor.

He was a top student and in 1873 he was graduated.

## **NOBEL PRIZE :**

In 1875 Ramón y Cajal started to work at the university of Zaragoza.

He began to research about the nervous system and found a much greater proportion of neurons than Golgi.

He maintained that neurons were interlinked network. This theory was called "the neuron Doctrine".

The Nobel Prize was shared with Golgi in 1906, whose theory was opposite to the Ramón y Cajal's ones. This is why Ramón y Cajal said:

*"What a cruel irony of fate, top air together, like Siamese twins united by shoulders, scientific adversaries of such contrasting character".*

His wife death in 1930 was too much for him.

The couple had had 4 daughters and two sons. He died three years later at the age of 82 in 1934.



# IBUPROFEN



Ibuprofen is used for treating pain, fever and inflammation. It includes painful menstrual periods, migraines and rheumatoid arthritis in a premature baby .About 60% of people improve with any given NSAID, and it is recommended that if one does not work then another should be tried It can be used by mouth or intravenously. It typically begins working within an hour.



**Stewart Alexander Adam** was born the 16 of september of 1904 in clagary Northwest Territories and he died the 18 of May in 1978 in clagary ,Alberta .He was a professional ice hockey player in the National Hockey League. He began his NHL career with the Chicago Black Hawks in 1929–30 and played there for three seasons. For the 1932–33 NHL season, he left the Windy City for Toronto and played for the Maple Leafs. In 107 NHL games, he scored 9 goals and 35 points .

**Ibuprofen** is an NASIDS that is commonly used for the relief of symptoms of arthritis, fever, primary dysmenorrhea menstrual pains , and as an analgesic . Ibuprofen also has an antiplatelet effect protects from blood clots, though less than aspirin. The World Health Organization (WHO) includes ibuprofen in its "Essential Drugs List"; a list of minimal medical needs for a basic health care system.

# DID YOU KNOW ?

DID YOU KNOW THAT IBUPROFEN SAVES MORE THAN 1000 PEOPLE IN A YEAR, AND A 50 PERCENT CHILDREN



# CONTRIBUTE

DO YOU WANT TO BE A SUPERHERO?  
SO MAKE THAT IBUPROFEN CAN GET TO ALL  
OVER THE WORLD INSTEAD OF BUYING SHOES  
GO TO AFRICA TO SAVE SOME LIVES

# HIV & AIDS

## What is HIV?

HIV is a **virus** that slowly attacks the immune system, which is our body's natural defence against illness. If a person becomes infected with HIV, they will find it harder to fight off infections and diseases. The virus destroys a type of white blood cell called a T-helper cell and makes copies of itself inside them. T-helper cells are also referred to as CD4 cells.

There are many different strains of HIV – someone who is infected may carry various different strains in their body. These are classified into types, with lots of groups and subtypes. The two main types are:

- HIV-1: the most common type found worldwide
- HIV-2: this is found mainly in Western Africa, with some cases in India and Europe.

## Basic facts about HIV

- HIV stands for human immunodeficiency virus.
- If left untreated, it can take around 10 to 15 years for AIDS to develop, which is when HIV has severely damaged the immune system.
- With early diagnosis and effective antiretroviral treatment, people with HIV can live a normal, healthy life.
- HIV is found in the following body fluids of an infected person: semen, blood, vaginal and anal fluids and breast milk.
- HIV cannot be transmitted through sweat, saliva or urine.
- According to UK statistics, the most common way for someone to become infected with HIV is by having anal or vaginal sex without a condom.
- HIV can be also transmitted from mother to child.
- According to the World Health Organization (WHO) and the Joint United Nations Programme on HIV / AIDS (UNAIDS) in 2010 34 million people worldwide had HIV. About half were women and a tenth were children under 15.

# AIDS

AIDS is a **syndrome** caused by the HIV virus. It is when a person's immune system is too weak to fight off many infections, and develops when the HIV infection is very advanced. This is the last stage of HIV infection where the body can no longer defend itself and may develop various diseases, infections and if left untreated, death.

## Treatment

There is currently no cure for HIV or AIDS. However, with the right treatment and support, people can live long and healthy lives with HIV. To do this, it is especially important to take treatment correctly and deal with any possible side-effects.

## Basic facts about AIDS

- AIDS stands for acquired immune deficiency syndrome.
- AIDS is also referred to as advanced HIV infection or late-stage HIV.
- Someone with AIDS may develop a wide range of other health conditions including: pneumonia, thrush, fungal infections, TB, toxoplasmosis and cytomegalovirus.
- There is also an increased risk of developing other life-limiting conditions, including cancer and brain illnesses.
- CD4 count refers to the number of T-helper cells in a cubic millilitre of blood. When a person's CD4 count drops below 200 cells per millilitre of blood, they are said to have AIDS.
- In 2013, it had 19,100 million dollars for AIDS treatment.



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MCDONALS. ALL THIS

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# SOLAR ENERGY

Is radiant light and heat from the Sun harnessed using a range of ever-evolving technologies such as solar heating, photovoltaics, solar thermal energy, solar architecture and artificial photosynthesis.

## 1. POTENTIAL

Solar radiation is absorbed by the Earth's land surface, oceans which cover about 71% of the globe, and the atmosphere. Warm air containing evaporated water from oceans rises, causing atmospheric circulation or convection. The potential solar energy can be used by humans differs from the amount of solar energy present near the surface of the planet because factors such as geography, time variation, cloud cover and the amount of solar radiation on the surface of the Earth for solar panels to absorb. Roofs have been found to be a suitable place for solar panels

## 2. THERMAL ENERGY

Solar thermal technology can be used for water heating, space heating, space cooling and process heat.

## 3. WATER HEATING

Solar hot water systems use sunlight to heat water. In low geographical latitudes from 60% to 70% of domestic hot water use with temperatures up to 60 °C can be provided by solar heating systems.

## 4. HEATING, COOLING AND VENTILATION

Solar heating, cooling and ventilation technologies can be used to offset a portion of this energy. A solar chimney is a passive solar ventilation system composed of a vertical shaft connecting the interior and exterior of a building.

## 5. COOKING

Solar cookers use sunlight for cooking, drying and [pasteurization](#). They can be grouped into three broad categories: box cookers, panel cookers and reflector cookers.

## 6. PROCESS HEAT

Solar concentrating technologies such as parabolic dish, trough and Scheffler reflectors can provide process heat for commercial and industrial applications. [Clothes lines](#), [clotheshorses](#), and clothes racks dry clothes through evaporation by wind and sunlight without consuming electricity or gas.

## 7. ELECTRICITY PRODUCTION

Solar power is the conversion of sunlight into [electricity](#), either directly using [photovoltaics](#) (PV), or indirectly using [concentrated solar power](#) (CSP). CSP systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam.

Solar energy is also used for: architecture and urban planning, agriculture and horticulture, transport, fuel production and thermal energy

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# THE GREAT PACIFIC GARBAGE

Mason, a scientist of New York, is studying the problem with the plastic over the world. She said some important phrases to help stop this problem: "The plastic act like a poison pill" or "Realizing that we are the source of the problem also means that we are the solution to the problem". The plastic in the world grow and grow every day every



moment and some scientists said that the Earth's oceans will outweigh fish in just 30 years. The plastic cause very problems to the animals that live in the water or near the coast for example a bank of fish cross a heap of plastic and then the

plastic get hooked and the fish suffers a lot of damage and in some of cases the fish dies.

Some people have problems because the plastic arrive to the coast and create beaches of plastic and garbage and this impairs to the people that leave in the sea and near of it.

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## FIND THE DIFFERENCES



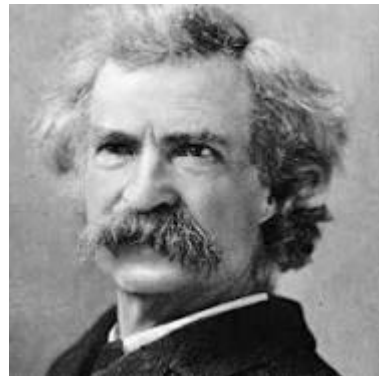
*It is a very funny game and there are lots of levels depending on the difficulty. These is a medium level. I hope you like it. GOOD LUCK !!!*

# NIKOLA TESLA

Nikola Tesla was born in 1856 in Smiljan (Croatia). His father was a priest in the Serbian Orthodox church and his mother managed the family's farm. In 1863 Tesla's brother (Daniel) was killed in a riding accident.

## FRIENDSHIPS

During the 1860s Mark Twain started up a friendship with the inventor Nikola Tesla. Twain often visited him in his lab.



## CAREER

Tesla studied math and physics at the Technical University of Graz and philosophy at the University of Prague. In 1882 he came up with the idea for a brushless AC motor, making the first sketches of its rotating electromagnets in the sand of the path.

## TESLA'S PROBLEMS

In 1884 Tesla arrived in New York and he found a job as an engineer at Thomas Edison's Manhattan office. He worked there for a year, impressing Edison.

After months of experimentation, Tesla presented a solution and asked for the money. Edison replied saying "Tesla, you don't understand our American humor". Tesla quit soon after.

# DIABETES

Diabetes is the condition that results from lack of insulin in a person's blood, or when their body has a problem using the insulin it produces insulin resistance. People with diabetes mellitus are called diabetics.

Glucose level in the blood is controlled by several hormones. Insulin is a hormone made by the pancreas. The glucose is used by cells for energy. Extra glucose is not needed in some cells as glycogen.

Glucose is a natural carbohydrate that our bodies use as a source of energy. The sugar sold in supermarkets and is called sucrose. Glucose can be found in soft drinks and fruits.

## TYPE 1 DIABETES MELLITUS

Type 1 of mellitus happens when the part of the pancreas does not make insulin, glucose, insulin, sugar in the blood can not get into the parts of the body that need sugar to live. Type 1 diabetes happens most of the time in younger people.

## TYPE 2 DIABETES MELLITUS

Type 2 diabetes mellitus is an illness very different from type 1 diabetes. They do not make enough insulin to process the glucose. Type 2 diabetes happens most of the time in an older person who is overweight.

## GESTATIONAL DIABETES

Gestational diabetes mellitus is like type 2 diabetes. It happens to some women when they are pregnant.



# **Did you know?**

1. There is enough DNA in an average person's body to stretch from the sun to Pluto and back, 17 times



2. The average human body carries ten times more bacterial cells than human cells

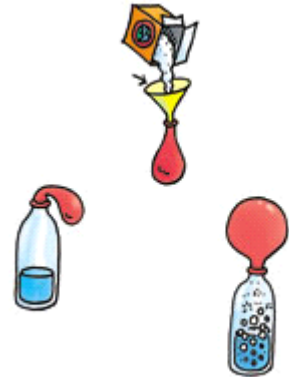
3. At over 2000 kilometers long, The Great Barrier Reef is the largest living structure on Earth



# BUILD A FIZZ INFLATOR

To build a fizz inflator you will need:

- . One small empty plastic soda or water bottle.
- . One and a half cup of vinegar .
- . Small balloon .
- . Baking soda.
- . Funnel or piece of paper.



## **What to do**

1. Carefully put the vinegar into the bottle
2. Loosen up the balloon by stretching it a few times and then use a piece of paper to fill it a bit more than half way with baking soda .
3. Now carefully put the neck of the balloon all the way over the neck of the bottle without letting any baking soda into the bottle .
4. Lift the balloon up so that the baking soda falls from the balloon into the bottle and mixes vinegar . Watch the fizz inflator at work.

## **HOW DOES IT WORK**

The baking soda and the vinegar create an acid base reaction and the two chemicals work together to create a gas . Gases need a lot of room to spread out and the carbon dioxide starts to fill the bottle , and then moves into the balloon to inflate it .

## **MAKE IT AN EXPERIMENT**

The project above is a DEMONSTRATION. To make it a true experiment, you can try to answer these questions:

Does water temperature affect how fast the balloon fills up.

Does the size of the bottle affect how much the balloon fills?

Can the amount the balloon fills-up be controlled by the amount of vinegar or baking soda?

**Paracetamol**, also known as **acetaminophen** or **APAP**, is a medication used to treat pain and fever. There is poor evidence for fever relief in children.

Paracetamol is generally safe at recommended doses. Serious skin rashes may rarely occur. Too high a dose can result in liver failure. It appears to be safe during pregnancy and when breastfeeding. In those with liver disease, it may still be used, but lower doses should be taken. Paracetamol is classified as a mild analgesic. It does not have significant anti-inflammatory activity and how it works is not entirely clear.

Paracetamol was discovered in 1877. It is the most commonly used medication for pain and fever in both the United States and Europe. It is on the WHO Model List of Essential Medicines, the most important medications needed in a basic health system.

**Paracetamol (acetaminophen)** is a pain reliever and a fever reducer. The exact mechanism of action of is not known

## OTHER INGREDIENTS

It is often sold in combination with other ingredients such as in many cold medications. In combination with opioid pain medication,

Paracetamol is available as a generic medication with trade names including Tylenol and Panadol among others for more severe pain such as

It is typically used either by mouth or rectally but is also available intravenously. Effects last between two and four hours.

The most important medications needed in a basic health system.

## FOR WHAT IS USED?

**Paracetamol is used** to treat many conditions such as headache, muscle aches, arthritis, backache, toothaches, colds, and fevers.

Do not use more of this medication than is recommended. An overdose of paracetamol can cause serious harm. The maximum amount for adults is 1 gram (1000 mg) per dose and 4 grams (4000 mg) per day. Using more paracetamol could cause damage to your liver. If you drink more than three alcoholic beverages per day, talk to your doctor before taking paracetamol and never use more than 2 grams (2000 mg) per day. If you are treating a child, use a pediatric form of paracetamol. Carefully follow the dosing and directions on the medicine label. Do not give the medication to a child younger than 2 years old without the advice of a doctor.

Measure the liquid form of paracetamol with a special dose-measuring spoon or cup, not a regular table spoon. If you do not have a dose-measuring device, ask your pharmacist for one. You may need to shake the liquid before each use. Follow the directions on the medicine label.

The paracetamol chewable tablet must be chewed thoroughly before you swallow it.

Make sure your hands are dry when handling the paracetamol disintegrating tablet. Place the tablet on your tongue. It will begin to dissolve right away. Do not swallow the tablet whole. Allow it to dissolve in your mouth without chewing.

To use the paracetamol effervescent granules, dissolve one packet of the granules in at least 4 ounces of water. Stir this mixture and drink all of it right away. To make sure you get the entire dose, add a little more water to the same glass, swirl gently and drink right

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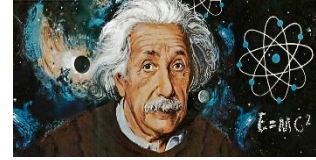
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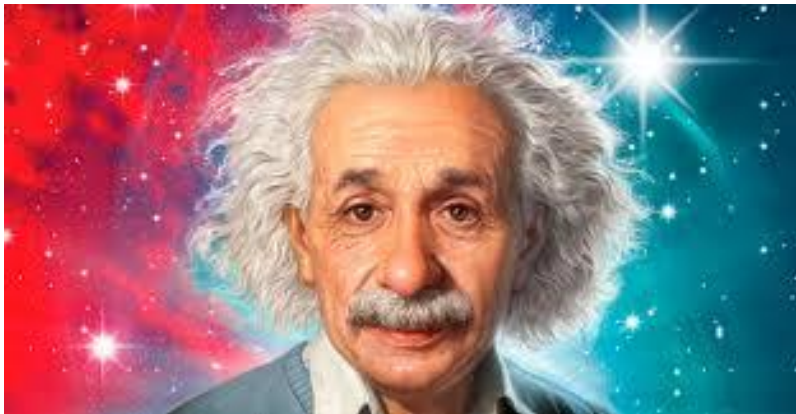
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# Who was Albert Einstein?



Do you know who was Albert Einstein? Of course. But today you will learn more about him.



Albert Einstein was a German born theoretical physicist. He was born on March 14, 1879 in Ulm, Wurttemberg and he died on the 18 April in 1955. Einstein grew up in a secular Jewish family. His father, Herman Einstein, was an engineer who with his brother founded Elektrotechnische Fabrik. His mother, the former

Pauline Koch, ran the family household. He had one sister Maja, born two years after him.

When Einstein was a child he had an informal tutor called Max Talmud he introduced Albert to a children's science text that inspired Albert to dream about the nature of light. In 1896 he trained as a teacher in physics and mathematics. In 1901, he gained his diploma and he worked as a technical assistant in the Swiss Patent Office, and in 1905 he obtained his doctor's degree. In 1909 he became Professor Extraordinary at Zurich. Einstein thought that Newtonian mechanics was no longer enough to reconcile the laws of classical mechanics with the laws of the electromagnetic field. This led to the theory of relativity. He realized that the principle of relativity could also be extended to gravitational fields. He continued investigating for statistical mechanics and quantum theory which led to his explanations of particle theory and the motion of molecules. He also investigated the thermal properties of light which laid to the photon theory of light.

And in 1917, Einstein applied the general theory of Relativity to model the large-scale structure of the universe. Einstein denounced the idea of using the Nuclear fission as a weapon. Einstein highlighted the danger of nuclear weapons. Einstein developed the general theory of relativity. One of the two pillars of modern physics. But Einstein is best known for his mass energy equivalence formula  $E=mc^2$ , which has been dubbed the world's most famous equation.



# Who invented it?

1. Who invented the telephone?

- a. Alexander Graham Bell
- b. Nikola Tesla
- c. Charles Darwin
- d. Wolfgang Amadeus Mozart



2. Who invented the radio?

- a. Guglielmo Marconi
- b. Thomas Edison
- c. Nikola Tesla
- d. Pasteur



3. Who invented the microscope?

- a. Pedro Paulet
- b. John Dalton
- c. Zacharias Janssen
- d. William Thomson



4. Who invented the macroscope?

- a. Torichelli
- b. Alberto Gómez Gutiérrez
- c. Robert Hooke
- d. George Washington



5. Who invented the car?

- a. Antoine Lavoiser
- b. Pierre Fermat
- c. Euclides
- d. Nicolas Cugnot



# ALZHEIMER'S AND HERPES

Should you be worried that getting herpes is going to give you Alzheimer's one day? No. No, you shouldn't.

The possible ties between herpes Simplex Virus 1 and Alzheimer's disease were brought up in a recent editorial in the journal of Alzheimer's disease.

In the editorial, a group of researchers claims that this particular school of thought – that viral and bacterial infections can speed up the accumulation of "plaque" in the brain associated with Alzheimer's disease – needs more attention.

"This is a minority view in Alzheimer's research" John Hardy, a professor of a neuroscience at University College London, told us.

"There have been no convincing proof of infections causing Alzheimer's disease. We need always to keep an open mind but this editorial does not reflect what most researchers think about Alzheimer's disease." professor Douglas Kell of the University of Manchester's school of Chemistry, said "we are saying there is an incontrovertible evidence that Alzheimer's disease has a dormant microbial component. We CAN'T keep ignoring this evidence."

The worldwide team of 31 senior scientists and clinicians, which include specialists from Oxford, Cambridge, Edinburgh and Imperial College, have written an editorial that suggests that microbes are the major cause of dementia.

The herpes virus -the type which causes cold sores- and chlamydia bacteria are named as the major culprits, as well as type of corkscrew-shaped bacteria called spirochaete.

There are currently 850,000 people living with dementia in Britain which is due to rise to one million by 2025 and two million by 2050. But despite 412 drugs trials taking place between 2002 and 2012, nothing has been shown to combat the disease.

As you can see, there is not obvious decision and too much differences

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**Quiz – Answers: 1a; 2a; 3c; 4b; 5d**

# Pollution prevention

Reduces both financial costs and environmental costs . Pollution prevention protects the environment by conserving and protecting natural resources while strengthening economic growth through more efficient production in industry and less need for households, businesses and communities to handle waste.

## HELP TO REDUCE POLLUTION AND WASTE BY:

- Reusing things, fix things or get things fixed, it's informative ,interesting and it can be funny.
- Recycling everything you can, this is an important thing to reduce the pollution or waste.
- Recycling your mobile phone ,your console or your games that you don't used it's another of important reduces.
- Recycling your used printer ink cartridges because it's additions on landfill waste, this means that pollute a lot .
- We can recycled a lot of materials every days like : plastic, glass, aluminium, tin, other metals, clothes, newspapers...

## Pollution prevention :

Pollution prevention is any practice that reduces, eliminates, or prevents pollution at its source. Reducing the amount of pollution produced means less waste to control, treat, or dispose of. Less pollution means less hazards posed to public health and the environment.

In the agricultural sector, pollution prevention approaches include:

- Reducing the use of water and chemical inputs;
- Adoption of less environmentally harmful pesticides or cultivation of crop strains with natural resistance to pests; and
- Protection of sensitive areas.

In the industrial sector, examples of P2 practices include:

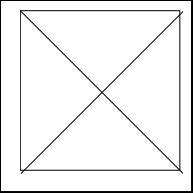
- Modifying a production process to produce less waste
- Using non-toxic or less toxic chemicals as cleaners, degreasers and other maintenance chemicals
- Implementing water and energy conservation practices
- Reusing materials such as drums and pallets rather than disposing of them as waste

In homes and schools examples of P2 practices include:

- Using reusable water bottles instead of throw-aways
- Automatically turning off lights when not in use
- Repairing leaky faucets and hoses
- Switching to "green" cleaners

## **Why is pollution prevention important?**

Pollution prevention reduces both financial costs and environmental costs. Pollution prevention protects the environment by conserving and protecting natural resources while strengthening economic growth through more efficient production in industry and less need for households, businesses and communities to handle waste.



## THE FALL OF THE ROMAN EMPIRE

The fall consists in the process of decline in the Western Roman Empire in which it failed to enforce its rule, and its vast territory was divided into numerous successor polities. The empire lost the strengths that had allowed it to exercise effective control; modern historians mention factors including the effectiveness and numbers of the army, the health and numbers of the Roman population, the strength of the economy, the competence of the Emperor, the religious changes of the period, and the efficiency of the civil administration.



Relevant dates include 117 CE, when the Empire was at its greatest territorial extent, and the accession of Diocletian in 284.

By 476, when Odoacer deposed the Emperor Romulus, the Western Roman Emperor wielded negligible military, political, or financial power and had no effective control over the scattered

Western domains that could still be described as Roman.

The fall is not the only unifying concept for these events; the period described as Late Antiquity emphasizes the cultural continuities throughout and beyond the political collapse.