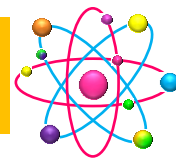




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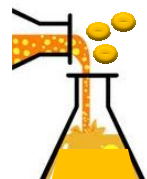


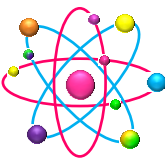
Natural Sciences



Content

| | |
|---------------------------------------|----|
| <u>Know the contents</u> | 1 |
| <u>Matter and energy</u> | 2 |
| <u>Physical and chemical changes</u> | 3 |
| <u>States of Matter</u> | 4 |
| <u>Very small parts of the matter</u> | 6 |
| <u>Changes of state</u> | 7 |
| <u>Activities</u> | 8 |
| <u>The energy</u> | 9 |
| <u>Forms of energy</u> | 10 |
| <u>Heat</u> | 10 |
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| <u>The sound</u> | 12 |
| <u>Magnetism</u> | 13 |
| <u>Electricity</u> | 14 |





Know the contents

The Gimnasio Virtual San Francisco Javier, presented through textbooks for elementary education program and sequence of science content, enriched with several videos and additional topics.

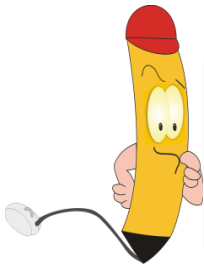
With this text handling you acquire attitudes, skills, abilities and ideas that allow you to expand your worldview.

Your content are grouped into four sessions containing topics and subtopics of several pages. Each topic begins with a title, a series of questions, whose purpose is to arouse your interest in the contents, you can use the questions at the end of a topic to find your learning.

Find images related to the concepts and themes, videos, diagrams, concept maps with didactic sense.

The virtualitos will help you travel through this adventure of knowledge.

Let us search...



When you find this icon you will know that there are many unanswered questions, which you can use at the end of a topic to find what you have learned.



When you find this icon you will have to perform the activities for each topic or subtopic.



Art is part of your activities, giving a personal touch when you go to color.
Now you are the artist!

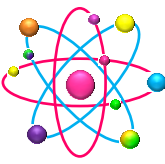


Virtualito invites you to learn more about the topic, research new things. It's interesting to know!



Did you know that...?

Find fun facts that invite you to learn about other related topics.



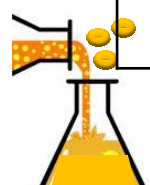
Simple machines used in everyday

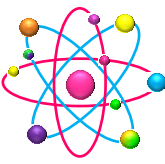
Any time you notice the elements that are used daily in school or at home for simple jobs? For example, when you go to school shop and order a soda, who serves you using a bottle opener to remove the cap on the bottle, or when you eat at a Chinese restaurant and you spend two chopsticks to take food, there was this manipulating levers of second and third grade.

Many of the tools you use every day to perform simple activities or with a higher degree of difficulty are machines that help make our lives a little easier. Also these objects have served for more comfortable doing daily tasks or are as necessary as a clock, which is comprised of gears (sprockets) that transfer the movement and rotation of the hands.



| Object | Representing machine | Function | Utility |
|-----------|----------------------|------------------|-------------------------------|
| Corkscrew | Screw, lever | Pop bottles cork | Decreases the strength to use |
| | | | |
| | | | |
| | | | |





Technological advances in medicine

In the medical field, technology has brought great advances that allow replacing organs and other body parts that help to improve the functioning of the body of someone who has a disease or an accident there and lost important parts of your body . These advances include what is known as prostheses and transplants, who know a little more thoroughly.

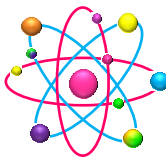
Prosthesis



Humans sometimes suffer accidents or diseases that cause us to lose the powers of motion, movement, etc.. That in some way affect the normal development of our life. Have you ever thought of doing. These people to continue living in a normal way? For in the field of medicine was developed what is now known by the name of prosthesis, which is understood as an artificial extension of the parts of the body that has suffered damage to their joints and sometimes can cause up the loss of a body part.

Two pieces, one of which is metal (stainless steel, or an alloy of chromium, cobalt and titanium), which fits and fits perfectly in a plastic resistant (polyethylene). The prosthesis can be placed to replace hip joints, legs, arms, and other body parts.

On prosthetic materials used enable the normal movement as embodiments of which are made with natural joint.



- a. **Mismatch:** The prosthesis may loosen and cause pain for that reason. if it is much the mismatch will require a revision of the prosthesis.
- b. **Displacement:** The prosthesis out of the socket so that most times can be reset without another operation.
- c. **Wear:** All joints replaced when wear and excessive use should be changed through another surgery.
- d. **Breakage of the prosthesis:** Rarely plastic or metal prostheses are broken, but if it happens, you dare change a new operation.
- e. **Nerve damage:** Sometimes during the transplant operation, damaged some nerves near the joint that is being replaced, these are they heal over time and can be recovered in full. After complete joint replacement may have different complications such as we have.

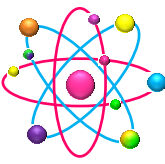


Transplant

When a person has a chronic disease that affects essential organs for life as in the heart, kidneys or liver is needed what is called as transplant medicine. this is to change the damaged organ

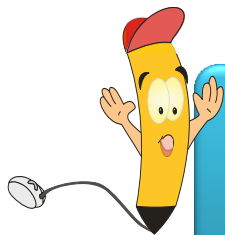
For a good one that has been donated by someone else, thus offering a new health and life expectancy.





Robotic Surgery

New technological advances in surgery have caused a revolution in the development and issue of surgeries in which organs can be visualized in three dimensions and use computers as robots or medical assistant. It is also used now a robotic endoscopic capsule that can be swallowed by the patient and in its passage through the digestive system, is taking pictures that allows different diagnoses.



Did you know?

The word **ROBOT** means worker, forced or slave.

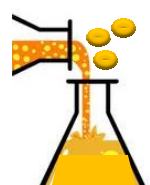


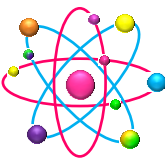
Ultrasound

A means for medical diagnosis and which is based on the images obtained by processing the echoes which are reflected by structures, thanks to the action of pulses of ultrasonic waves or vibrations. With the use of modern computers has been obtained and three color photographs of the inside of patients to see their bodies and especially to see the embryonic development of the babies.



Transducer





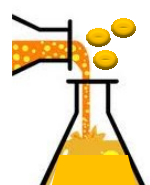
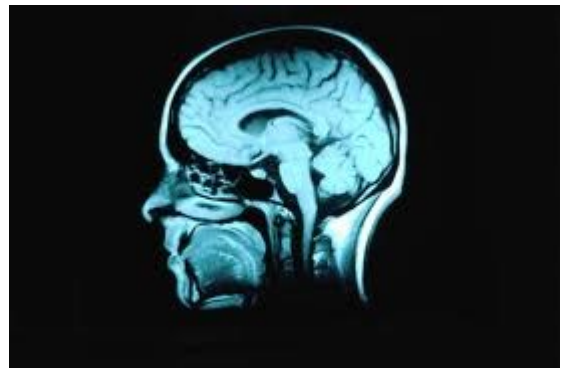
Diseases of the nervous system

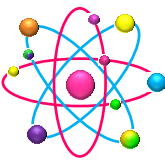
As we saw in the first unit, the nervous system is responsible for controlling and coordinating the movements of all parts of our body, yet can perform various diseases which will be discussed in this unit.

<http://www.youtube.com/watch?v=Gco1Zf6FbvQ>

- **Spinal cord injuries:** These are due to a traumatic injury because of a concussion or complete tears of the core, which has been caused by an accident, a fall, a shot, etc.. May cause permanent disability or death.
- **Cerebral palsy:** Is a disorder that develops before birth or shrinks after the baby at birth. It affects the ability to coordinate body movements of a person and muscle tone.
- **Brain Tumors:** Tumors arise due to abnormal growth of tissue in the brain and can be cancerous or malignant, grow very rapidly invading the brain area.
- **Brain tumors:** Are caused by alterations of genes or by chromosome that change the function of a gene and cause cells to grow uncontrollably.
- **Meningitis:** Is an inflammation of the membranes surrounding the brain and is known by the name of meninges. It can be spread through sneezing or polluted wastewater.

Bacterial meningitis is caused by many kinds of bacteria between that found the pneumococcal and can be transmitted by coughing or two people kissing. Although not very common, can bequeath to cause death.





Electricity

Advances in technology

The circuits allow the transfer of electrical power through various components, thus allowing a variety of devices can function.

Maybe you accomplished in your everyday watch the progress daily and amenities are given that give us those discoveries.

Analyzes computers initially were very large and could not be transported to any place, that was impossible. Today you can take your computer anywhere, whenever they are lighter and faster, with more storage capacity, and fully custom designs in all its aspects.



Computers hand with internet allow us access to different parts of the world and sites of great variety, get the information you need instantly.

For information on recreational activities, reading, trade and other can connect to:

www.corferias.gov.co

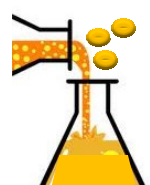
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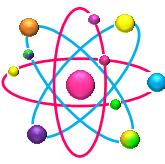
www.bibliored.org.co

www.bogotaturizmo.gov.co

www.maloka.org

www.banrep.gov.co/museo





USB Memory

They are removable, put aside the use of disk and somehow have been moving to cd. Devices are quite comfortable to carry because of its size, let you save data for its large capacity and used on computers without any problems.



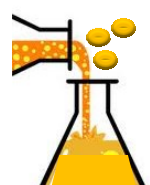
Wireless Technologies

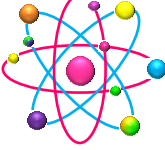
Today is evidenced advancing technology allowing connection to the internet without using cables or telephone networks, which is possible thanks to broadband services as broadcast at present.

Digital and interactive television



This new technology is already being used in different countries and is able to change the language of the programs they broadcast, emailed and even order products on the internet by simply using the remote control.

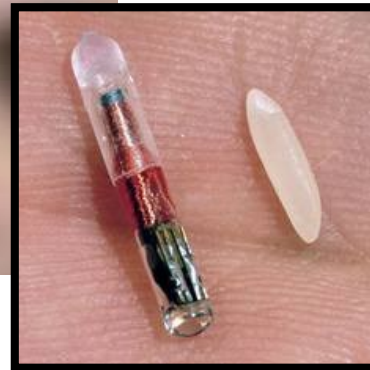
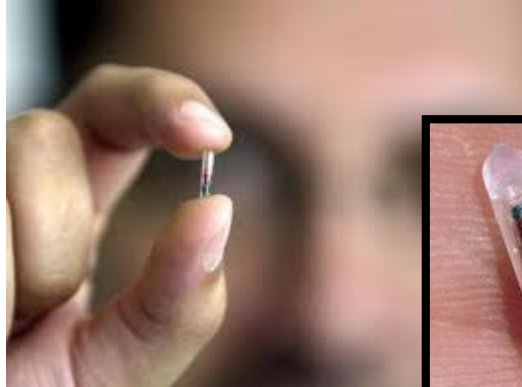
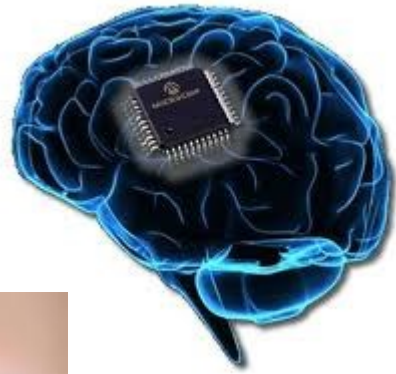




Nanotechnology

It is the study of machines and apparatus visible only through a microscope.

Its name is derived from the word nanometer concerning measures extremely small.

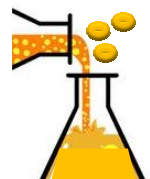


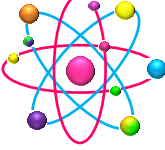
Intelligent materials and constructions

These materials have the ability to adapt to different environmental changes. These are products produced by chemical engineers who perform atoms or new combinations of existing elements applying pressure and heat.

Imagine a house that you just press a button to lock the doors, control the indoor temperature degrees, connect through internet appliances, that warms your food or water to bathe when you arrive at school .

This idea is not far-fetched, thanks to the use of smart materials.





Scientific and technological advances

Biotechnology and genetic engineering

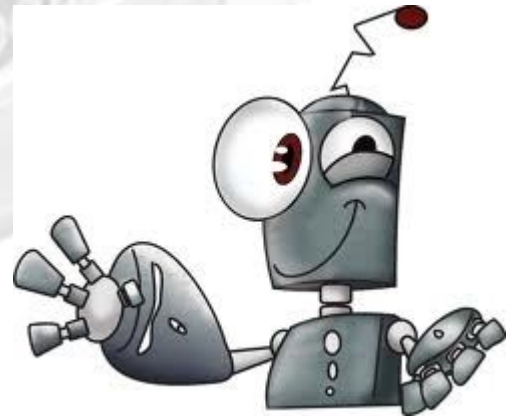
It can be said that the development of technology based on biology and involves the use of microorganisms to transform and produce different materials. Biotechnology is used in agriculture, medicine, science agroforestry, among others.

→ Cybernetics

Study the control and communication systems both in people and in the machines.

→ Robotic

It is a technique applied by computer to design and use machines that perform difficult or dangerous activities in persons replacement. He also serves on the factories providing labor.



→ Bionic

Responsible for analyzing the way is organized internally as a living being and this organization can apply to various technical needs.

Bionics has enabled medicine to cure diseases and physical problems caused by accidents. Some progress bionic known are: muscles, nose and bionic eyes.

