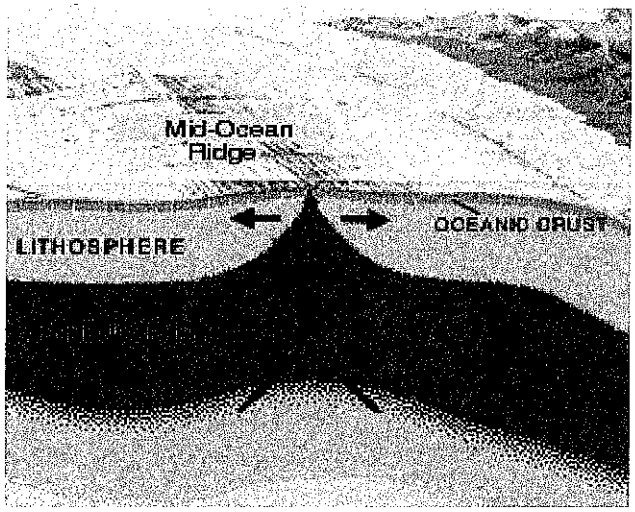
Daniel Sanchez

Plate Tectonics and our Earth

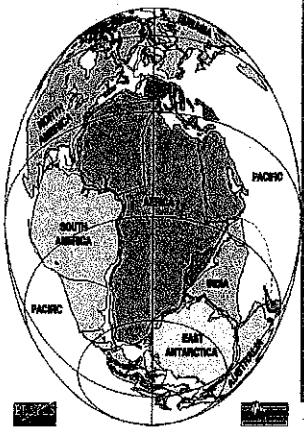
SC.7.E.6.5: Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.

A **Divergent Plate Boundary** is when two tectonic plates begin to separate from each other and pull away. This plate movement can result in the formation of Deep Ocean Ridges and/or a Rift Valley.

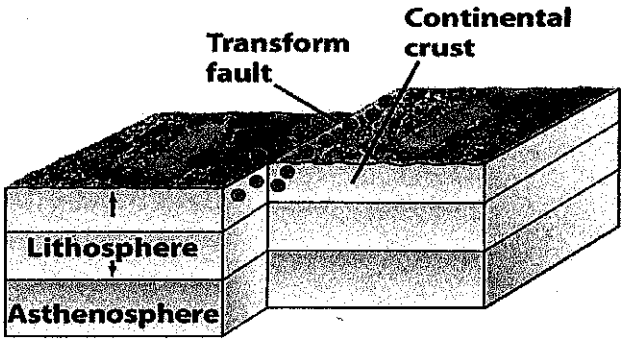


The **Theory of Plate Tectonics** is the scientific theory that tries to explain the movement of the Earth's crust (lithosphere) caused by the convection currents in the mantle of the Earth. This theory states that this movement of the crust is responsible for the drifting of the continents over time, and the geological features of the Earth. The theory of Plate Tectonics explains how Earth came to be as we know it today.

PANGEA

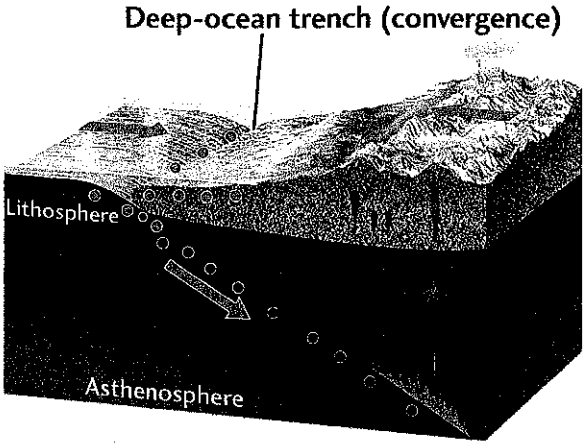


A **Transform Boundary** between plates is when two slide past each other rubbing against each other in opposite directions causing massive friction which is the cause for Earthquakes.



TRANSFORM FAULT BOUNDARY

A **Convergent Plate Boundary** is when two plates collide together and come together. This movement in plates can cause certain geological features. If the plates collide and create an upward force mountain ranges can be formed. If one of the plates slides under the other it can form a deep trench.

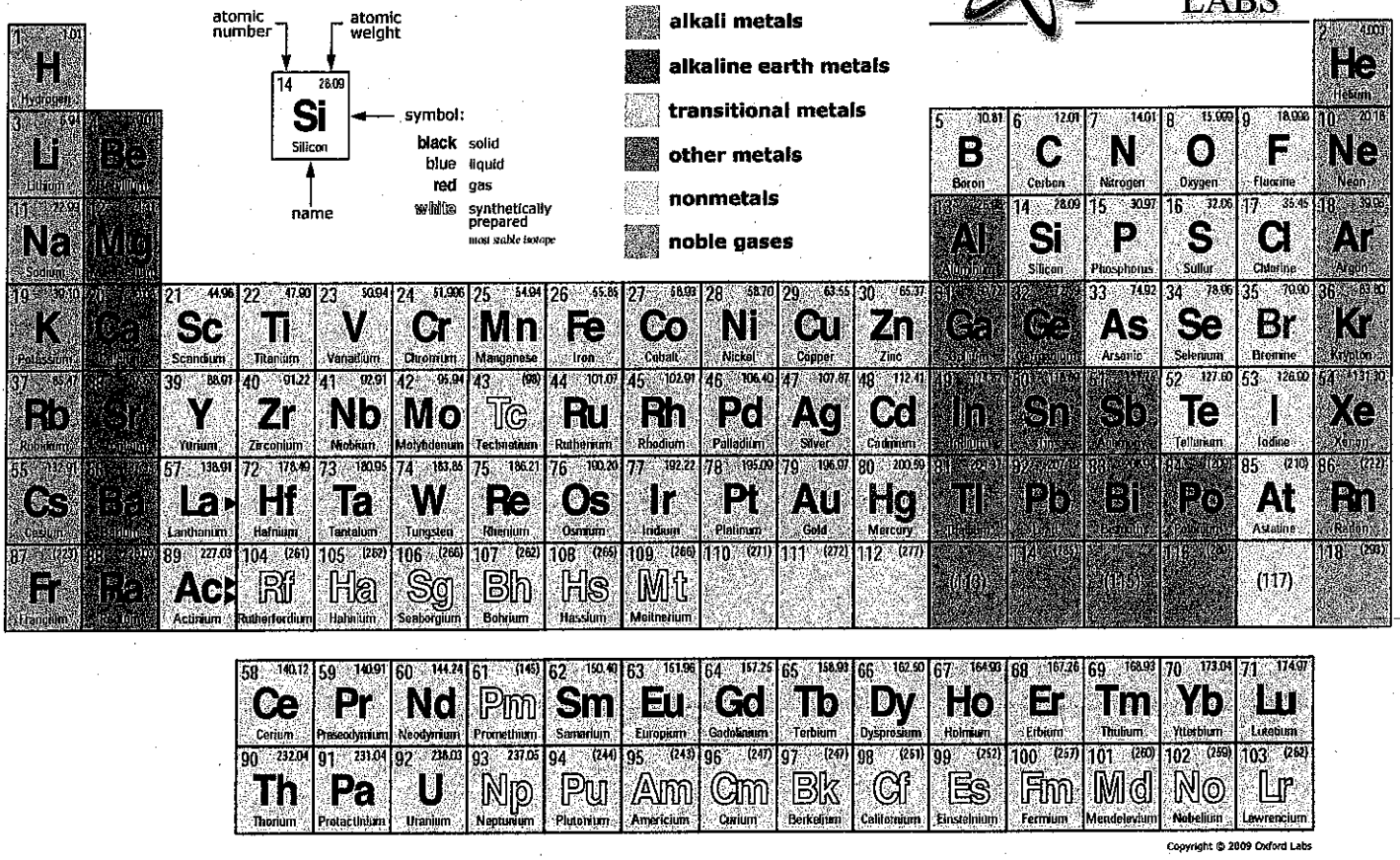


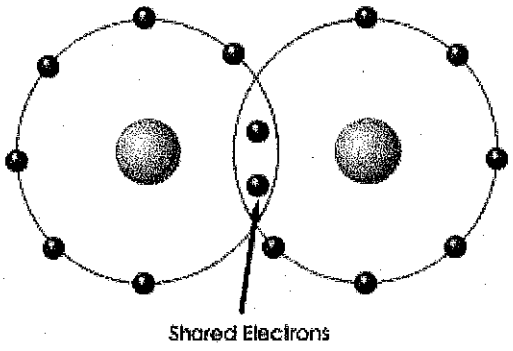
The Ring of Fire is a line of very powerful and active volcanoes caused by the active plate movement along the tectonic plate boundaries in the Pacific Ocean.

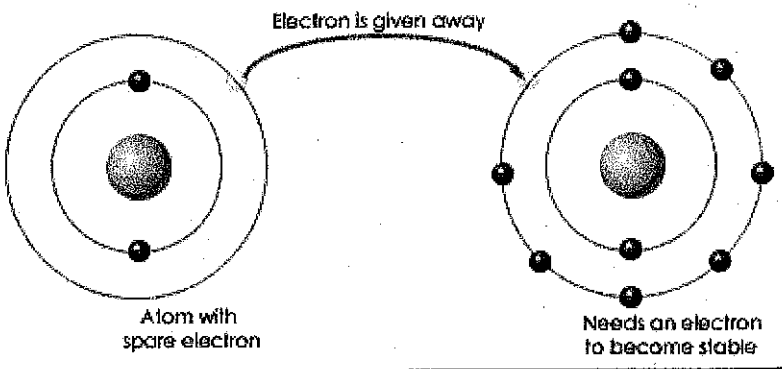
Julia Cyrkel
Period 4

Page 3 Standard: SC.8.P.8.5 Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.

Periodic Table of the Elements







A **covalent bond** is when atoms share one or more electrons; both are then left with a complete outer shell. Covalent bonds are **only between nonmetals.**

A **compound** is made up of two or more atoms chemically combined.

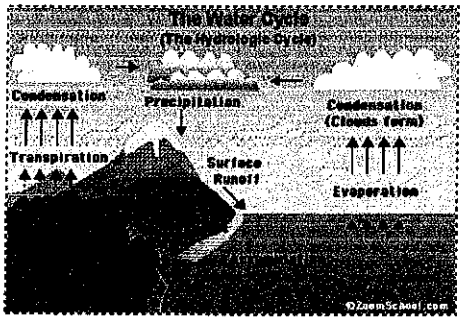
An **ionic bond** will transfer one or more electrons to another to form the bond, the atoms are left with a complete outer shell. Ionic bonds are made up of a **positively charged metal** ion and a **negatively charged nonmetal ion.**

Vis Pham

Effects of the Water Cycle

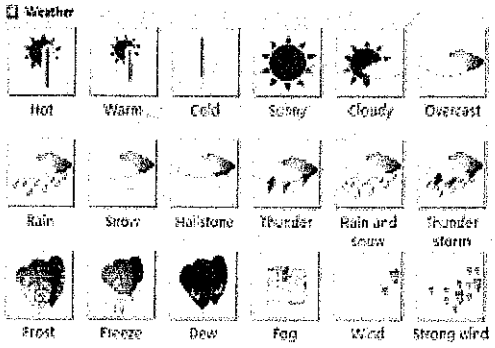
SC.6.E.7.2. Investigate and apply how the cycling of water between the atmosphere and hydrosphere has an effect on weather patterns and climate

What is the Water Cycle?



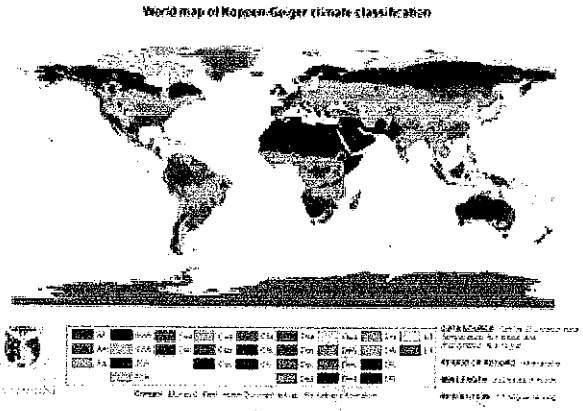
1) Evaporation occurs from the sun. The sun heats the water (from lakes, ponds, etc) and it becomes a gas.
2) Next, condensation occurs, and the water vapor is changed into a liquid (forming clouds).
3) When clouds get tremendously heavy, precipitation occurs. Precipitation can come into different forms such as snow, hail, sleet, or rain.

How does the water cycle affect weather pattern and conditions?



The water cycle affects weather patterns in many ways. If there is a larger amount of water being evaporated in the atmosphere, then that could cause an increase in humidity. The water cycle recycles water; hence giving us rain or different types of precipitation/weather conditions.

How does the water cycle affect climate?



Increased precipitation can cause different types of climate changes. Increased precipitation can cause severe weather leading to disastrous things, such as floods. Decreased perception can cause a lack of water, and can lead to a drought. All in all, the water cycle can affect and determine how much precipitation a specific area will receive, hence affecting its climate.

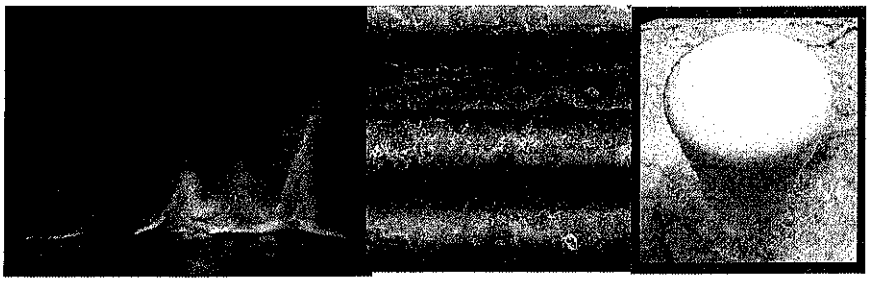
The Law of Conservation of Mass

SC.8.P.9.1: Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.

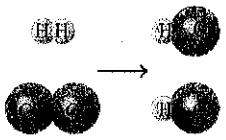
The Law of Conservation of mass states that matter is neither created nor destroyed, however it may be physically and chemically changed.

Conservation in Chemical Changes

For example, consider when rust forms on a piece of metal. Although the matter is chemically changed, the rust, metal, and oxygen is all still there. The amount of mass is constant, albeit in a different form.



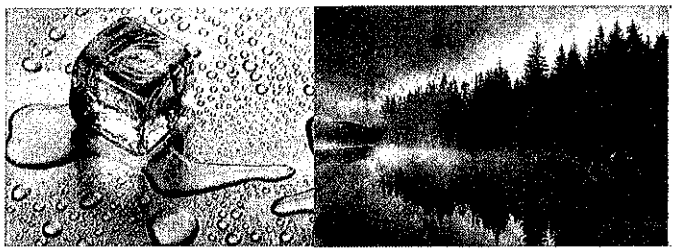
This is why in a chemical equation, both sides are balanced; both sides must yield equal masses.



Chemical changes occur when bonds between atoms break or form. Breaking requires energy, and forming releases. *Exothermic* reactions release energy. *Endothermic* reactions absorb energy.

Conservation in Physical Changes

Physical changes, like changing state, also conserve mass. When water evaporates, for example, the same amount of mass just turns into a gas.



Jessie Sui

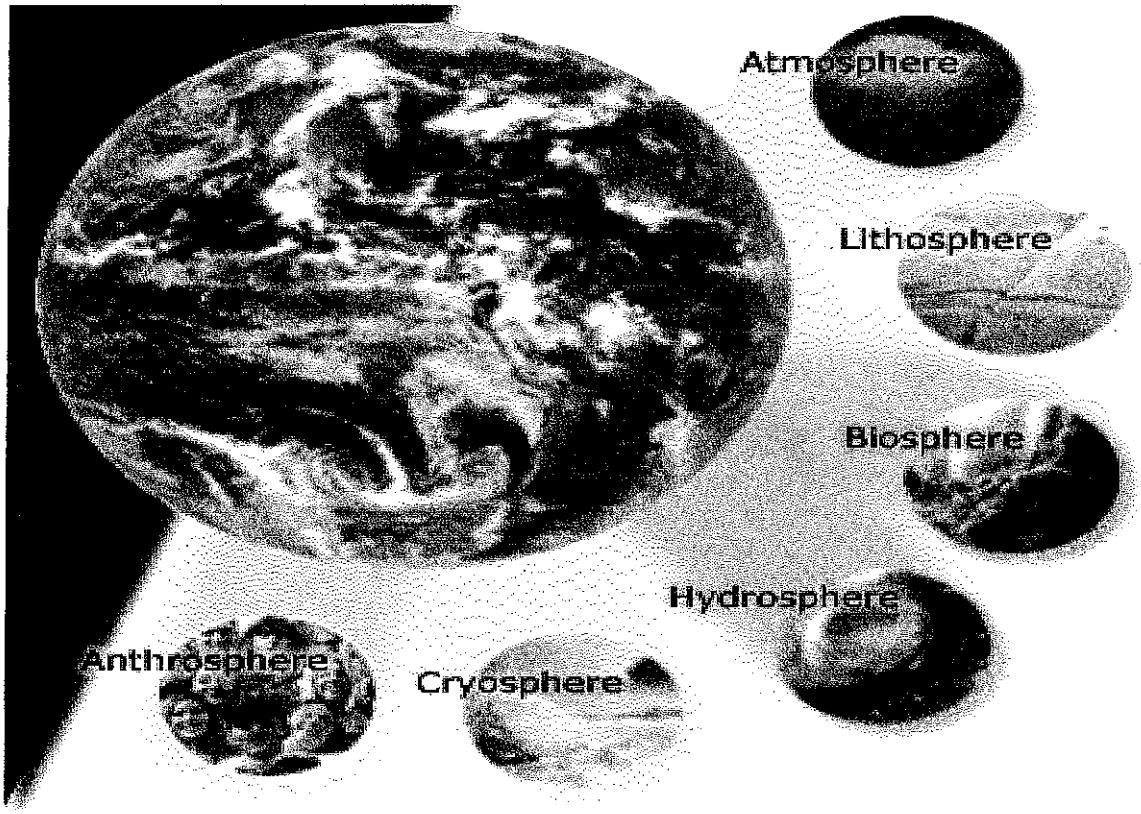
Alyssa McCune [redacted] Pd 2

Earth's Spheres

SC.6.E.7.4: Differentiate and show interactions among the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere.

The **atmosphere** is all the air, water vapor, gases, etc that protects Earth. Rain creates erosion, and infiltrates the soil which affects the **Geosphere**. Rain also freezes and over time and it creates glaciers and ice caps called the **cryosphere**. The cryosphere melts and turns into the **hydrosphere.** The hydrosphere also evaporates into the atmosphere, and the geosphere and biosphere transfers water into the atmosphere, and in return, into the hydrosphere. And **biosphere** is the layer of Earth where life exists.

Vocabulary related to these topics: Rain, glaciers, ice caps, evaporation, erosion, soil, water, transfer, gas, water vapor, rock, layer, life, melt, freeze, air, etc.



This diagram shows that the different spheres of the Earth (not including Geosphere because there wasn't any pictures which would show the erosion that water creates.) The atmosphere is the gas and water vapor that protects Earth, the biosphere is where life exists, the cryosphere is icy, and the hydrosphere is water that evaporates into the atmosphere.

The Rock Cycle

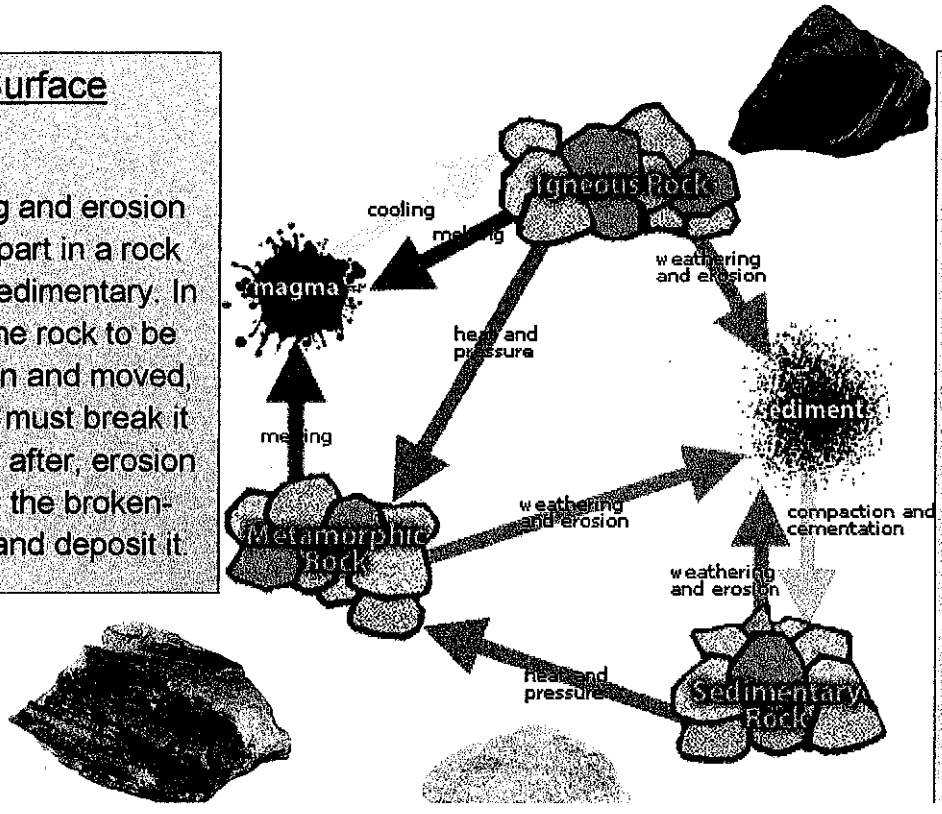
SC.7.E.6.2 Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and subsurface events (plate tectonics and mountain building).

Rocks can go one of three ways in the rock cycle to transform into one of three types of rocks. There is absolutely no order in the cycle, so a rock can go through all three states or just repeatedly turn into an igneous rock.

Igneous Rock	Metamorphic Rock	Sedimentary Rock
To become an igneous rock, the rock must heat up until it is magma, and then cool into a solid. That solid is igneous rock.	To become a metamorphic rock, a rock must undergo hundreds of years of constant heat and pressure. The resulting rock will be metamorphic.	To become a sedimentary rock, a rock must become sediment via weathering. Erosion must carry that sediment and will eventually be deposited. After years of sediment being piled on top of it, it will harden into a rock.
Examples: obsidian, granite, basalt	Examples: marble, slate, schist	Examples: sandstone, shale, limestone

Relating Surface Events

Weathering and erosion play a big part in a rock becoming sedimentary. In order for the rock to be broken down and moved, weathering must break it down. Soon after, erosion shall carry the broken-down rock and deposit it.



Relating Subsurface Events

In the theory of plate tectonics, at convergent boundaries, a plate slides underneath another and joins the mantle while turning to magma. This is the first step to become an igneous rock. Also at convergent boundaries, mountains build up. These heavy mountains bring a lot of pressure on the rocks below, a step in creating metamorphic rocks.

[Mixtures + Pure Substances]

SC.8.P.8.9 Distinguish among mixtures (including solutions) and pure substances.

- Matter
  - Pure substances
    - Element
      - same atoms
        - iron
        - Gold
        - Oxygen

    - compounds
      - atoms of 2 or more elements
        - water
        - Salt

  - Mixtures
    - homogeneous
      - solution
        - Syrup
        - Vinegar
        - soda

    - heterogeneous
      - Colloids
        - Smoke
        - whipped cream
        - Fog

      - Suspensions
        - muddy water

Pure Substance - a sample of matter that has definite chemical and physical properties ((formed chemically) [not easily seperated]

Mixture - A combonation of two or more substances that are NOT chemically combined. (held together by physical forces) [easily seperated]

Kool-aid

coffee

A solution contains a solvent and at least one solute.

Solvent - usually largest, dissolves other substances

Solute - substance being dissolved

ocean water

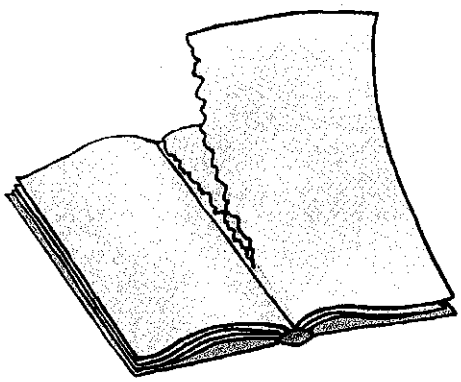
DIFFERENCES BETWEEN PHYSICAL AND CHEMICAL CHANGES

A physical change takes place when there is a change in a substances size, shape, or state. When a physical change takes place no new matter is ever formed.

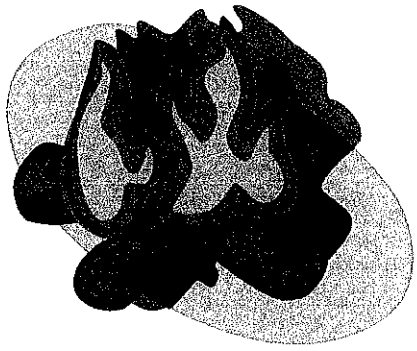
A physical property is a property that can be observed by using your senses.

A chemical change is a change that alters the chemical or physical properties of something. When a chemical change occurs a new substance will be formed.

A chemical property is a property that shows how a substance will react with another substance. It judges what a substance will change into after the new substance is formed.



As this picture shows this paper is ripped. This is a physical change.



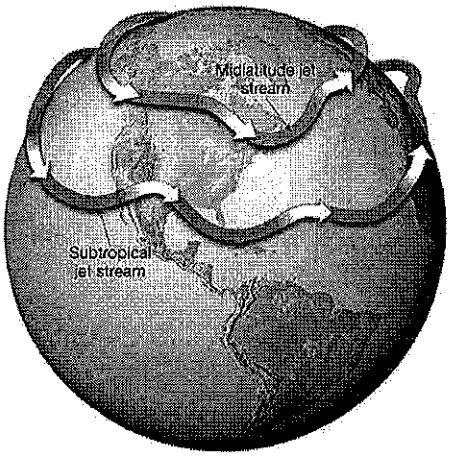
In this picture we see logs are burning, which is a chemical change.

Sofia Orta
Period 4

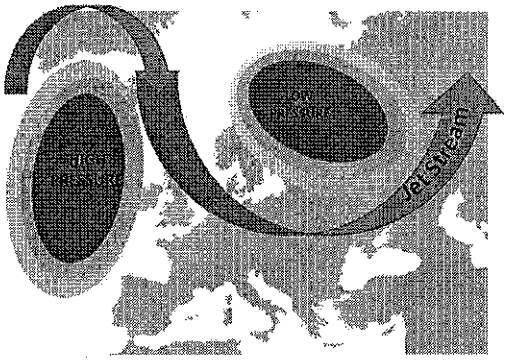
Weather Patterns

SC.6.E.7.3

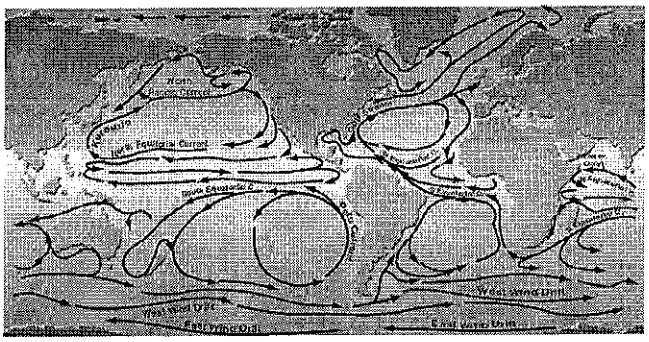
The Jet Stream is a 'river of air' made of narrow air currents. The Jet Stream can interfere with the direction and formation of storms. It is usually located near the equator but it isn't always in the same place.



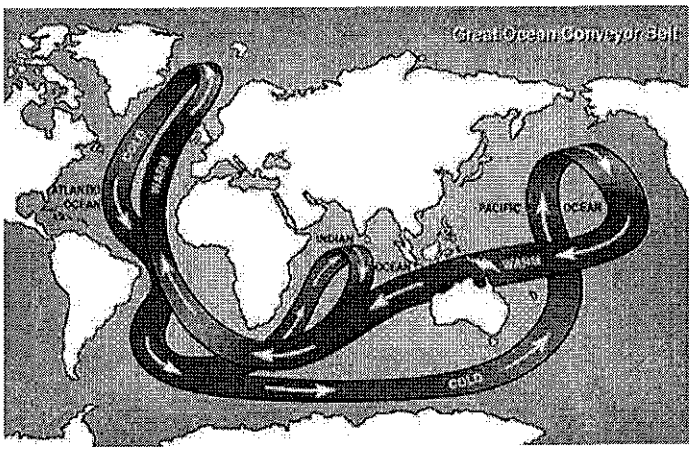
There are two jest streams that affect weather in the United States. There's the Polar Jet and the Subtropical Jet. They both come from the West and blow toward the East. They fluctuate based on air pressure and temperature of areas they pass through.



Ocean currents are a stead flow of surface ocean water that flow in a paricular direction. Ocean currents are often directed by wind and can cause temperature change, primarily in cooler areas. There are mant ocean currents on the planet, some larger than others. They transfer warmer and cooler water to cooler or warmer areas, causing changes in weather.



Ocean currents can affect the humidity and precipitation of sever regions. For example, an ocean current with warm, tropical water can be carried to a cooler location. As the heat from the water escapes into the atmosphere, it creates warmer, rainier, and more humid weather than before.

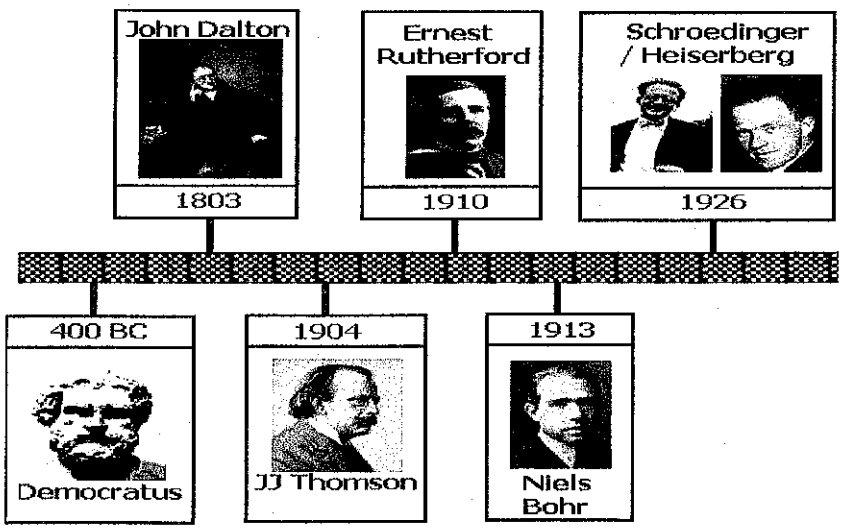


THE ATOMIC THEORY

SC.8.P.8.7: Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons)

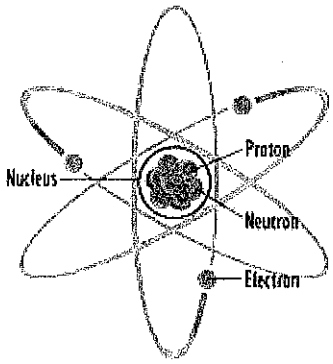
In chemistry and physics, the atomic theory that states that all matter is made up of a unit called atoms.

The atomic theory was first proposed by ancient Greek philosopher Democritus. The theory has developed over time to what we know today. Here is a look at a timeline of the main contributors to the atomic theory.

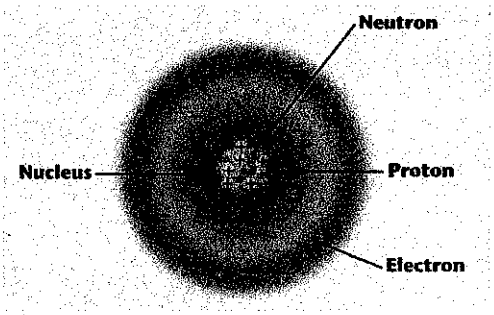


Atomic Theory Timeline

Atoms are the smallest unit of an element and are composed of subatomic particles. An atom is electrons surrounding a nucleus containing protons and neutrons. But this isn't what we always believed. Many scientists or philosophers had their own idea of what an atom looked like. Here is photos of the electron cloud model, and the Bohr model.



Bohr Model



Electron Cloud Model

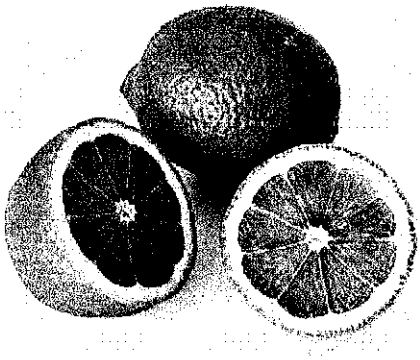
Jackson 9B

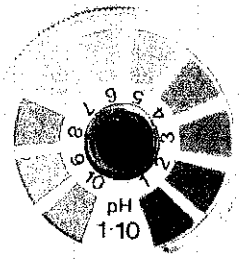
Acids Bases and Salts

Acids have a PH of less than 7 and usually have H in their chemical formula. Bases have a PH or more than 7 and have OH in their chemical formula. Salts are the result of an acid and base mixture.

Acids	Bases
Tastes sour	Tastes bitter
Reacts with metals	Dissolves fats and oils
Corrosive	Neutralizes acids to form salts
Contains hydrogen	Has OH in its elemental name
1-6 on the PH scale	8-14 on the PH scale

- A substance can be indicated as an acid or base using litmus paper and other indicators.
- A neutralization reaction is a reaction between an acid and a base.
- A salt forms during a neutralization reaction.





THE AGE OF EARTH

SC.7.E.6.3

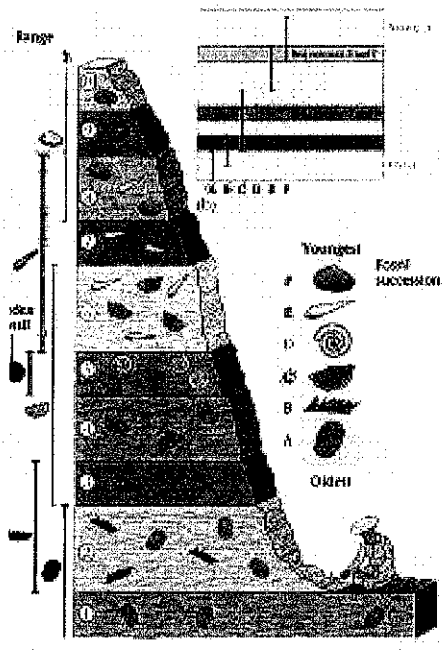
Identify current methods for measuring the age of Earth and all its parts , including the law of superposition and radioactive dating. (composition book)

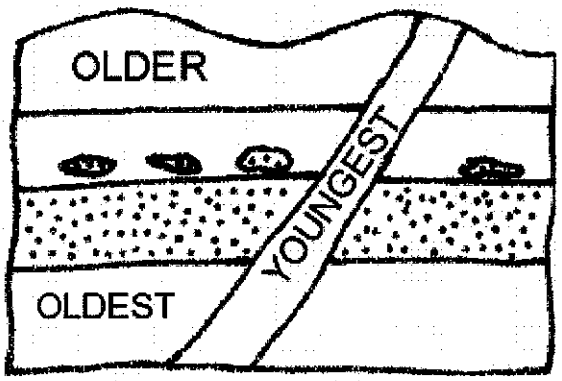
Relative age- making an estimate about something's age relative to what layer it is in and in comparison to other organisms in that layer.

Absolute age- The exact age of an organism in numbers or years or units of time that has passed.

Radioactive dating- The amount of radioactive material (carbon-14) that remains in an organism. This gives an estimate of the age of the organism.

By comparing the layers, you know the age of each object considering its place relevant to each other.





The bottom layer is the oldest, the top layer is younger than the bottom layer but older than the intrusions.

The age of an organism can be determined by the rates of decay of radioactive isotopes in multiple elements in it.

Law of Superposition- when sedimentary rock layers are in order with the oldest at the bottom and the youngest at the top, and intrusions are the youngest of all.

Index fossil- A fossil found in a layer that is used to compare other organisms to, in order to determine their age.

http://www.crowellscience.com/#!fossils

General functions of human body

Emma Paredes

SC.6.L.14.5: Identify and investigate the general functions of the major systems of the human body (digestive, respiratory, circulatory, reproductive, excretory, immune, nervous, and musculoskeletal) and describe ways these systems interact with each other to maintain homeostasis.

Digestive system: The general function is to break down foods into smaller parts and get nutrients from the food.

Respiratory system: The main function is to supply the body with oxygen. That happens by breathing.

Circulatory system: Transports blood, hormones, and cells to where they need to go.

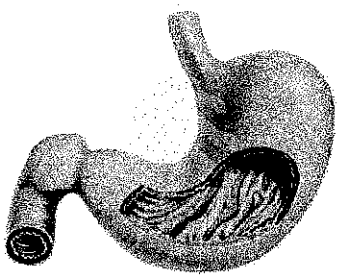
Reproductive system: The purpose is to create new life and reproduce living organisms.

Excretory system: The excretory systems function is to get rid of waste and toxins in the body.

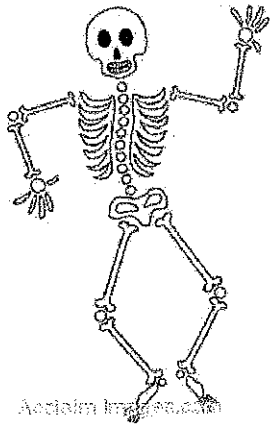
Immune system: The main function is to protect the body from harmful illnesses and viruses. The white blood cells help to fight off things that could be harmful to your body.

Nervous system: The nervous system is the center off all the brain activity including thought, memory, and learning. The nervous system is the communication system throughout the body.

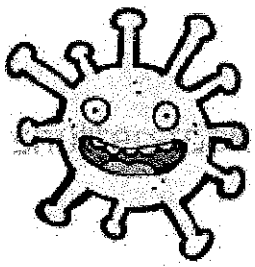
Musculoskeletal system: Gives all support to your body and helps you move. It includes your bones and ligaments.



The stomach is the main part of the digestive system.



The musculoskeletal system gives your body support.



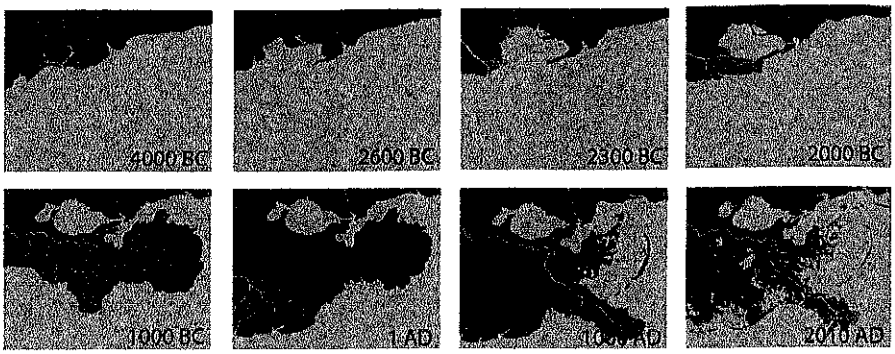
White blood cells protect your body.

SC.7.E.6.4- Earth's Formations over Time

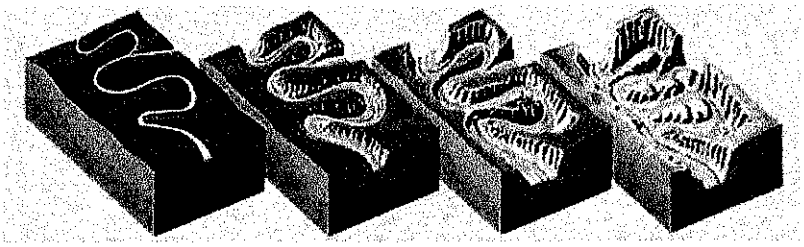
Show how Earth has evolved over time using physical evidence of natural processes.

Delta

Deltas are formed by deposition of sediment at the mouth of the river or stream. This deposition, over time, builds up as layers that scientists can study in order to determine age.



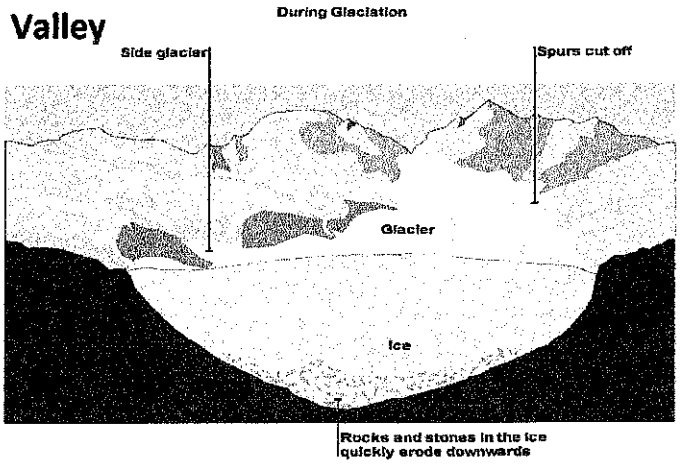
Canyon



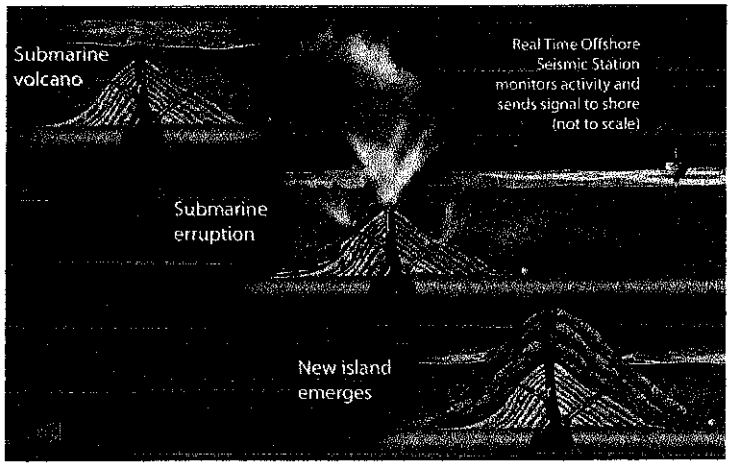
Canyons are formed by erosion. Large rivers once flowed in the canyons and they slowly eroded away the rock along the canyon walls and the river dried out. Scientists can look into the various layers of rock that were exposed by the erosion.

Valley

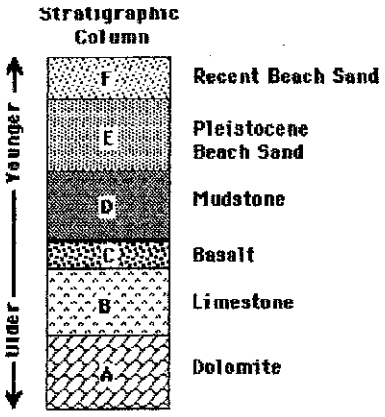
Valleys can be formed in more ways than one. Waters could've eroded the path of the river. Large glaciers could've also carved a river into the land. The movement of divergent tectonic plates can also form valleys.



Volcanic Islands



In the formation of volcanic islands, eruptions of volcanoes underwater release magma that cools when in contact with the cool water into igneous rock. This rock accumulates and builds tall enough to break the water's surface and create an island. As tectonic plates move, various islands could be formed over time.



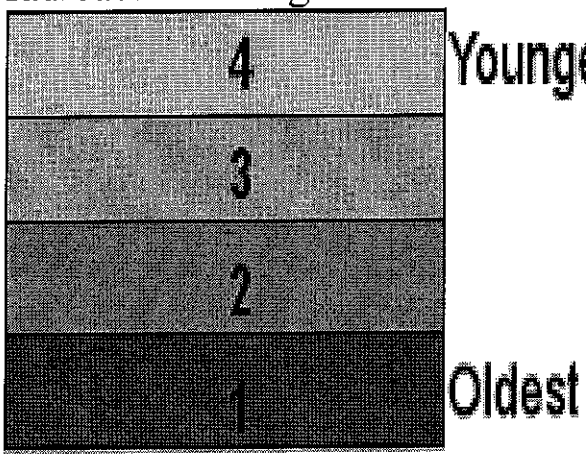
The Law of Superposition expresses that the lowest layer of rock is the one that is the oldest. Respectively, the youngest layer is the one at the surface. This helps scientists create relational dating of rocks or fossils that are found. Index fossils are used to determine the approximate age of a layer of rock and the fossils within it.

Carbon dating and radioactive dating are ways of finding out exact dating of materials. Carbon dating uses the measurement of carbon 14 isotopes left in a material in comparison to the same material that has not begun losing its carbon 14 atoms. Radioactive dating is similar in using atoms and measuring their radioactivity to determine age.

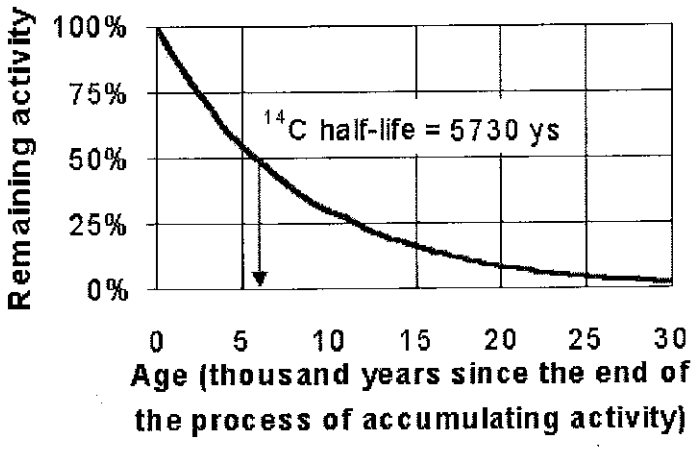
Kayla Trunn
4/2/14 P.5

Measurements of Earth's Age

SC.7.E.6.3: Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.



Scientist use lots of ways to measure the age of living organisms, plants, and nonliving organisms from back then. One way is the law of superposition. It's a law that tells the age of the Earth by the sequences of sediments or rocks that haven't been overturned and the youngest sediments or rocks are at the top of the sequence and on the bottom are the oldest. Comparing ages of fossils is one common way this is used.



The other way to find the age of Earth's sediments and rocks are by using radioactive dating. It is the technique of comparing the abundance ratio of a radioactive isotope to an isotope used as references to determine the age. Scientists use this method a lot to find the exact age.

Juliana Voelker

SC.7.L.16.1 DNA

Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another.

Paraphrased: Every organism requires a set of instructions called DNA that specifies what traits the organism has. DNA contains genes located in the chromosome of each cell. These traits are then passed on from generation to generation through reproduction.

Vocabulary:

Hereditary: is the passing of traits from parents to children.

Trait: is a notable feature or quality in a person.

Gene: is directions for building proteins that make our body function.

Chromosome: DNA is packaged into compact units called chromosomes.

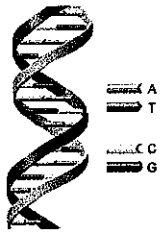
"A. Reproduction is characteristic of living things and is essential for the survival of species."

From: http://www.cpalms.org/Public/PreviewStandard/Preview/1808

Reproduction happens through either sexual or asexual processes. It is essential for the survival of species because if the species stops reproducing they will all eventually die out and go extinct.

"B. Genetic information is passed from generation to generation by DNA; DNA controls the traits of an organisms."

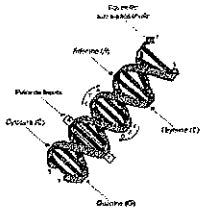
DNA encodes a detailed set of instructions for building part of the cell . In the DNA there are genes which are passed through generations, from parent to child. DNA lays out traits of the organism and determines things such as, hair color, eye color, and skin color.



The picture shows that that guanine and cytosine can bond and adenine and thymine can only bond in DNA.

"C. Changes in the DNA of an organism can cause changes in traits, and manipulation of DNA in organisms has led to genetically modified organisms."

When the DNA in an organism are changed traits can change because DNA determines your traits. This has been used to make a more "perfect " human being and to attempt to replace "bad genes"



DNA stands for deoxyribonucleic acid. It is in the shape of double helix.

Claire Dukstein

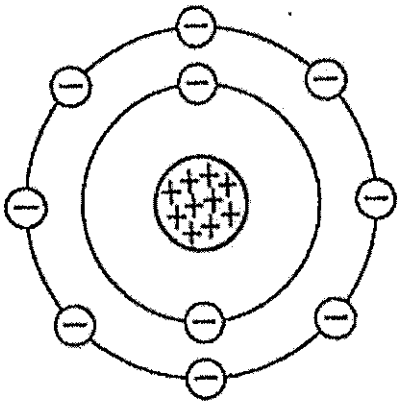
Page 3 Standard: Atomic Theory

SC.8.P.8.7 Explore the scientific theory of atoms (also known as the atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of subatomic particles (electrons surrounding a nucleus containing protons and neutrons.

- The atomic theory is the theory that says that all matter is made up of tiny particles called atoms. Atoms are the smallest unit of an element.
- Atomic theory has five main points:

1. All matter consists of small particles called atoms.
2. All atoms of an element are identical to each other.
3. All atoms of an element are different than other elements.
4. Atoms of one element combine with other elements to create compounds. They always combine in equal amounts.
5. Atoms cannot be created, divided, nor destroyed.

- Elements are made up of subatomic particles:
- The nucleus contains the protons and neutrons. Electrons surround the nucleus.
- Charges: protons (+), neutrons (neutral, no charge), electrons (-) the number of protons always equal the number of electrons.
- Electron Configuration: how many electrons can fit on each ring. 2-8-18-32



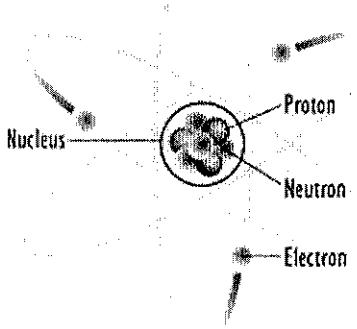
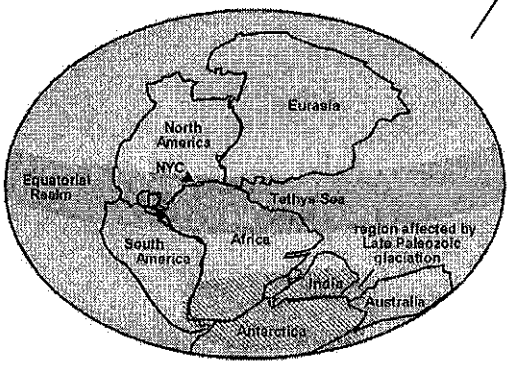


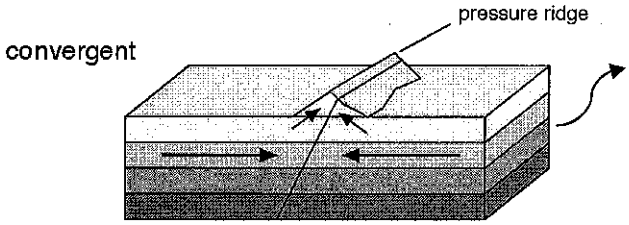
Plate Tectonics

SC.7 .E.6 .5: Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.

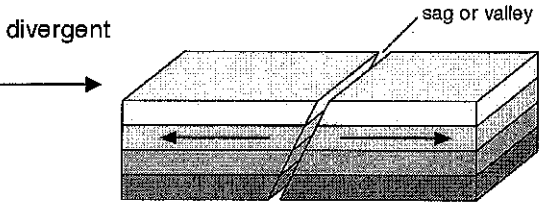
The Theory of Plate Tectonics is that in the lithosphere (underneath Earth's surface) there are tectonic plates that are constantly moving, due to the convection in the mantle, causing the continents to drift apart from the original land mass called Pangaea



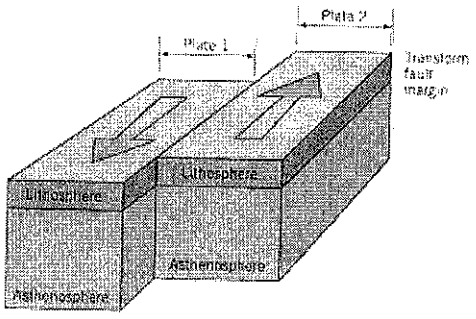
Convergent Boundaries: is when two plates move into each other. This can cause mountains, and deep trenches. India and Asia crashed into each other about 55 million years ago creating the Himalaya Mountains. At ocean-ocean converges one plate usually dives under the other creating trench's like the Mariana Trench.



Divergent Boundaries: is when two plates move away from each other. When this happens magma within the Earth rises to the surface pushing the two plates apart. Volcanoes or mountains can occur from this process. It renews the ocean floor and widens the giant basins.



Transform Boundaries: when two plates slide past each other causing earthquakes. Like the devastating 1905 San Francisco earthquake.



Genotype &Phenotype

SC.7.L.16.2- Determine the probabilities for genotype and phenotype combinations using Punnett squares and pedigrees.

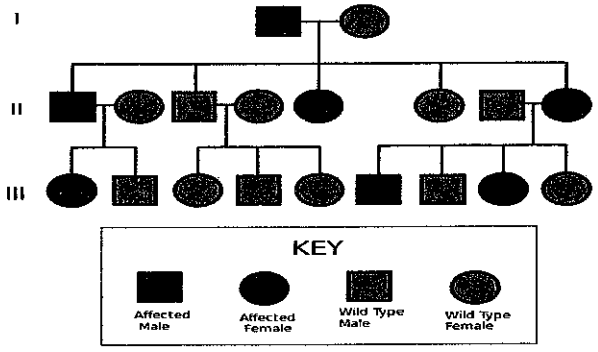
Genotype- is the genetic makeup of a person. Some examples are Dominant, Heterozygous, Homozygous, and Recessive.

Phenotype- The physical characteristics of a person either recessive or dominant. Examples: Red hair, blue eyes, brown hair, small nose, and skin color.

Punnett square is a diagram that is used to predict an outcome of reproduction.

	(S)	(S)
(s)	Ss	Ss
(s)	Ss	Ss

Pedigree is a chart showing the descent of a person or animal.

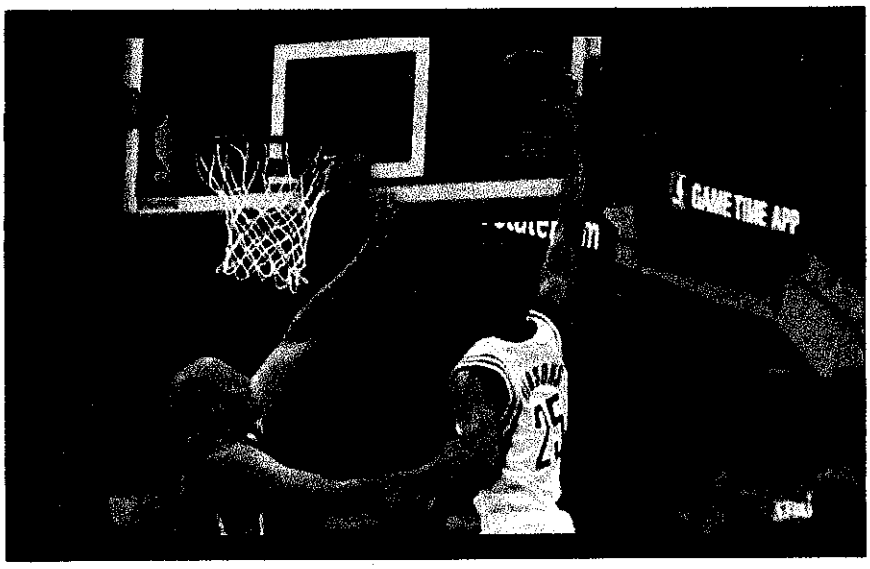


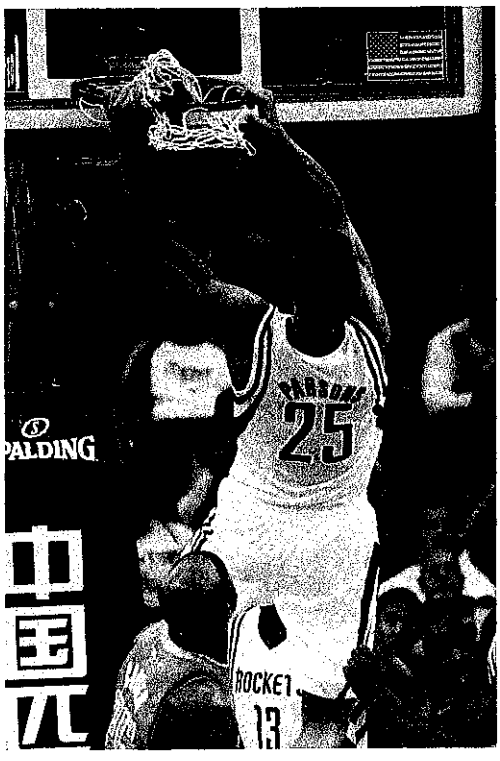
Remington Brooks

Transformation of energy

Energy Transformation, or energy conversion, is when energy transforms from one thing to another. A good way to look at this is through Someone shooting a basketball. At First, You have potential energy, as you hold the ball. The Reason you have potential energy is because you are standing still and the ball is not moving. But once You Jump and shoot the Ball, that potential energy Transforms into kinetic energy. This is one of many many things Known as a Transformation of energy.

Another Great way to look at it is a runner exploding. As a runner kneels down and is about ready to run, he or she Has Potential Energy. And when they explode.... BOOM! That runner now is moving as fast a light, and with that he has Kinetic Energy.



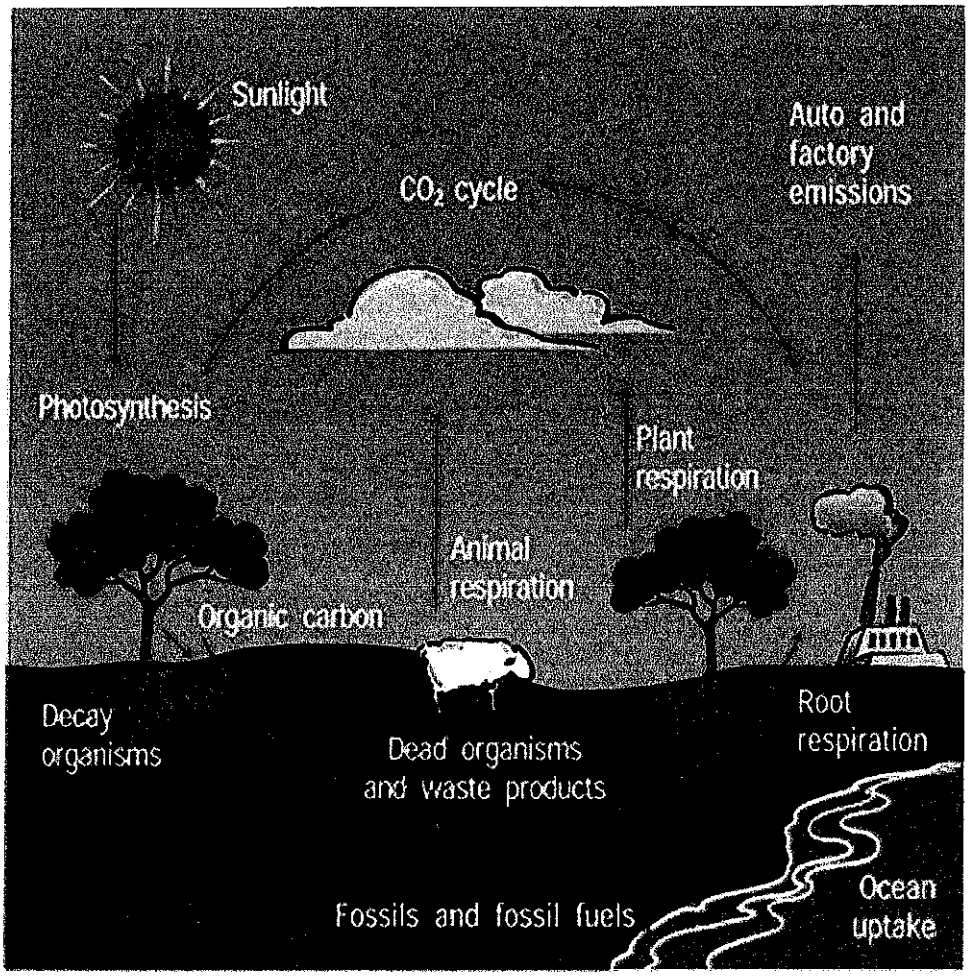


Carbon Cycle

Zach Irving

SC.8.L.18.3

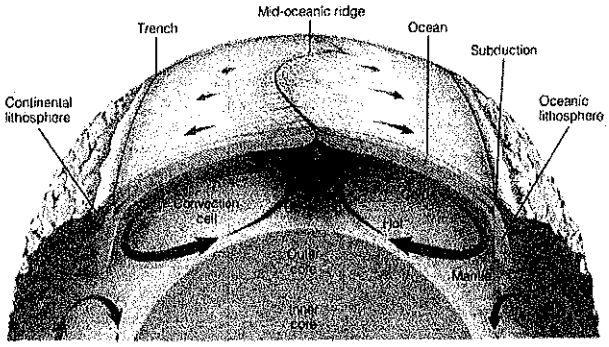
Overview: Matter and energy are continuously transferred between organisms and their environment during cycles. One of these, the carbon cycle, shows how carbon is transferred and recycled through the organisms and environment of Earth.



- Heat Flow -

Crysta Booth

SC.7.P.11.4: Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.

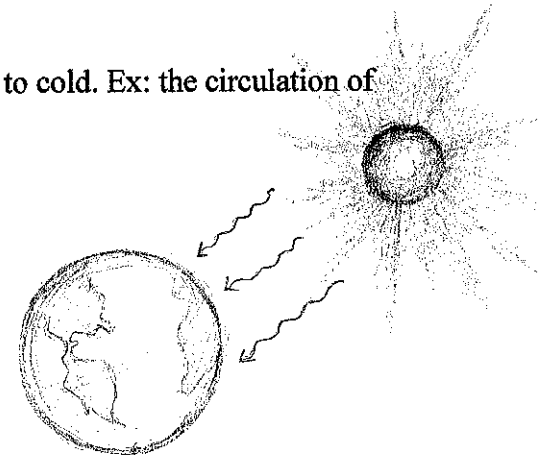


Heat flow- the flow of thermal energy from a warm area/object to a cool area/object.

The circulation of magma in the mantle.

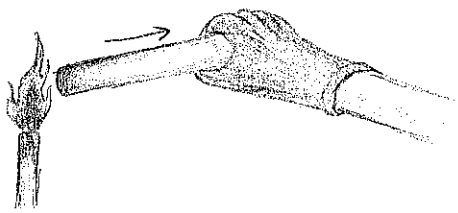
Convection- the circulation of heat up and down from hot to cold. Ex: the circulation of magma up and down, from hot to cold.

Radiation- The transfer of heat through waves. Ex: rays from the sun, heat from a campfire.



Rays of radiation from the sun.

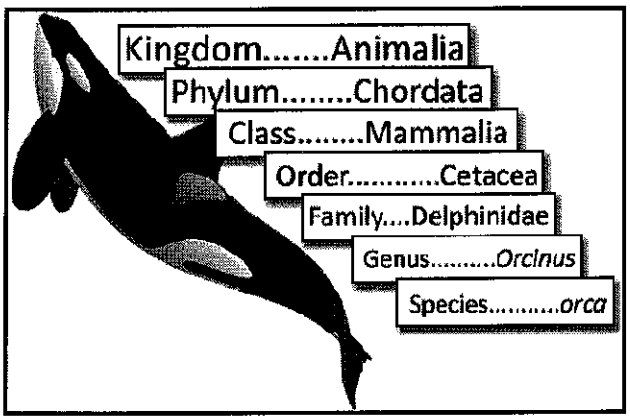
Conduction- the transfer of heat through touching objects. Ex: the transfer of heat from metal touching a fire to a hand holding the metal.



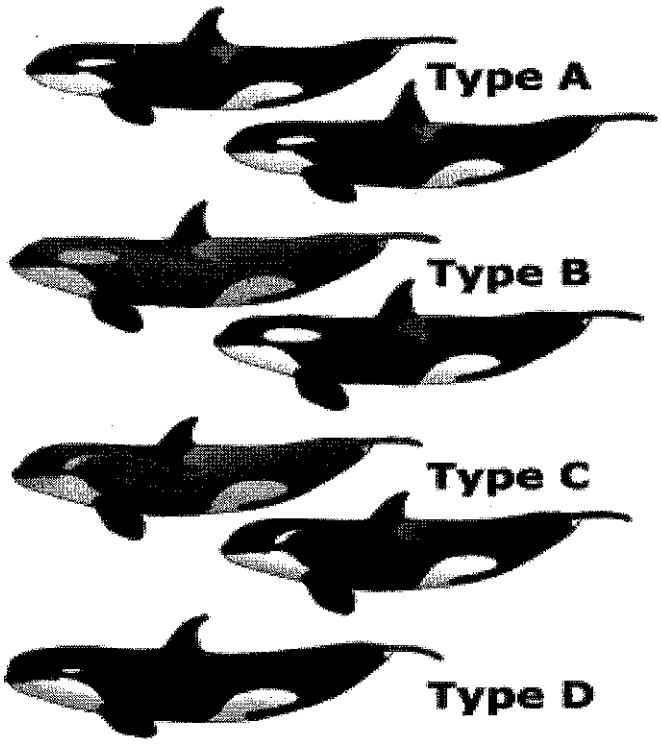
The transfer of heat through a metal rod to a hand.

Devin Fox

TAXONOMY



<<<< All of the different types of catergories are labeled according to the different characteristics of the animal and what type of animal it is. For example, if another whale was on the chart it might have the same kingdom and phylum as the other mammal because of the similarities they both aquire.



<<<< These whales could have the same kingdom and phylum but their other catergories could be different because of the characteristics. For example, type A and type D are different because type A has different shape, spot sizes and tail shapes. So their catergories would be different because of the different characteristics that the whales have in common or what they have that is different. *<MS.WASSON I DONT KNOW HOW MORE BLACK AND WHITE I CAN EXPLAIN THIS..... BA DUM TSS.>*

Lindsay Lee

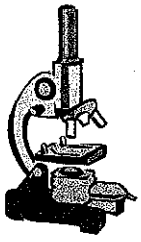
Infection!

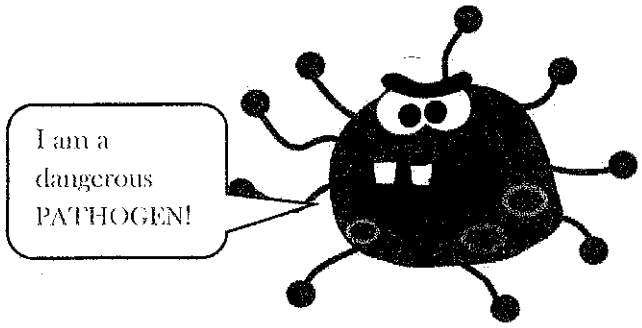
SC.6.L.14.6

Compare and contrast types of infectious agents that may infect the human body including viruses, bacteria, fungi, and parasites.

A pathogen is an organism that can cause diseases.

A microorganism is a living thing too small for the naked eye to examine. We can examine microorganisms by looking through a microscope.



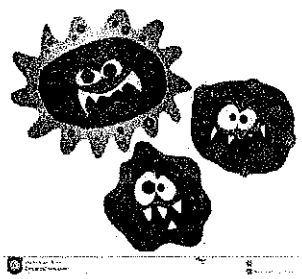


An infectious disease is a disease caused by a pathogen.

when you have an infectious disease, pathogens are in your body causing harm

Viruses:

Reproducing only in living things, they are tiny and nonliving. One example of a virus is the flu.



Bacteria:

Bacteria are one celled organisms that damage by producing a poison or a toxin. Some examples of these are tetanus or strep throat.

lindsay lee

Fungi:

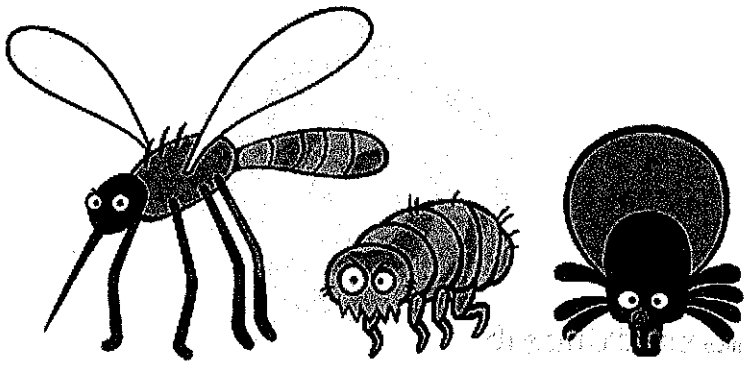
Fungi can be multi-celled or single celled. They thrive in warm, dark places of the body. Examples of fungi include mushrooms (pictured right) ringworm or mold.

Protists:

They are single-celled organisms that are slightly larger than bacteria. One example is malaria.

Parasite:

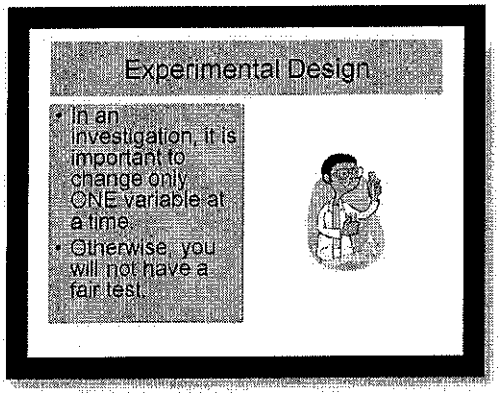
A parasite is an organism that lives on or in a host and causes. They are multi-celled. Examples of these are tapeworms or fleas, which can be seen toward the downward right.

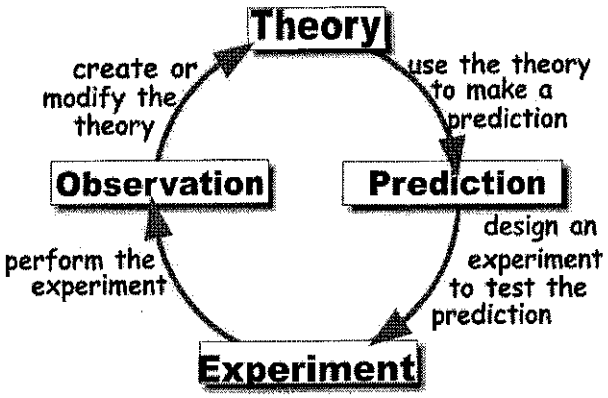


Kayla Truhn P.9
2/12/14

Scientific Investigation

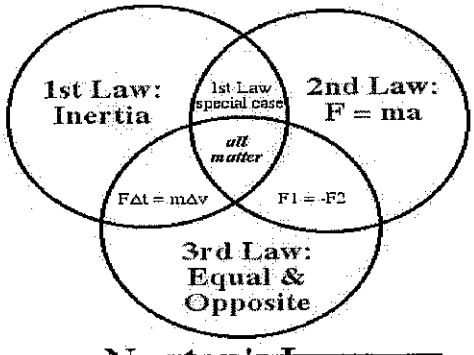
SC.7.N.1.3. Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation, and explain that not all scientific knowledge is derived from experimentation.



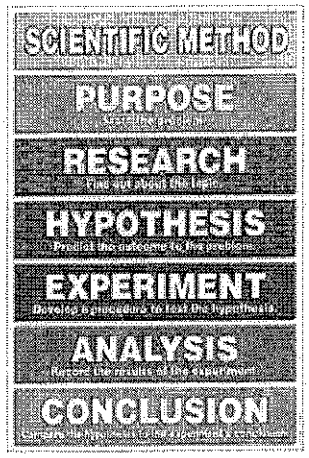


Experiments have a few variables that you have to have. While conducting an experiment you need to only have one variable changed so its not confusing and you get accurate data.

In an experiment there are several steps to conducting an experiment and getting an answer on something you wanted to test. Experiments are tested to find out a theory or the real facts.



For example Newton was one of the most greatest impacts on science. He discovered three different laws that we now know today.



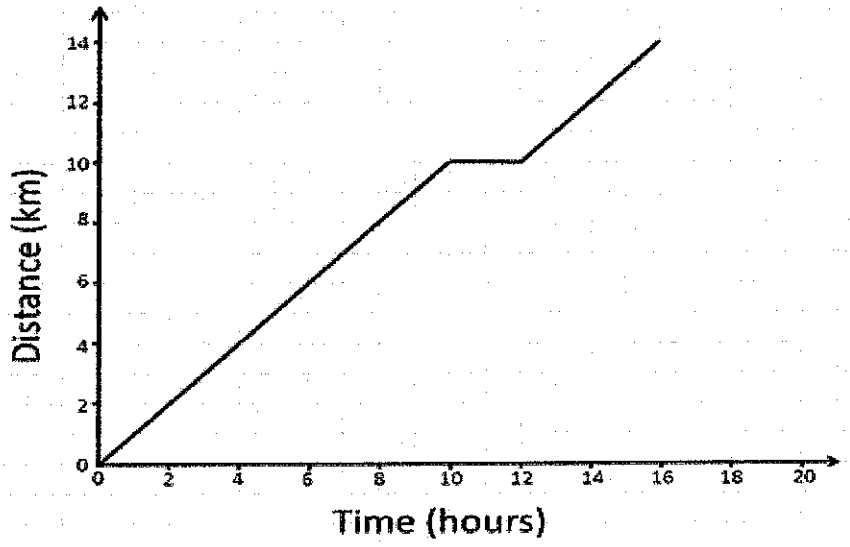
Nelliza Albino

SC.6.P.12.1- Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship.

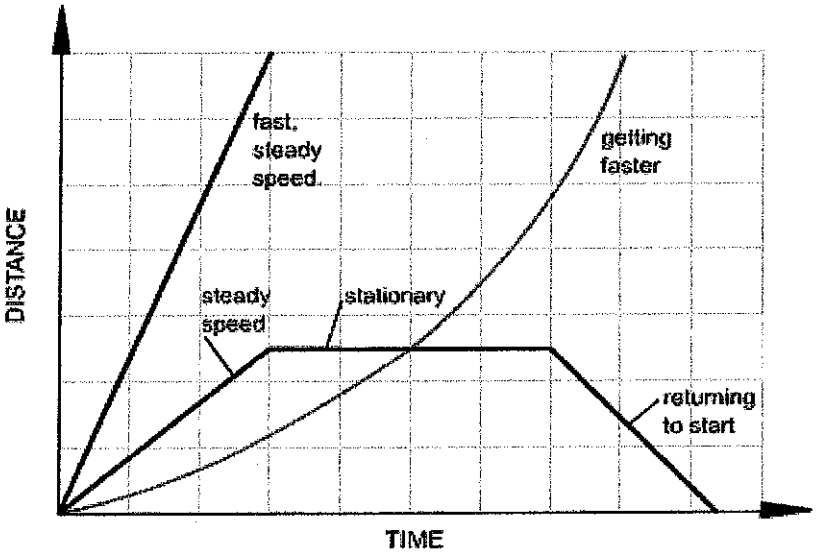
To be able to measure time and distance you need to know the basic S.I units. For time you would use seconds and for distance you would use meter.

TABLE 1.4 SI Base Units

Physical Quantity	Name of Unit	Abbreviation
Mass	Kilogram	kg
Length	Meter	m
Time	Second	s[a]
Temperature	Kelvin	K

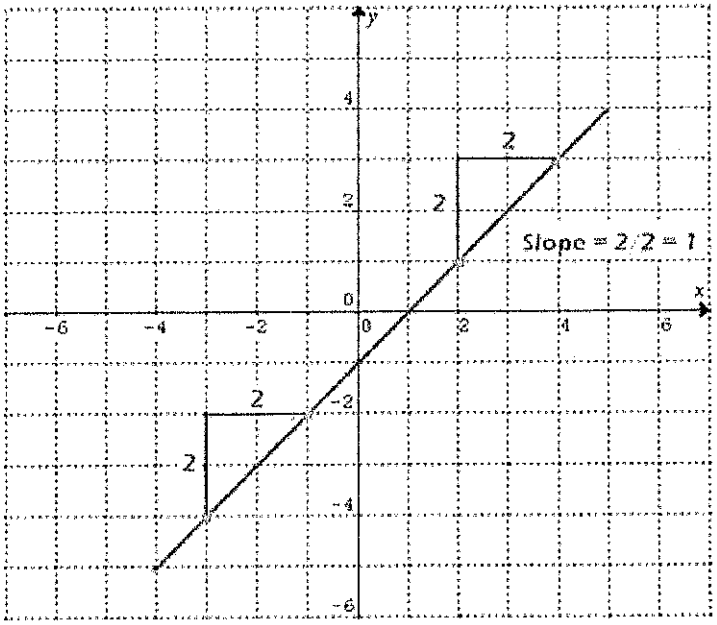


A distance time graph is a line graph for speed. It tells how far it went in a certain amount of time.



Both the blue and red lines in the graph does not have a constant speed. The green line does have a constant speed to it. A constant speed is a speed that doesn't change and stays the same the whole time

The relationship of a constant speed distance – time graph is that every time the time changes (goes up or down) the distance also changes (goes up or down) the same amount of as the time. That is called a slope.



Experiment vs. Investigation

SC.7.N.1.3

Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.

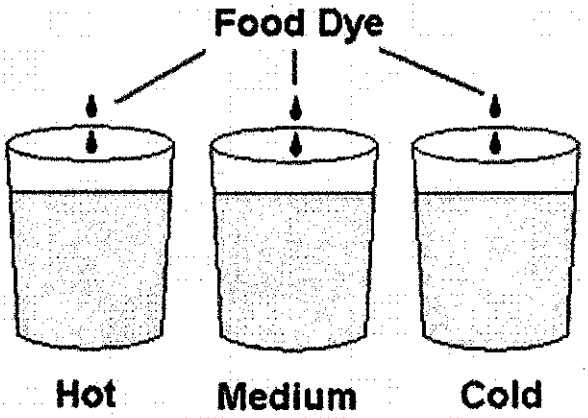
Independent variable- The variable of an experiment that is purposely changed to test the scientific question. (Ex: Type of fertilizer)

Dependent variable- The variable of an experiment that changes in reaction to the independent variable. (Ex: time, distance, height, weight)

Control- What is kept completely normal in an experiment in order to have something to compare the other results to. (Ex: Water)

Constant- What is kept the same for every test to keep the results as accurate as possible.

An experiment is a controlled test that answers a question while an **investigation** doesn't have all the properties of an investigation. However, scientific information can be gathered from **both**. Many skills are used in both an experiment and an investigation such as making observations, gathering data, questioning, analyzing data, summarizing, making conclusions, and evaluation results with peers.



In this picture, the medium water acts as the control to be the comparison to the hot and cold water.

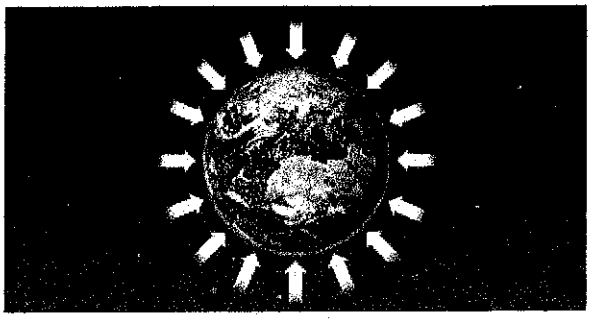
The constants that are apparent in this picture are the type of flower, amount of water, places the plants stay, and container they are in.

Experiment- A test that is done with controlled conditions and answers a question.

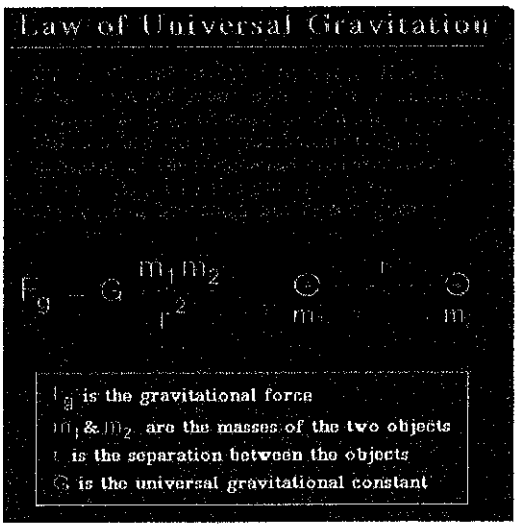
Investigation- An organized study of the natural world that includes making observations, questioning, taking in information, analyzing data, summarizing, making conclusions, and communicating results with others.

GRAVITY:

SC.6.P.13.2 : Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are.



Sir Isaac Newton was the first to come up with the idea of the Law of Universal Gravitation.



<u>WEIGHT</u> is the measure of the amount of gravity pulling on an object and can be measured using a scale. The unit for weight is <u>Newtons.</u>

The amount or strength of the force of gravity depends on two things:
<u>DISTANCE BETWEEN THE OBJECTS</u>
<u>& MASS</u>
Gravity is a natural force that pulls everything downwards towards the center of our earth.
The more mass an object has, the more gravitational pull it has.

Example: When an apple falls from a tree, not only is the earth pulling the apple towards it, but the apple is pulling the earth as well. However, because the pull is so slight and because of the differences in mass, the gravitational pull is not felt.

HEAT FLOW

SC.7.P.11.4 - Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until thy reach the same temperature.

Related Vocabulary:

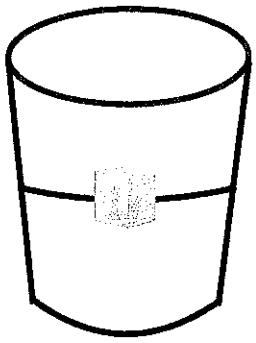
Thermal Energy - The sum of kinetic and potential energy of all particles in an object (the mechanical energy).

Heat - The flow of thermal energy.

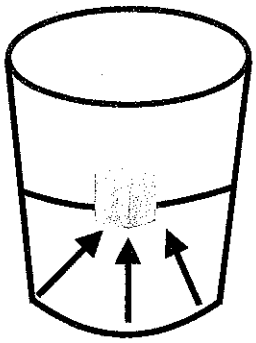
Temperature - The average kinetic energy of particles in a substance (measured in Celsius, Kelvin, or Fahrenheit).

This concept is found in the 2nd law of thermodynamics. Fast-moving atoms collide with slow-moving ones, transferring kinetic energy. Heat flows spontaneously, too.

Scenario:
Your cup of coffee is too hot, so you add an ice cube.

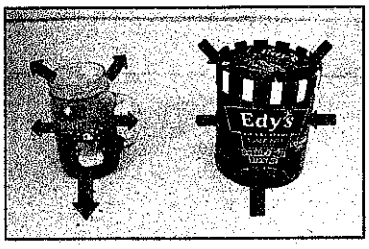


Why does the coffee cool down? The heat flowed from the coffee to the ice cube. Heat always flows from hot to cold until both objects reach equilibrium (the same temperature).



→ = Thermal Energy

Remember, the heat flowed from the *hot* coffee to the *cold* ice cube. Convection, conduction, and radiation are the types of heat transfer. The picture below shows heat flow.



Jack Streeter

Cellular Respiration

SC.8.L.18.2

Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.

Cellular Respiration: Is the process where living organisms gathers the energy in food molecules to make energy. *(Definition from www.oocities.org)*

This process requires glucose and it occurs when a consumer eats a producer to use the glucose for energy. Respiration occurs continuously in all cells of all living organisms. (Glucose is like a sugar or starch)

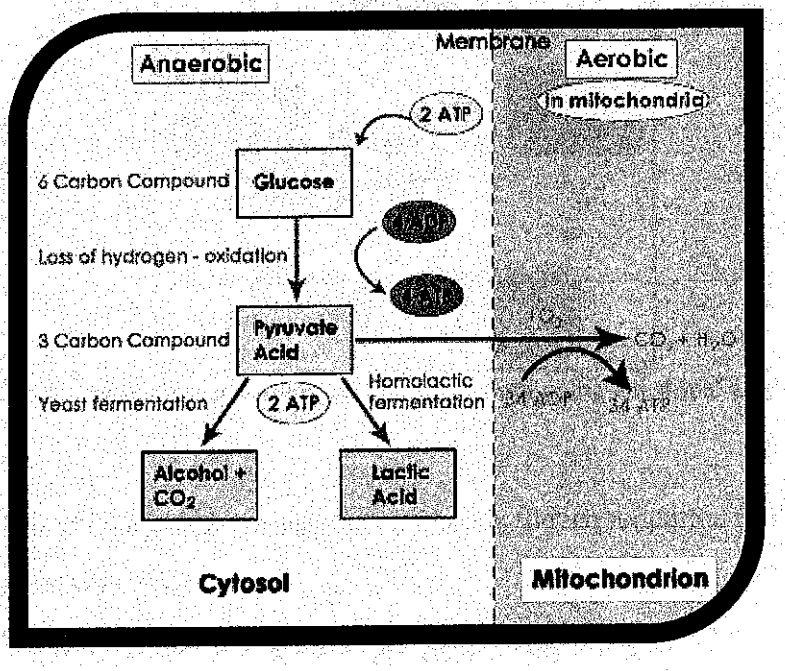
Two Types

Anaerobic

This is the process of respiration that does not require oxygen.

Aerobic

This is the process of respiration that does require oxygen.



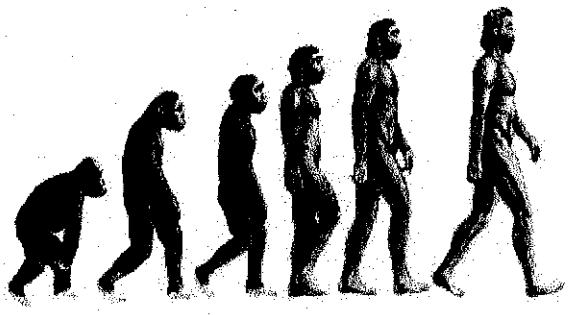
This shows the process of respiration in the cell.
(picture from sparknotes.com)

Theories And Laws

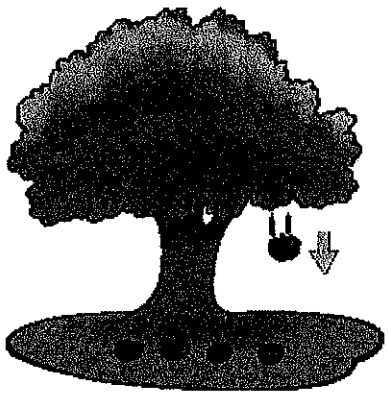
SC.7.N.3.1: Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them. Explain why theories may be modified but are rarely discarded.

Theory	Law
⊥ A theory is a widely-tested explanation for many observations and experimental results ⊥ Theories become better accepted as scientists collect observations that add to the explanation ⊥ Theories can be tested, proven, and modified Examples ⊥ Theory of Evolution ⊥ Big Bang Theory ⊥ Theory of Relativity	⊥ A law is a statement that describes what scientists expect to happen every time under a particular set of conditions ⊥ A law is something that happens every time Examples ⊥ Universal Law of Gravitation ⊥ Newton's Laws of Motion ⊥ Hubble's Law of Cosmic Expansion

Theory of Evolution



Law of Gravity



Cell Homeostasis

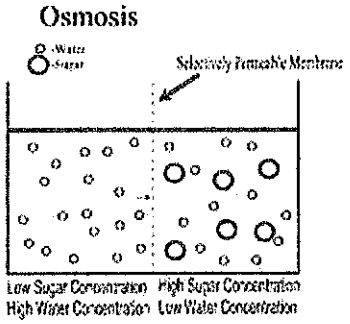
S.C.6.L.14.3: Recognize and explore how cells of all organisms undergo homeostasis, including extracting energy from food, getting rid of waste and reproducing.

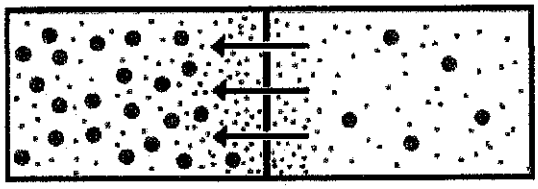
Homeostasis is the ability of a cell to maintain internal stability. It is when everything in the cell is in equilibrium (a state of balance). Cells must maintain homeostasis to function properly and stay alive. During homeostasis waste is being transported away from the cell while it receives nutrients.

Cell Membrane, the outer layer of the cell, is the main part of the cell that works to maintain homeostasis. It is made up of fats and protein and acts as a gatekeeper and manages what goes in and out of the cell.

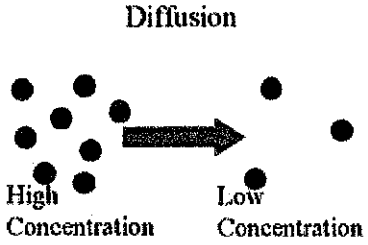
When there is either too much or not enough of a certain molecule inside a cell the cell membrane will allow some of the molecules to permeate in or out.

To **permeate** is to pass through.



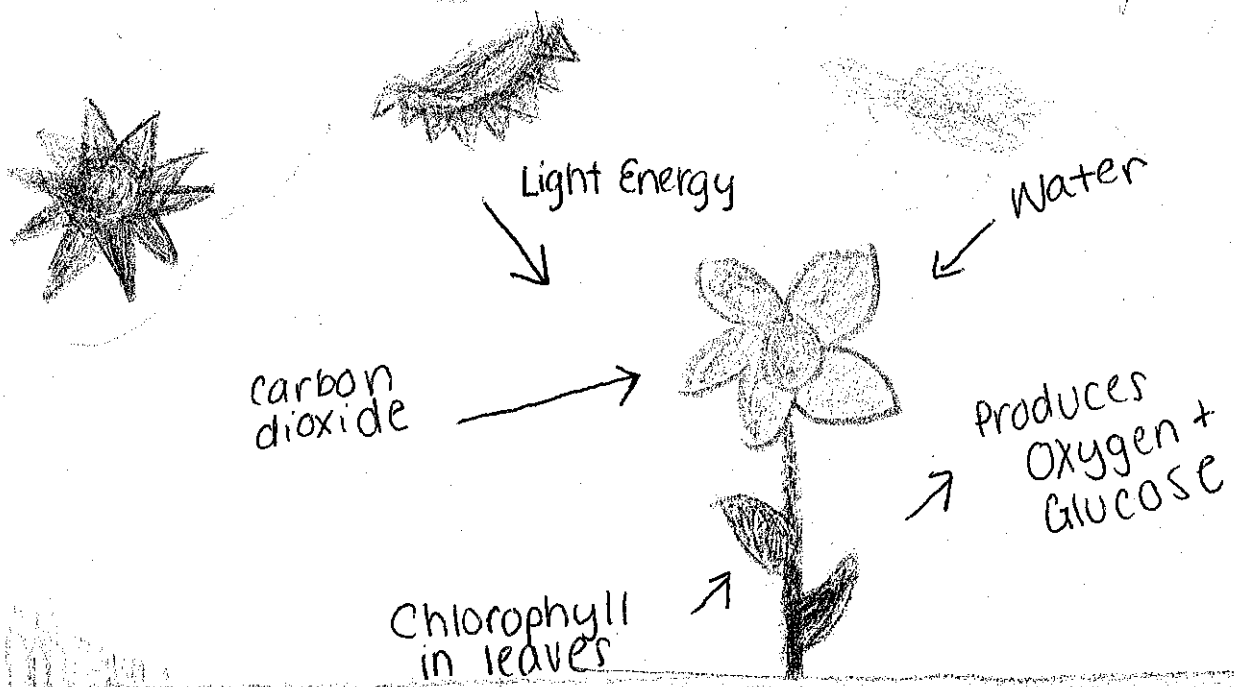


Osmosis is the diffusion of water through a membrane.



Diffusion is the movement of particles from high to low concentration.

Photosynthesis



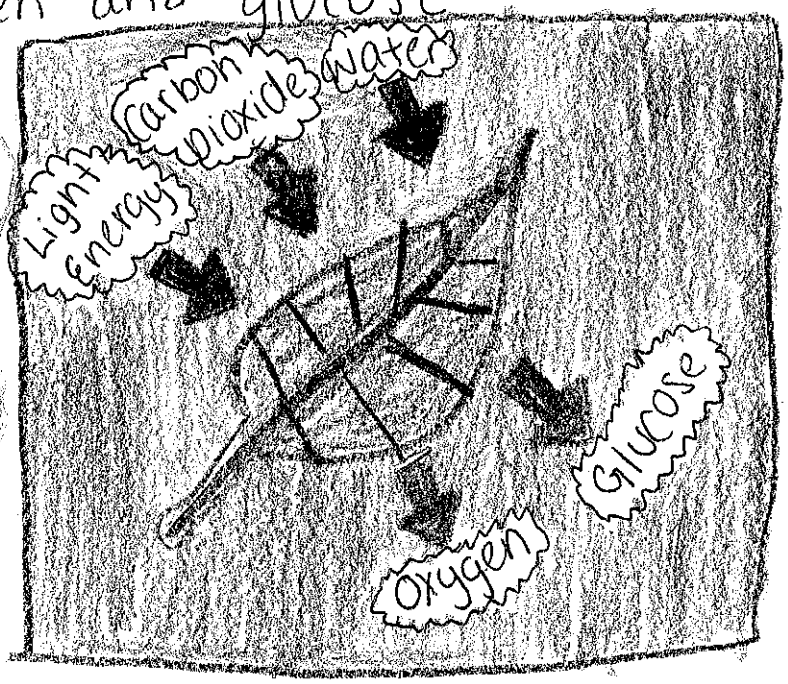
Photosynthesis

Formula: carbon dioxide + water + energy → oxygen + glucose

$6CO_2 + 6H_2O + energy \rightarrow 6O_2 + C_6H_{12}O_6$

- The starting materials needed are carbon dioxide, water and energy in the form of light.
- Photosynthesis yields oxygen and glucose

Photosynthesis is the process by which plants use energy, water, and carbon dioxide to produce glucose and Oxygen.



SC.8.L.18.1

Katelan Cline

Genotype and Phenotype Genealogy Combinations

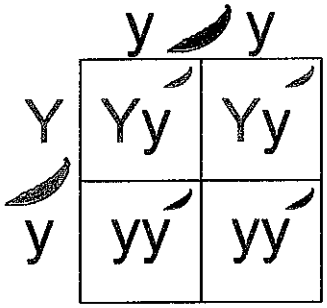
By: Chase Walker

Phenotype- This is the outward properties of the organism. These are the physical parts, the sum of the atoms, molecules, macromolecules, cells, structures, metabolism, energy utilization, tissues, organs, reflexes and behaviors; anything that is part of the function or behavior of a living organism.

Genotype- The internally coded, inheritable information carried by all organisms. This stored information is used as a set of instructions for building and maintaining a living creature. These instructions are found within almost all cells, they are written in genetic code, they are copied at the time of cell division or reproduction and are passed from one generation to the next.

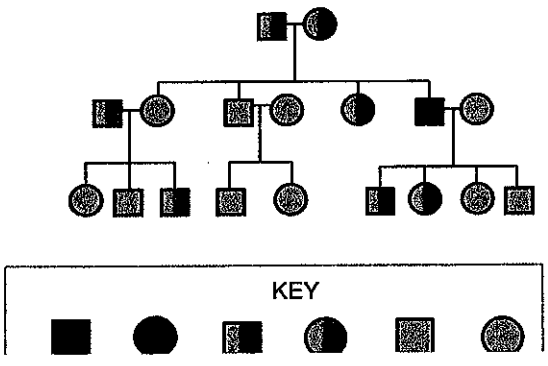
Punnett Squares and their effect on genotype and phenotype combinations:

Punnett square:



A Punnett square lists the possible genotype combinations of an organism. The paternal alleles listed at the top, and maternal alleles listed on the left. (It is normal in genetics to use capital letters to indicate dominant alleles and lower-case letters to indicate recessive alleles.) Dominant alleles take control over recessive ones. As you see to the left, in the top left box the combo is Yy. The dominant yellow bean color takes over the recessive trait for a green bean.

Pedigree:

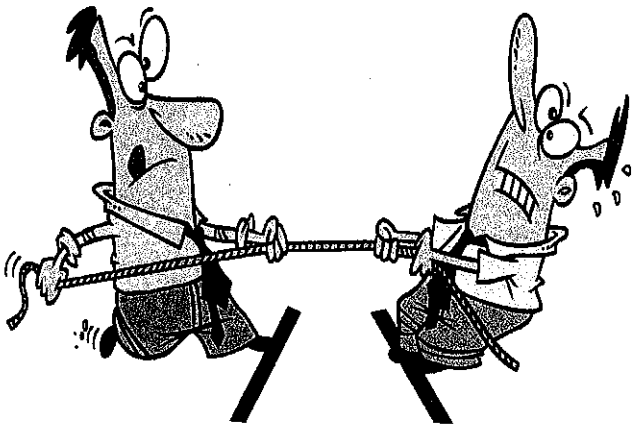


A Pedigree chart is a diagram that shows the occurrence and appearance or phenotypes of a particular gene or organism and its ancestors from one generation to the next. Using pedigrees you can almost predict how the generations to come will be by its data of the past generations.

Contact and Non-Contact Forces

SC.6.P.13.1	Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.

Contact Forces are caused by any type of contact with one another. These include tension, applied, normal, air resistance and spring forces.

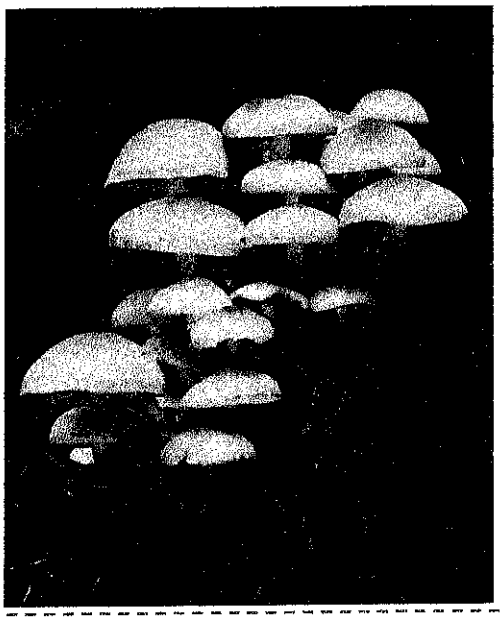


A force is any push or pull. The force is calculated in Newtons (N). There are contact and non-contact forces.

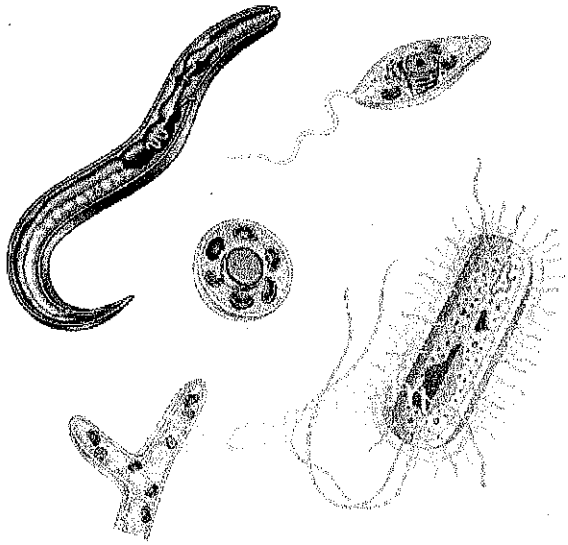
Non-Contact forces include electrical, magnetic and gravitational forces. All these forces require no contact to create one another. In magnetic forces poles attract each other or repel. In gravitational forces the force pulls objects closer towards each other as long as they have mass (matter). Electrical force is charges that react with each other (closer the particles are together the stronger the force)

Infectious Agents

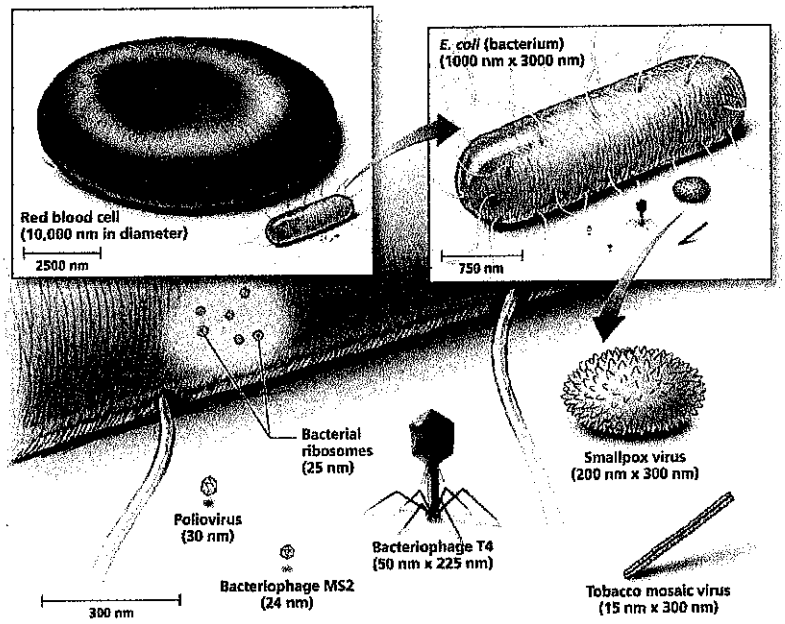
SC.6.L.14.6



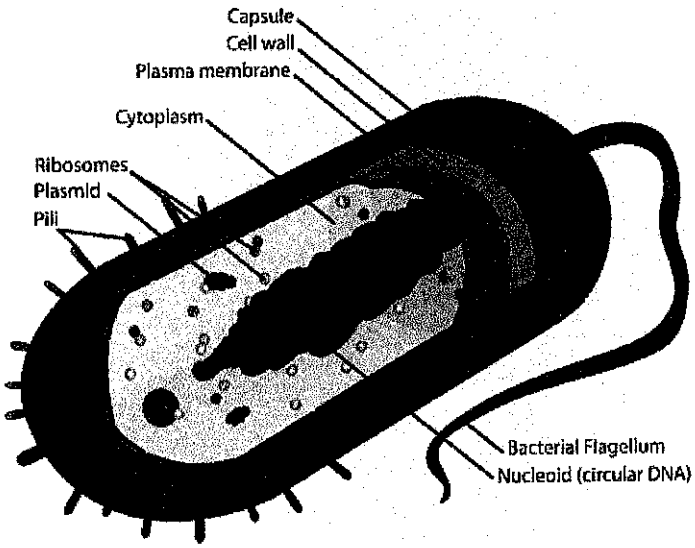
Fungi have membranes that enclose complex structures. For this, they are eukaryotic cells. Yeast, mold, and mushrooms are different types of fungi. Fungi are large part of the decomposition process of our natural world.



Ranging from single to multi celled organisms, parasites are organisms that survive off of the nutrients they gather form its host. Parasites can also be ecto or endo, which live outside or inside of its host respectively. Parasites are the cause for many food-borne illnesses. Some examples of parasitic diseases are tapeworms, fleas and barnacles. Parasites can also carry and transmit diseases like how deer tick can transmit lime disease.



From all of the types of organisms, animals, plants, and bacteria, viruses can affect all of these. The most abundant biological entities on Earth are viruses. Viruses can have distinct features that let them only affect one species, like small pocks for example, that can only affect humans. Others can affect multiple species such as rabies. Most viruses that affect plants are harmless to animals. In the same respect, most viruses that affect animals are harmless to humans.



Bacteria do not have a cell nucleus and or other cell membranes. Because of this, bacteria are prokaryotic cells. Bacteria are found everywhere, and come in many sizes and shapes.

Sarah Preston

Empirical Evidence

Empirical Evidence is the cumulative body of observations of a natural phenomenon on which scientific

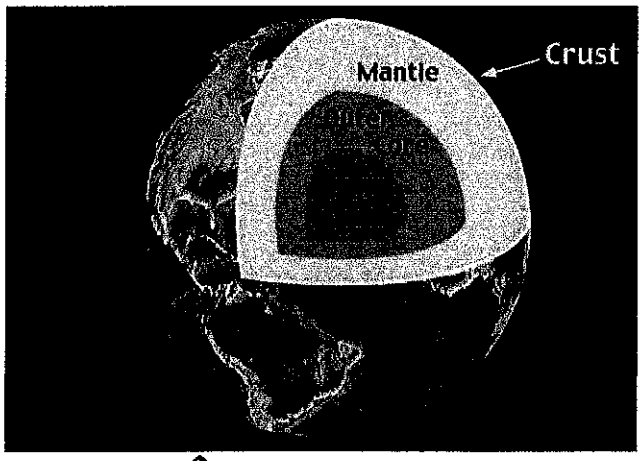
Or in other words… Empirical Evidence is results based off of knowledge gained by what you observed

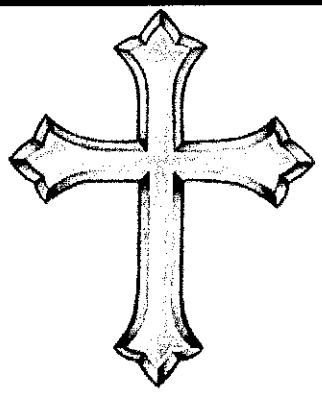
For Example:

- Not all people agree with religious beliefs, but it is an idea that cannot be physically seen but some people feel it.
- Another example is that some people used to believe that the Earth is round, not flat. It took scientists years and years to come up with an explanation to prove this theory true.
- Another example would be the theory that hundreds of thousands of years ago, there were dinosaurs roaming the Earth. To prove that this theory true, scientists and archeologists discovered fossils and bones of dinosaurs, which were shown to everyone saying that this is a true theory.

Vocabulary:

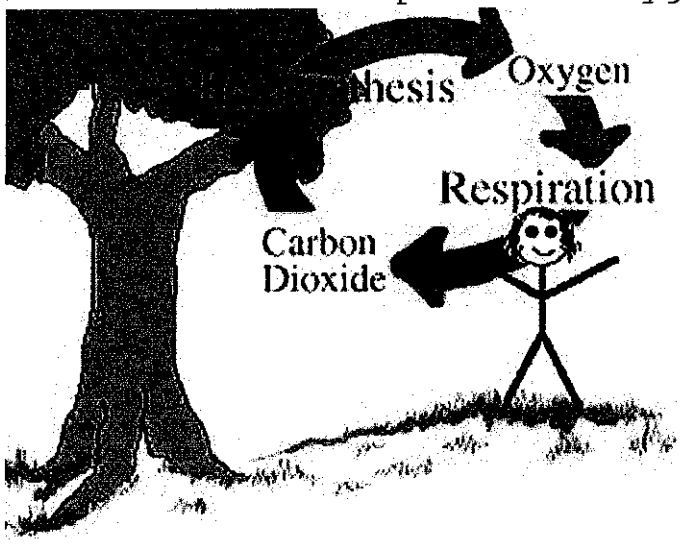
- Empirical- Based on observations or experience rather than theory or logic.
- Evidence- The offered facts or information saying whether a belief is true or not.
- Theory- A hypothesis or system of ideas that are intended to explain something.
- Phenomenon- A fact that observed to exist or happen.





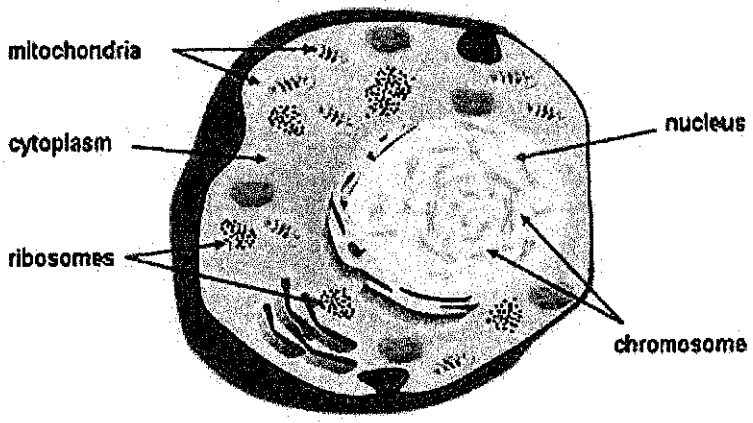
Cellular Respiration:

In the process of Cellular Respiration, human cells breaks down sugars to provide energy and to release co2 into the air. Plants then take the Carbon dioxide (co2) and they undergo Photosynthesis which then provides oxygen for us to respire.



Vocabulary:

- Respiration: the action of breathing.
- Cellular: Consisting of living cells.



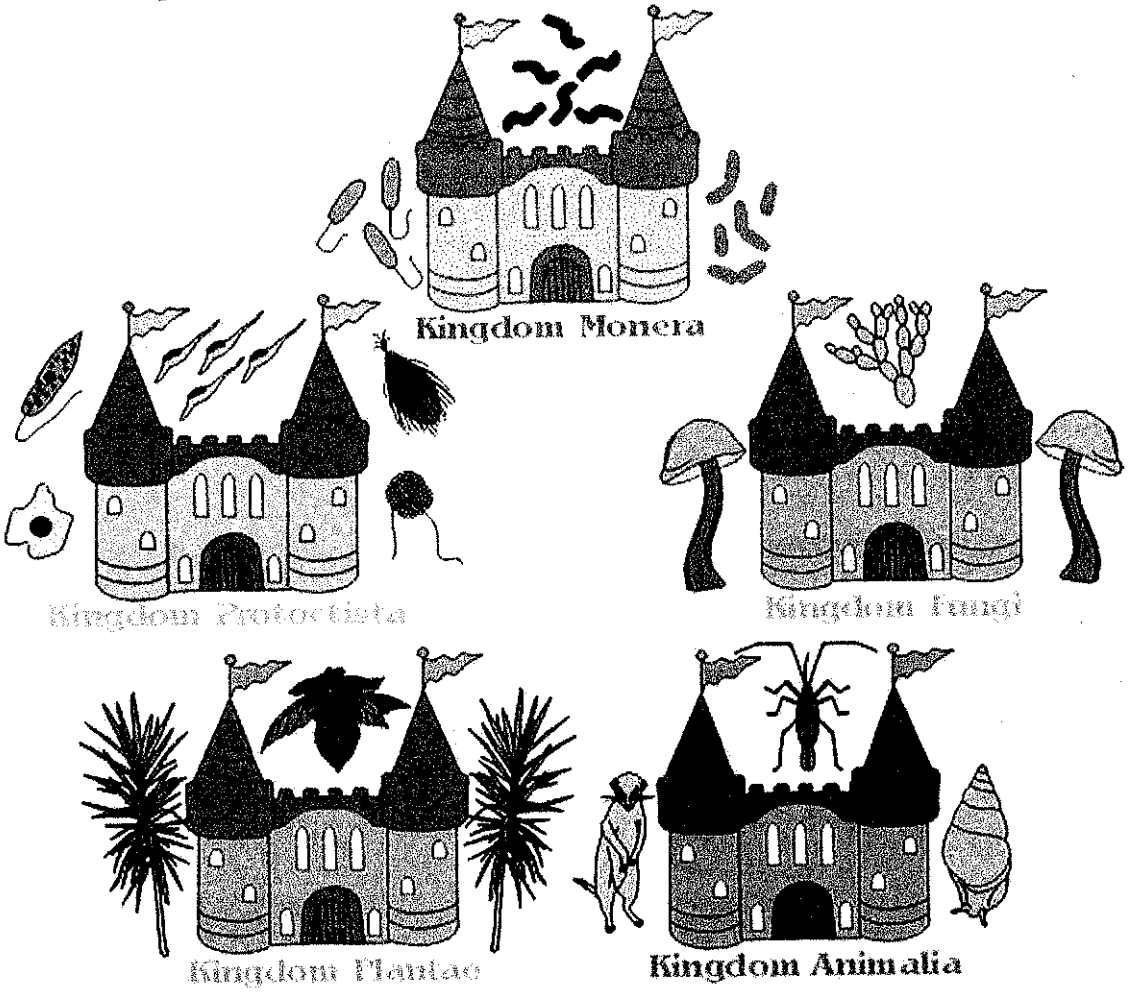
Michael
Johnson

Domains and characteristics

SC.6.l.12.1- Analyze and describe how and why organisms are classified according to shared characteristics, with emphasis on the Linnaean system combined with the concept of Domains.

Linnaean system-The system of classifying organisms by characteristics (more formally- Binomial nomenclature) was created by a man named Carl Linnaeus. At the time of making there were only two known kingdoms; Plants and Animals. But further advancements in science have led to the discovery of four more kingdoms.

The Six Kingdoms: Plants, Animals, Protists, Fungi, Archaebacteria, Eubacteria.

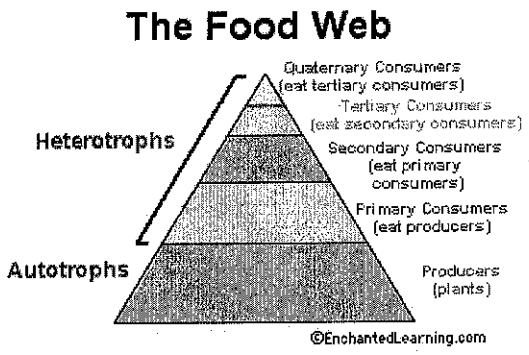


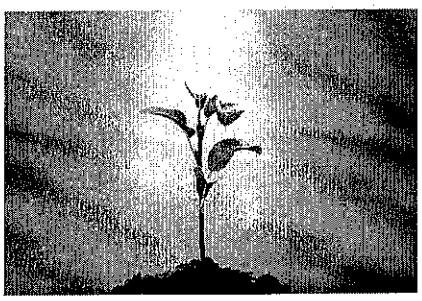
Producers, Consumers, and Decomposers

By: Emma Paredes

SC.7.L.17.1: Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

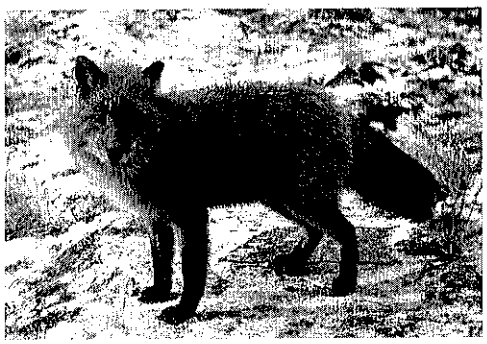
In the picture to the right, it shows the relationship with producers, and consumers. Producers are at the bottom of the food web, and consumers always end up at the top.





A producer is any living thing that creates food by itself. It serves as food for other living things. Producers are examples of Autotrophs.

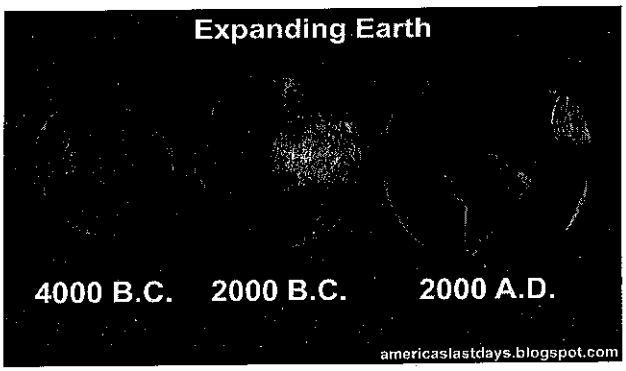
This is a picture of a decomposer. Decomposers eat remains of other consumers and producers. If there weren't decomposers, plants wouldn't get the essential nutrients they need.



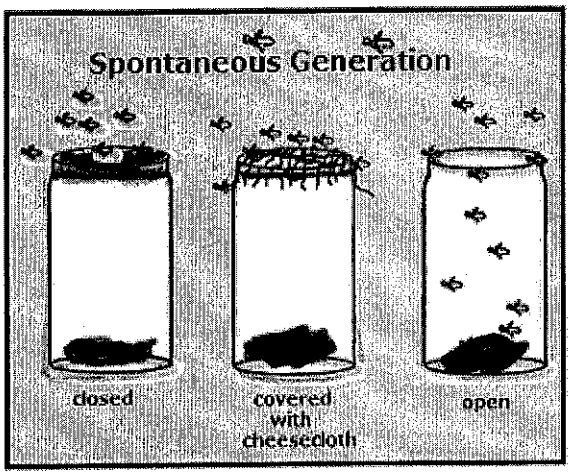
Foxes are examples of consumers. Consumers are anything that consumes food not made by itself. All humans are consumers. Consumers are Heterotrophs.

The Durability of Scientific Knowledge

For thousands of years, humans have made theories. Then someone would come along and prove them wrong, or just introduce more information about the topic. People would revise the theory, or in some cases, take it away all together. The point is, scientific theories are open to change. They may not be accepted at first, but, after being proved, people may start to hop on the bandwagon. There are many examples of this, including:



The theory of expanding Earth was exactly what it sounds like. Before the theory of plate tectonics was accepted, this was a way to explain why new mountains were formed, and why the continents drifted. Charles Darwin briefly tested this theory before tossing it aside, as well as Nikola Tesla, who compared the theory of expanding earth to the expansion of a dying star.



Spontaneous Generation was the theory that life could appear without other life. It was first theorized by Aristotle, who based his theory off of the way maggots formed on dead animals, or barnacles on a ship. When the scientific method was more in use, Louis Pasteur proved him wrong using the above experiment, showing that maggots could not form out of simply nothing.

ENERGY TRANSFER

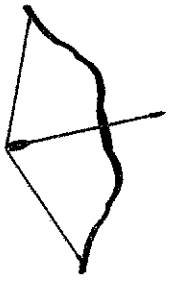
SC.7.P.11.2 Investigate and describe the transformation of energy from one form to another

Energy transformation is the process of changing from one form of energy to another.

When the boy swings forward, he is at the highest point, and has **potential energy**, or the energy stored in a system. When he swings backward, he has **kinetic energy**, the energy an object obtains from being in motion.

This image shows a piano falling from a high surface, a building. From the top of the building, it has a lot of potential energy classified as **gravitational potential energy** (GPE). It can have energy if it falls.

The **law of conservation of energy** states that energy can not be created or destroyed. Therefore, the energy is represented in different forms.

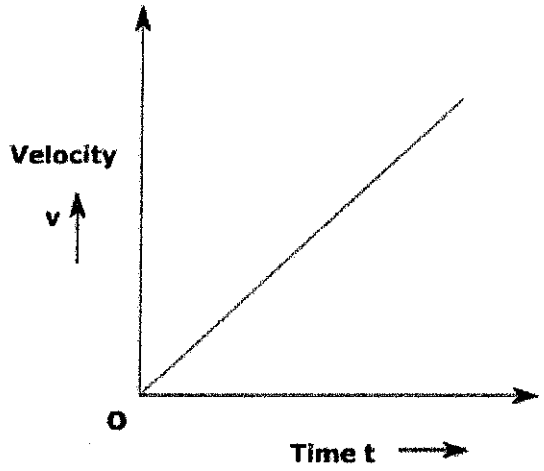


When the arrow is pulled back, and has **elastic potential energy** (EPE). It can have energy if it is released.

Energy is measured in **joules.**

Different Graphs

Constant Graph

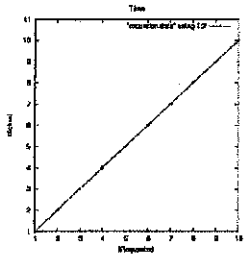


This shows a constant graph because the line has no bends or stops in the line. It is just a straight line. Some examples for constant graphs are y=5 and x=0.

At Rest graph

This shows a at rest graph because the line is not moving up or down. It also doesn't have any curves or bends. An example is when the speed is the same speed, while the time is increasing.

Increasing graph



This shows an increasing graph because the graph is increasing steadily.

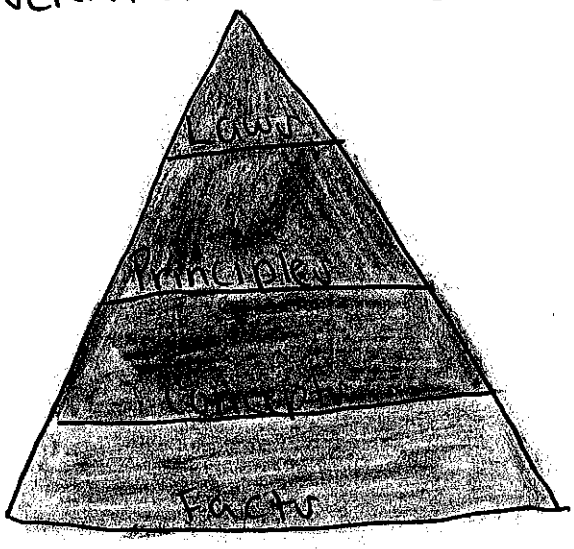
Scientific Knowledge

Over time, our points of view and understanding of the world around us has changed. For the perspective of science, many experiments and tests have been done. From those tests, there have been new findings that have changed what we know about the world around us. Since we still have many things to learn, we must keep our minds open to new possibilities.

Scientific Knowledge:

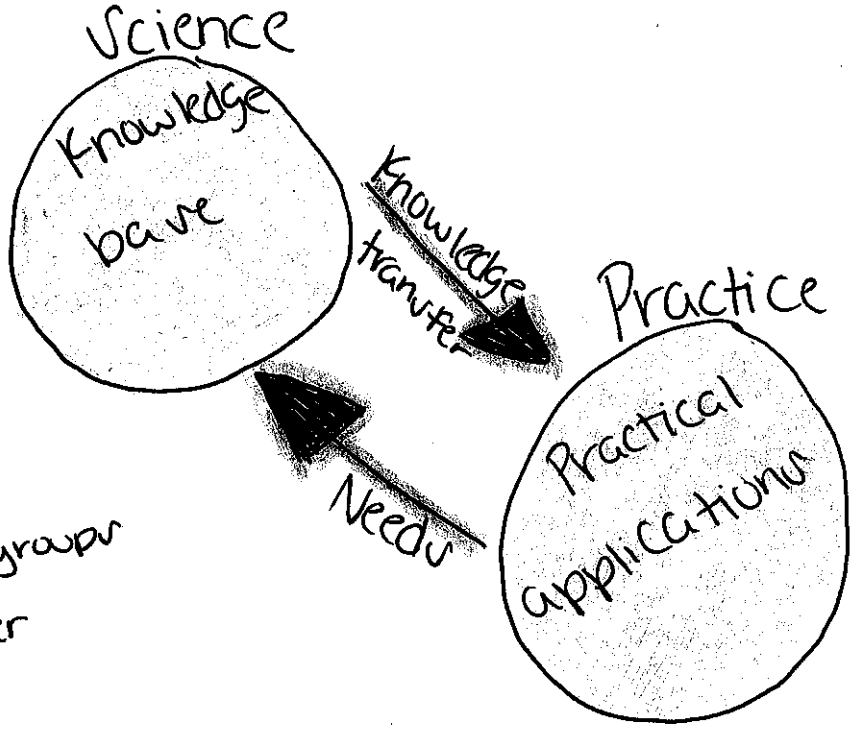
(http://www.merriam-webster.com/dictionary/science)
science: knowledge about or study of the natural world based on facts learned through experiments and observation
(http://www.merriam-webster.com/dictionary/knowledge)
knowledge: information, understanding, or skill that you get from experience or education.

Hierarchy of Scientific Knowledge



Hierarchy: organizing people or groups and ranking one above the other based on authority or status.

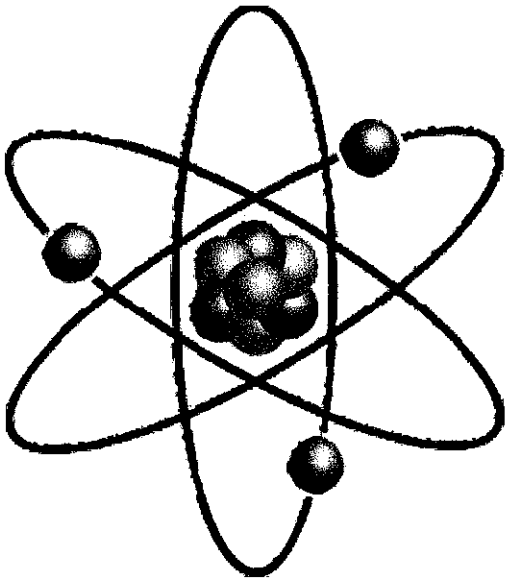
Transfer of Scientific Knowledge:

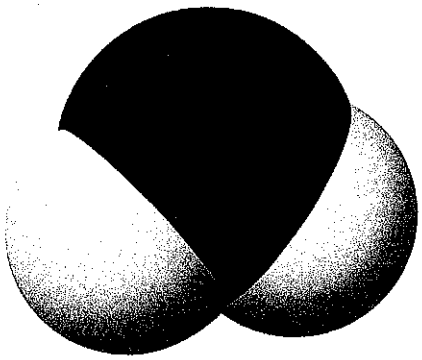


Izzy Benciveng<

Atoms

Atoms make up all everyday objects, and are the basic building blocks of matter. Naturally there are 90 kinds of atoms and scientists have made 25 more. The atom has a central nucleus which is surrounded by negatively charged electrons. The electrons are held together by an electromagnetic force.



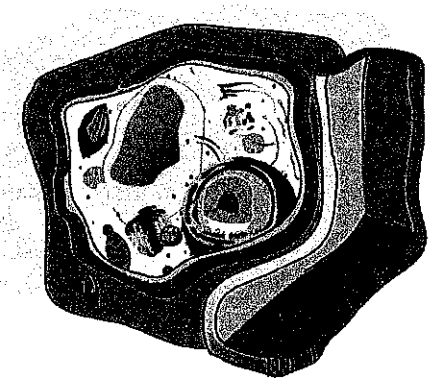


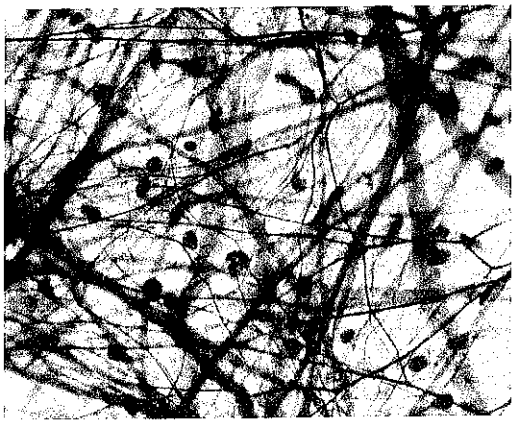
Molecules

A molecule is an electrically neutral group of atoms. They are held together by chemical bonds. Molecules are distinguished from ions because of the lack of an electrical charge.

Cells

Cells are the building blocks of all living things. A cell is made of many molecules. There is many different cells and each one has a different job.



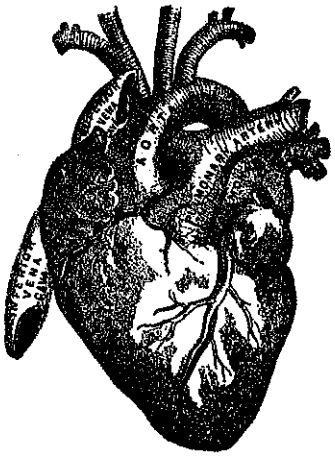


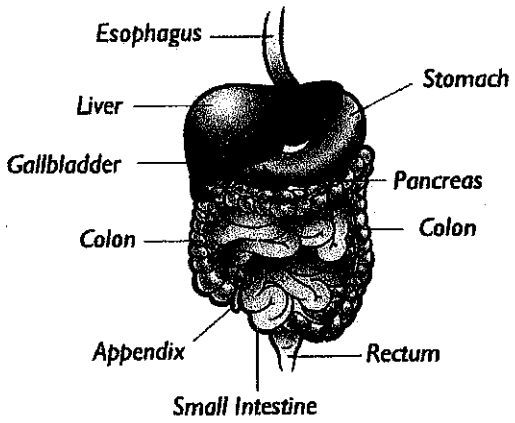
Tissues

Tissue is a similar group of cells that form a structure with a job that it does in a living organism.

Organs

An organ is a group of tissue made to perform a specific task. An organ is one of the main parts in many organisms.





DIGESTIVE SYSTEM

Organ Systems

A group of organs that perform many different things is called an organ system. An organ system is what keeps an organism alive.

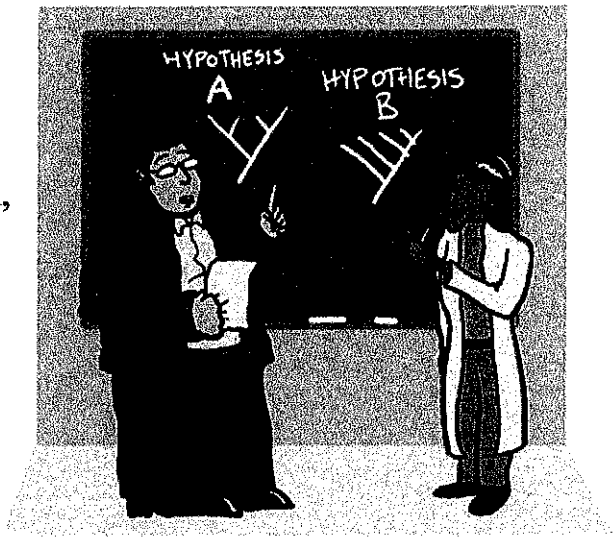
Organisms

an organism is the product of an organ system. There are many different tasks an organism does to survive and it all starts at the atom.

Scientific Debate

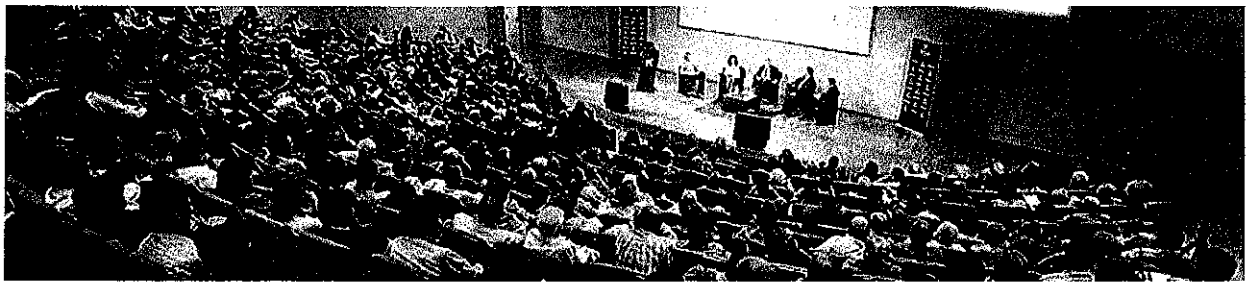
S.C.7.N.1.7 - Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.

By: Alyssa Martin 2-8-14 Period 7



Observation and inference are the bases of scientific knowledge. Observation and inference are two very different things though. Observation uses your five senses which are, sight, taste, touch, smell and hearing. Inferences are explanations for our observations. These inferences are not always correct and are usually debatable. Science requires creativity for the processes, questions and explanations. In the picture above two scientists debate hypothesis. The only way to truly come to a conclusion is to test both hypotheses repeatedly in an experiment.

The process of science includes coming up with scientific questions, doing investigations or experiments on those questions, collecting the data, evaluating the data, and communicating the results. This process in which all scientists use is called the Scientific Method. This picture bellow show a group of scientists communicating to a larger group. The larger group questions and debates with a smaller group to make sure the results are accurate.



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Hypothesis Debate picture is from-http://evolution.berkeley.edu/evosite/misconceps/IIBcrisis.shtml
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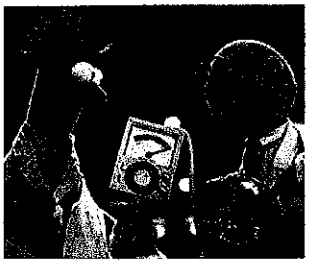


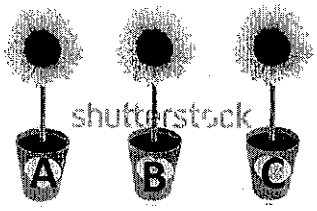
Vis Pham
Period 7

Scientific Investigations

SC.8.N.1.6- Understand that scientific investigations involve the collection of relevant empirical evidence; the use of logical reasoning; and the application of imagination in devising hypotheses, predictions, explanations, and models to make sense of the collected evidence.

A **hypothesis** is a reasonable and logical explanation for your experiment. You should always format your hypothesis in an "If..then..because...." format.

EX: "**If** you'll water these three identical sunflower plants, for 60 days with different amounts of water each day (15mL, 20mL, 30mL), **then** the plant watered with 30mL will grow the tallest, **because** it received the most water.



Prediction- A prediction is an educated guess on what will happen in the future based on reasonable evidence or previous experiences.

Ex: I think that it will rain today ***BECAUSE*** there are a lot of grey clouds in the sky.

Proper Format for Predictions

"I think ....because..."

"I predict that this will happen... because"

7 Steps to the Scientific Method

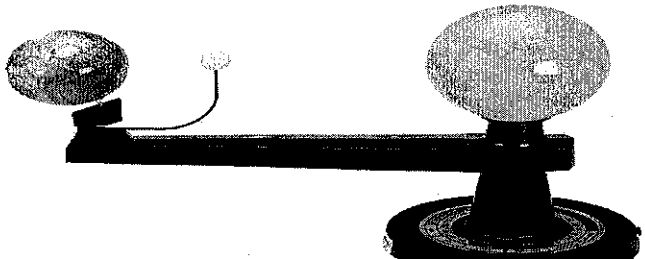
1. Ask a question
2. Complete some background research
3. Create a hypothesis
4. Generate an experiment to test your hypothesis
5. Examine your collected data, and reach a conclusion
6. Share your results

Empirical evidence is data collected by completing an experiment. Empirical evidence is used to prove or support a certain idea or hypothesis.

Scientific Explanations are based off of logical thinking and reasoning.

A **model** is a visual representation of a certain object, idea, process, or cycle. Models are important because they can give us a better understanding of that specific subject.

Ex: **Models of the Sun, Moon, and Earth**



*All these definitions are Mine, and are NOT copied from the internet!

Laws vs. Theories

-Law:

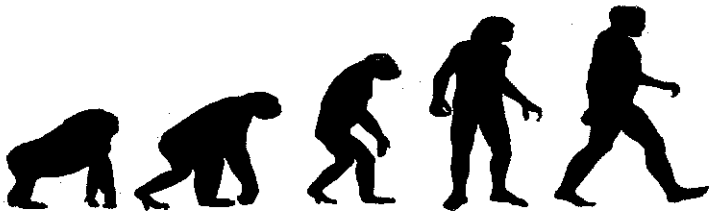
A fact that has been repetitively proven to be true. Laws do not provide an explanation, or "why" something occurs, and are commonly a combination of observations. There are currently no exceptions to laws.

-Theory:

A scientific theory is a hypothesis that has been proven with testing. As long as there is no evidence to prove it incorrect, a theory is considered valid. However, many theories have be proven incorrect.

Theories may be modified, but rarely discarded because most original theories contain a certain amount of truth, but are not accepted until significantly supported.

The Big Bang Theory is a scientific theory that supports belief that the universe was developed by a rapid expansion from a single point. This theory was supported by studies on cosmic physics and expansion.



Darwin's Theory of Evolution is another controversial theory. In this theory, it is hypothesized that many beings evolve over long periods of time into almost entirely new creatures. This way, all life has a common ancestor, and can be classified according to the ancestors. Darwin's theory has been supported by studying of microscopic cell development and common bone structures.

Scientific Theory of Evolution, Genetic Variation, and Environmental Factors

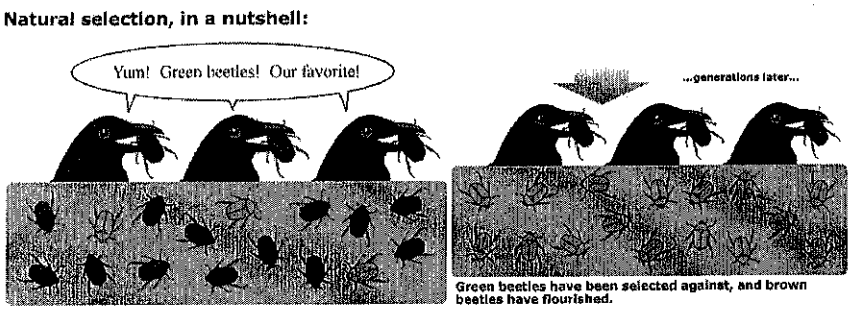
How They Contribute to Natural Selection and the Diversity of Organisms

For billions of years organisms have been evolving on Earth. It takes an extremely long time for a noticeable change in an organism's basic functions to occur, though it is there. All organisms evolve and adapt to their environments, and nothing can truly prevent that. However, what the organism evolves in to depends on a variety of factors, including genetic variation and that of the environment.

Genetic Variation- it is the variation in alleles of genes. Genetic variation occurs both within and among populations. It corresponds with natural selection, and provides the basic genetic structure for natural selection to occur.

Natural Selection- it is the gradual process by which biological traits become either more or less common, due to environmental factors that kill off genetic beings of a population with a certain trait, eventually not allowing that trait to continue through the genetics of other beings in that species.

Example:



Credits to Google Images for the image

In the end, everything comes together. Genetic variation and environmental factors play a huge role in natural selection and the diversity of organisms. Genetic variation may offer up traits that cause the organism to not be able to live in the wildlife and be a huge target. Take the green beetles for example, environmental factors such as the bird's appetite for green beetles only made them a huge target, and their genetic variation was what caused them to not be able to flourish.

HEREDITY

SC.7.L.16.2

Determine the probablities for genotype and phenotype combinations using Punnett squares and pedigrees.

	y	y
Y	Yy	Yy
y	yy	yy

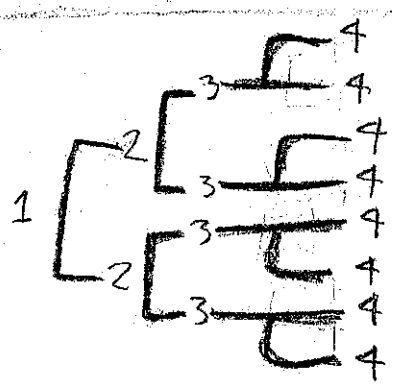
An example of a punnett square.

"Heredity is the passing of traits to offspring from it's parents or ancestor." - via Wikipedia

"The Punnett square is a diagram that is used to predict an outcome of a particular cross or breeding experiment." - via Wikipedia

The genotype is the full heredity information of the given organism while the phenotype is the actual observed properties of the organism.

"A pedigree chart is a diagram that shows the occurrence and appearance or phenotypes of a particular gene or organism and it's ancestors from one generation to the next." - via Wikipedia



Example of a pedigree chart.

Phenotypes are shown in Pedigree charts and Genotypes are shown in Punnett Squares.

The study of heredity is called genetics. Heredity has a relation to the theory of evolution.

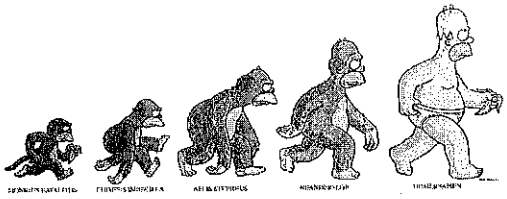
Jesse Swis 7th pd

THE THEORY OF EVOLUTION

SC.7.L.15.2: Explore the scientific theory of evolution by recognizing and obtaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.

Evolution

Evolution is the development of the inherited traits in organisms over time. Charles Darwin visited the Galapagos Islands in the 1800s and observed multiple different species that led him to realize that they may have all "evolved" from a common ancestor.

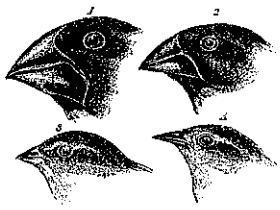


Genetic Variation

Organisms possess genes each determined by possible traits that are passed on generation after generation. It provides the genetic material for natural selection.

Charles Darwin noticed that the finches on Galapagos Islands had slightly different shaped beaks.

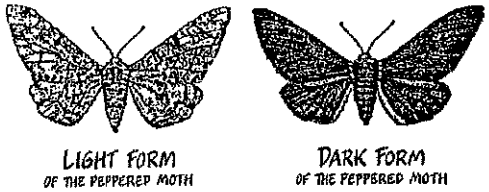
Long ago, the finches had had a common ancestor. As time passed on, finches with certain-shaped beaks had been able to get food more easily than those who did not. So, the ones with the best traits survived to pass on their genes.



Natural Selection

The phrase, "Survival of the Fittest" illustrates how species evolve into new species more fit for their environment so they can live and reproduce.

Genetic variation provides more candidates for natural selection, and environmental factors help eliminate and narrow the unfit so that the strongest survive and pass on their genes.

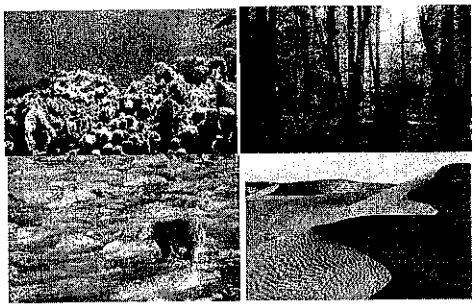


Environmental Factors

Although genetic variation provides the genetic material for natural selection to occur, environmental factors determine which traits are passed on.

Environmental Factors include:

- Diet
- Climate
- Habitat
- Terrain
- ...and many more!



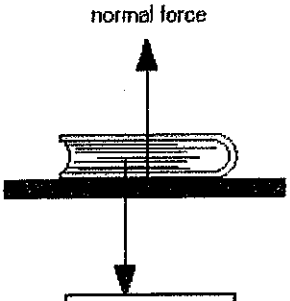
Juliana Voelker

Forces

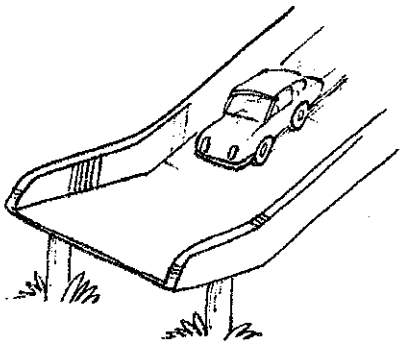
SC.6.P.13.1

Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational.

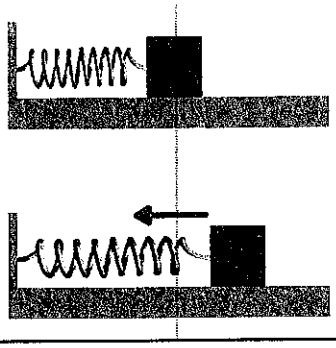
A force is any push or pull. Contact force is a force which results when two objects come into contact. Examples of contact forces are friction, normal, tension and spring. Non-contact force is a force that is acting at a distance. Examples of non-contact forces include electrical, gravitational and magnetic forces.



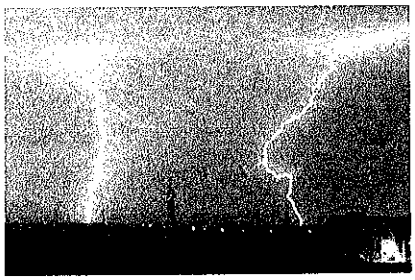
Normal force is an example of a contact force as it is a supported force exerted on an object when in contact with another object.



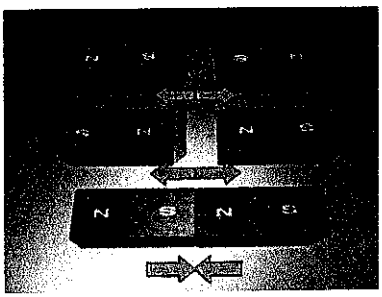
Friction is an example of a contact force. It is a when the surface of two objects rub against each other . In the picture the cars wheels rub against the slide creating friction.



"Spring force is the force exerted by a compressed or stretched spring upon any object that is attached to it" ***from our notes.*** Spring force is a contact force. In the picture the block keeps the spring compressed until it uncoils sending the bock with an equal force from which it was compressed with.



Electrical force is an acting at a distance force as it is unnecessary for two objects to come into physical contact for electrical to happen. Electrical force is the force of positive and negative charges attracting and reacting with one another. In the picture it shows lightning is the result of a mass of electrical force particles reacting with another.



Magnetic force is a non-contact force. A magnetic force as shown above is when magnetic poles attract or repel one another. The scenarios in which they repel or attract another is shown above.

Gravitational force is another non-contact force. "Gravity is a force that pulls objects toward each other." ***from our notes.*** In the picture of the apple tree the apple is falling to the ground because the Earth's core has a strong gravitational pull causing a strong gravitational force to pull items toward the ground , to the Earth's core.

Annabel Bland

Repetition vs. Replication

SC.7.N.1.2 Differentiate replication (by others) from repetition (multiple trials)

Basically: learn to tell the difference

What do replication and repetition mean?

Replication – the act of copying or reproducing something (Google)

Repetition – the recurrence of an action or event (Google)

Simply, replication is done by another person, while repetition is done by the original tester. For example:

Stacy replicated Mary's experiment to see if she would get similar results.

Mary repeated her experiment to make sure that her results were consistent.

All About Photosynthesis

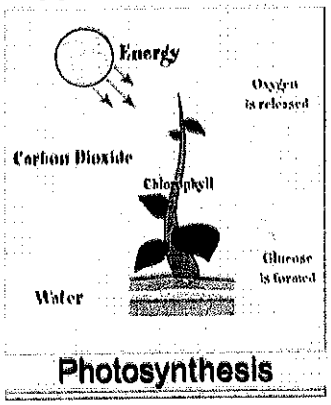
SC.8.L.18.1 Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water, and chlorophyll; production of food; and release of oxygen.

Basically: learn all about photosynthesis

What is photosynthesis?

Photosynthesis - the process by which green plants and some other organisms use sunlight to synthesize foods from carbon dioxide and water. Photosynthesis in plants generally involves the green pigment chlorophyll and generates oxygen as a byproduct. (Google)

Photosynthesis begins with the sun. The sun's light energy shines down to Earth and gets absorbed by plants' chlorophyll. The plants then take in water and carbon dioxide. The plants' chloroplasts use that energy to make glucose, the food they need, which then goes through the process of cellular respiration to transform into energy for the cells, and oxygen, which is released as a waste product.



Photosynthesis

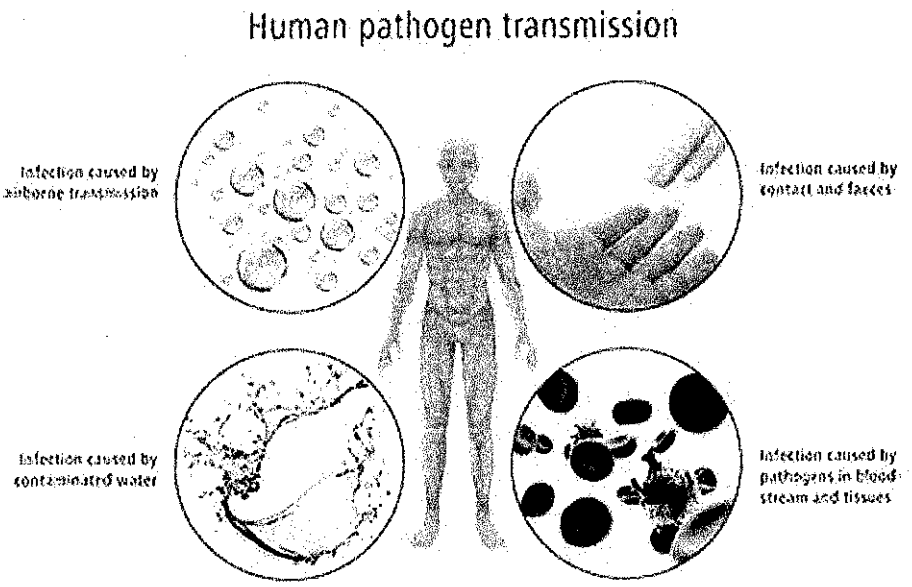
$6CO_2 + 6H_2O$ (+ light energy) $\rightarrow C_6H_{12}O_6 + 6O_2$

This is the formula that describes the process of photosynthesis. Into the plant go six molecules of carbon dioxide, six molecules of water, and light energy. Out of the plant comes six oxygen molecules, six carbon molecules, 12 hydrogen molecules, and six carbon dioxide molecules.

Kelsey Mallet

INFECTIOUS DISEASES

SC.6.L.14.6 Compare and contrast types of infectious agents that may infect the human body, including viruses, bacteria, fungi, and parasites.

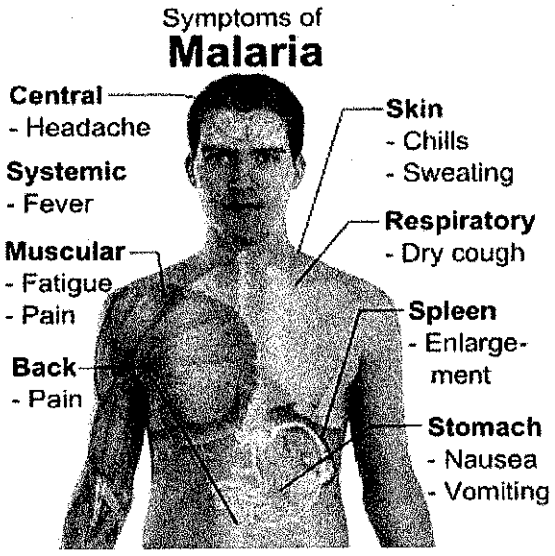


Infectious diseases are caused when harmful pathogens enter a host's body and their activities harm the host's body.

A pathogen is any disease-producing agent. This could be a type of bacteria, fungus, parasite, or virus.

A disease is any impairment of a function or structure in a human, animal, or plant that has certain symptoms. This could be caused by genetics, development orders, infections, or illnesses and sicknesses.

Examples of diseases could be anywhere from malaria, to rabies. Some diseases don't even show outward symptoms, so the host could live their whole life without knowing they have the disease.



INDEPENDENT & DEPENDENT VARIABLES

SC .7 .N .1 .4: Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment

An **independent variable** is the variable the experimenter changes, also known as a test variable. There is ONE independent variable in an experiment.

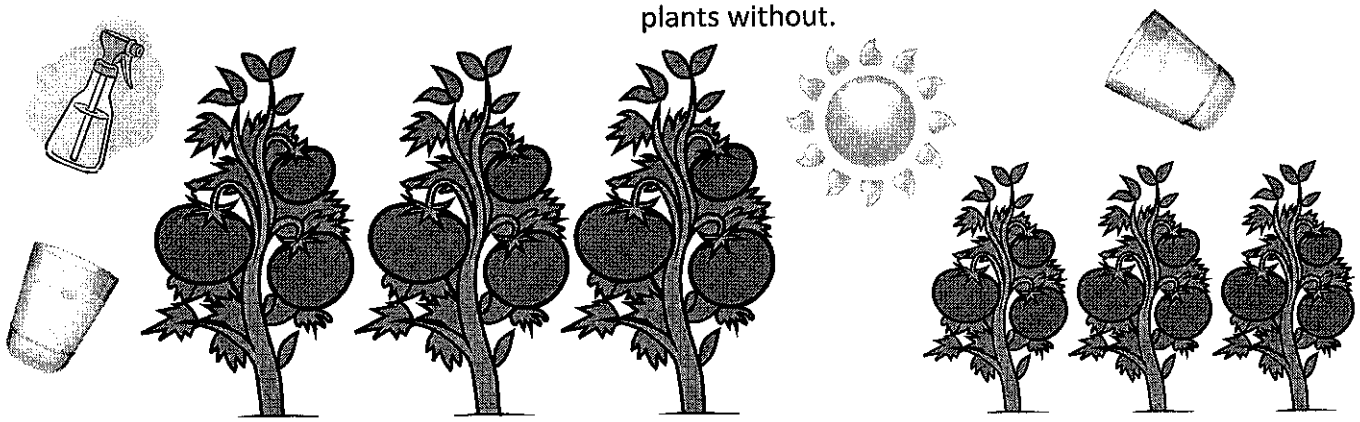
Constants are factors that are kept normal and DO NOT change when the other variables change

An **dependent variable** is the variable that changes because of the independent variable, also called the outcome variable

The **control group** is used to compare, this group is also kept normal, in a **controlled experiment** only one variable changes.

Sample Experiment

Rosie is planting tomato plants. Her neighbor suggested to use a fertilizer to help speed up the growth of the plants. Rosie decided to do an experiment, her hypothesis was, If 3 tomato plants are sprayed with fertilizer and given water, and 3 tomato plants were just given water then the tomato plants just given water will grow faster, because the fertilizer can harm the plants with their chemicals causing the plants to die. She used 3 tomato plants that she sprayed the fertilizer on, and watered. And 3 other tomato plants that she just gave the plants water. All plants were given the same amount of water, the same amount of sunlight, and all grew during a 2 week time period. At the end of the 2 weeks Rosie concluded that the plants with the fertilizer did grow faster than the plants without.



Independent Variable: The **fertilizer**, because it is the one variable **changing**. One group is getting the fertilizer while the other group is kept plain.

Dependent Variable: The **growth rate**, because the effect of the fertilizer (independent variable) **changed and increased the growth of the plants** causing them to grow faster than the plants with just water.

Constants: the **water, sunlight, and time period.** These factors were all the **same** throughout the experiment.

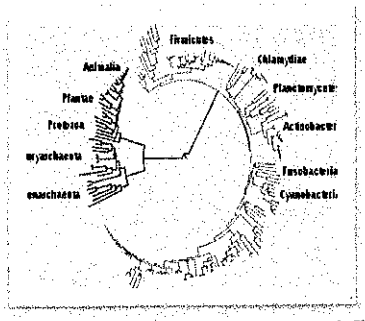
Control Group: The **plants with water**, because this group was kept **completely normal**, nothing changed with these plants.

7th no name
over G. ?

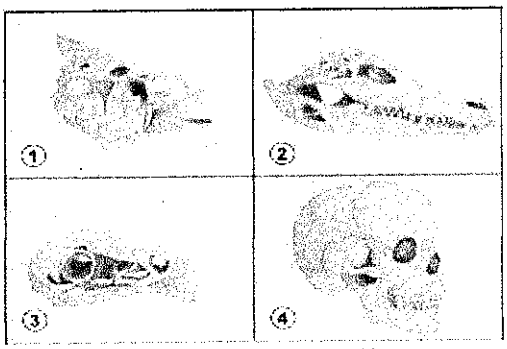
Classifying Organisms

S.C6.L.15.1

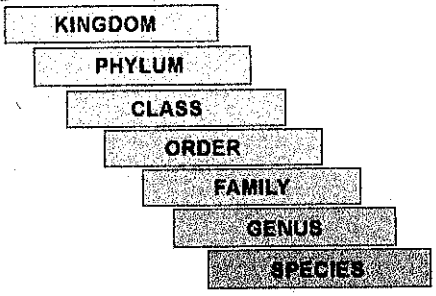
Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of domains.



There are many different classifications In the domain category. Anamilia is a demonstration of one domain of the many.

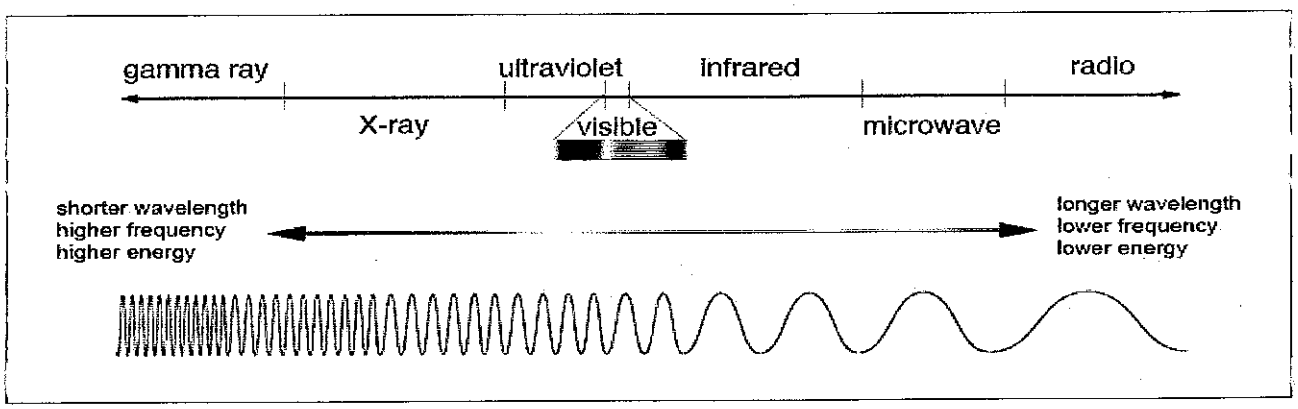


Many humans and animals have similar skull structures like a bird and an alligator both have longer noses and their eyes are on the side of their head.



The Linnaean system is the system used to classify organisms into their Kingdom, Phylum, Class, Order, Family, Genus, and Species. Carolus Linnaeus developed this so that we could have a better understanding of the groups of animals. This system was created in the 18 hundreds.

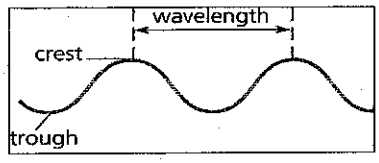
The Electromagnetic Spectrum



-Wavelength:

Wavelength is found by measuring the distance from one crest (maximum value) to another crest. This is interchangeable with troughs.

Wavelength becomes longer with waves that have lower frequencies and lower energy. Lower frequencies/energy is commonly associated with the radio wave end of the spectrum. When the frequency and energy increases, the wavelength becomes shorter.



-Frequency:

By counting the number of waves that pass in a second, you are finding the frequency. Frequency is measured in Hertz (Hz).

Frequency increases with an increase in energy and a decreased in wavelength.

-Electromagnetic wave uses and hazards:

Gamma rays can be used to treat cancer. Doctors can focus gamma rays to kill cancer cells. These are very dangerous however, and come with the risk of causing unintended cell damage and mutations.

X-rays are commonly used in x-ray machines used by doctors to examine the internal structure of a patient's body. X-rays can also kill living cells, speed aging, cause severe burns, diseases, etc.

Ultraviolet rays, (UV rays) increase production of vitamin D in the human body. It can disinfect things by causing inactivity in bacteria's. The risks of UV rays includes skin cancer by overexposure, and increases risk of numerous other diseases.

Visible light is exactly what it sounds like. It is the entire spectrum of colors (R.O.Y.G. B.I.V.), which allows us to see. Depending on intensity, visible light has the risk of causing retina damage and skin burns.

Infrared is used in remote controls for electronic devices. It is also used in night vision, heating, thermal imaging, weather forecasting and missile tracking. Dangers include overheating and burning.

Micro waves are used to send signals and cook foods. Prolonged exposure can cause cataracts in the eyes.

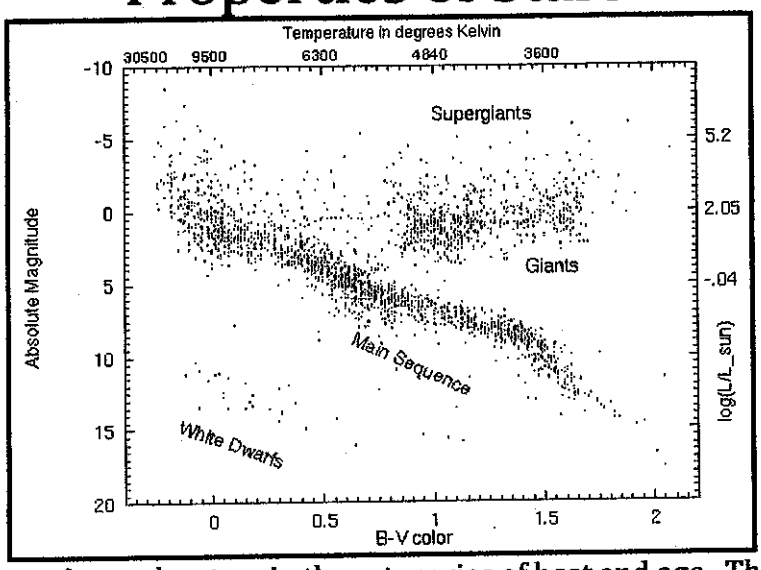
Radio waves are used in radio, radar and broadcast communication, and other navigation systems. The hazards include brain damage and cancer.

-Real-Life Application: Planetary Images and Satellite Photographs:

Radio waves and micro waves are used to send signals from satellites. Infrared and visible light takes a part of the process of planetary photographing.

Owen Garrison

Properties of Stars



This diagram shows the stars in the categories of heat and age. This specific diagram is called the Hertzsprung Russell Diagram it is the most famous diagram of stars because i t is easy to read and gives you good info.

Stars are classified into four different groups brightness, color, size, and absolute brightness. Apparent magnitude is how the star looks to us on the earth. Color tells us the tempature of the star purple is the hottest living star but white is the hottest color. The size of the star tells us the age of the star. Absolute brightness is hiw bright the star really is and not what it seems to be from earth.

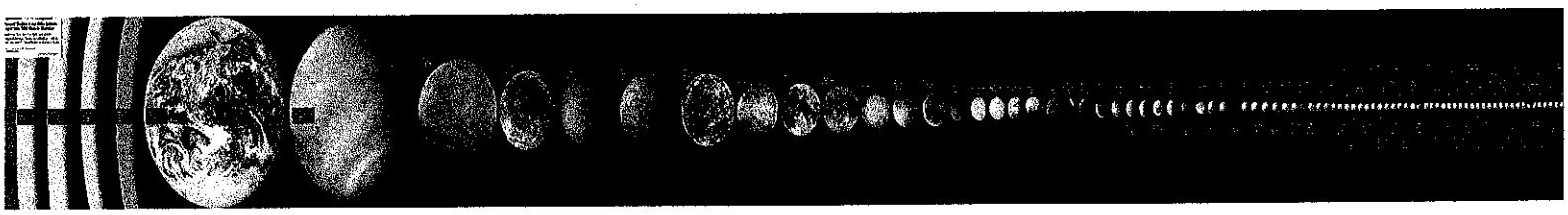
Astronomical Bodies

SC.8.E.5.3 Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.

- A **planet** is a sherical ball made of of gas and/or rocks that is in an elliptical orbit around a star.

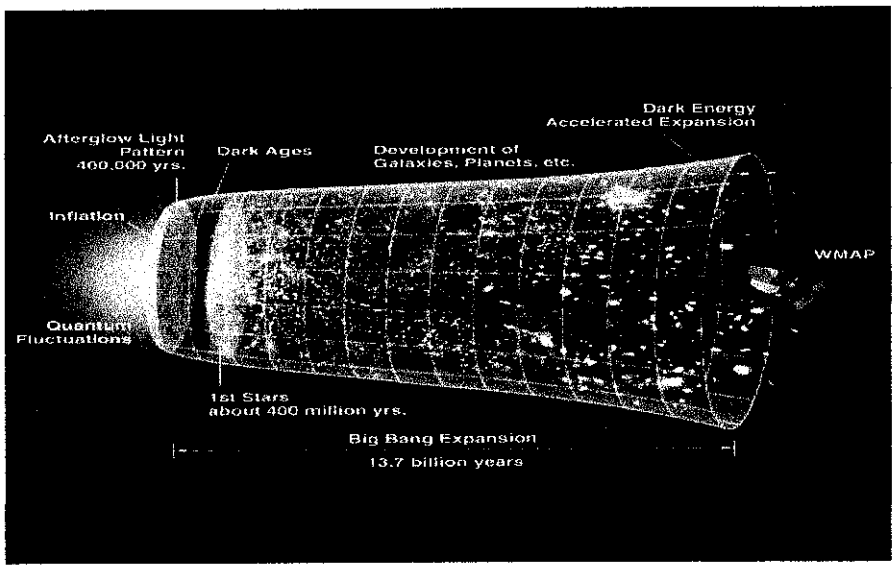
Name	Distance from sun (million kms)	length of day	length of year (Earth year/day)	composition	Temperature (K)	Diameter (km)
Mercury	58	59 days	88 days	solid	100-700 (mean 452)	4878
Venus	108	244 years	225 days	solid	726	12104
Earth	150	24 hours	365 days	solid	260-310	12756
Mars	228	25 hours	687 days	solid	150-310	6787
Jupiter	778	10 hours	12 years	gas	120	142796
Saturn	1427	10 hours	29 years	gas	88	120660
Uranus	2872	17 hours	84 years	gas	59	51118
Neptune	4509	16 hours	165 years	gas	48	48600
Pluto	5916	6 days	248 years	solid	37	2274

- A **solar system** consists of a star and everything that orbits it, and everything else that is contained in that system.



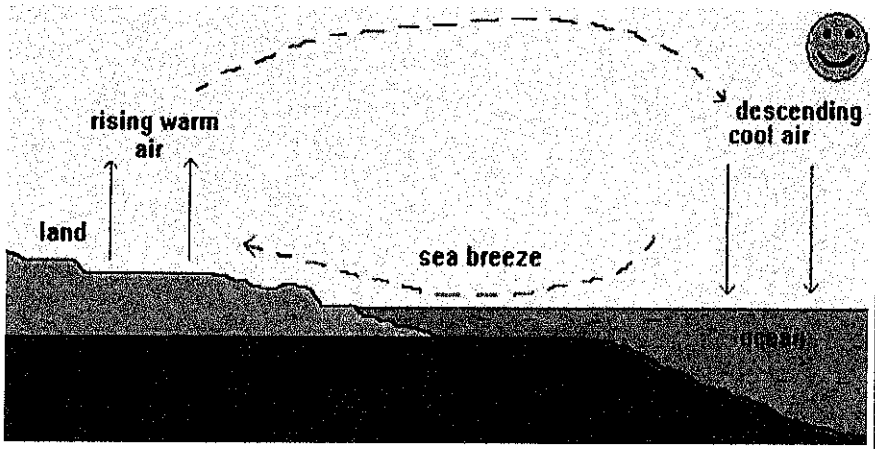
- A **galaxy** is a system of numerous stars that are held together by their gravitational pull on one another.

- The **universe** is all of space and everything in it including stars, planets, galaxies, etc. It has been expanding ever since its creation in the Big Bang nearly 13 billion years ago. It contains a vast number of galaxies, and is believed to be at least 1(billion light years in diameter.



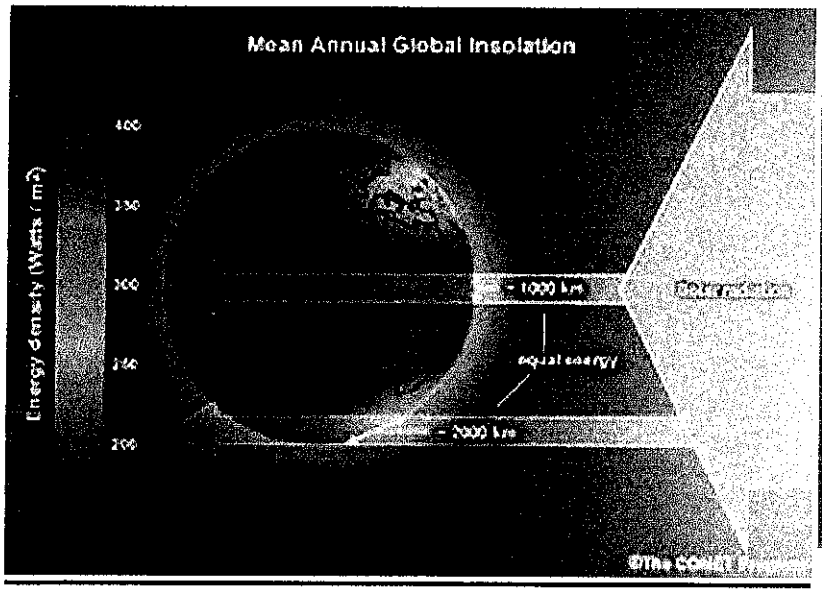
Global patterns caused by sun

Air/Water



The sun is the reason why we have wind, and breezes. These winds are caused by the sun heating the air and making the air rise. Also it is heating up the water making it become part of the air.

Land

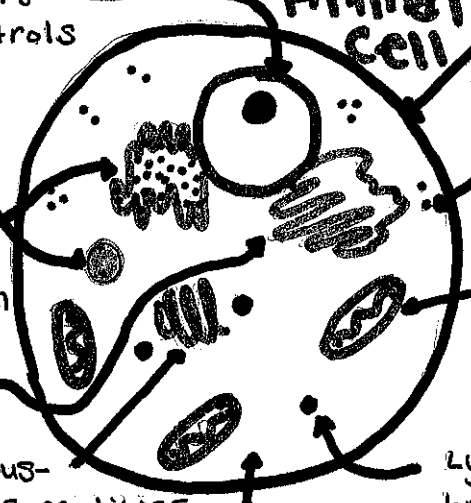


This picture is showing us the suns effect on heating up our land. The middle of the earth is simple hotter because it is at the most direct focus of the suns solar radiation. Thus, the land is hotter and unable to plant most crops and make hard living conditions.

* Plant and Animal Cells *

SC.6.L.14.4 compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.

Animal Cell



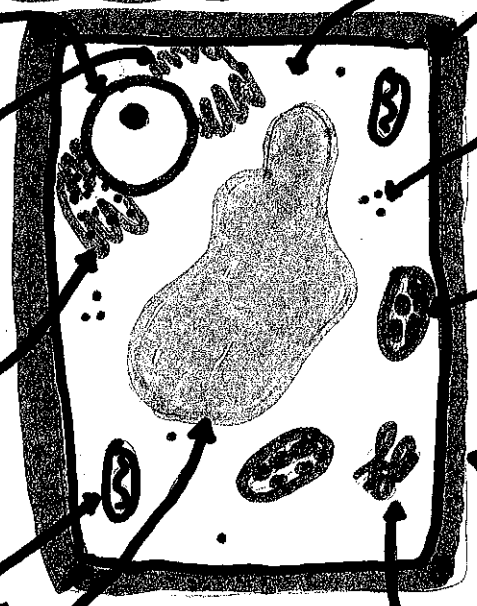
- nucleus - contains DNA, directs + controls all activities
- cell membrane - controls what is able to get in and/or out
- vacuole - stores materials for later use
- ribosome - makes proteins, involved in protein synthesis.
- Rough ER - contains ribosomes, packages protein
- mitochondria - converts glucose and oxygen into a form of energy (ATP), where cellular respiration occurs
- Smooth ER - stores, manufactures, transports compounds
- Golgi Apparatus - receives, stores, modifies materials, ships to different areas of cell.
- Lysosome - digestive enzymes that break down wastes and other uneeded substances.
- Cytoplasm - Jelly-like substance (Protects)

Organelles in common: cell membrane, nucleus, cytoplasm, mitochondria, vacuoles, golgi apparatus, endoplasmic reticulum (ER), ribosomes.

Organelles only in Plant cells: chloroplast, cell wall

Organelles only in Animal cells: Lysosome

Plant Cell



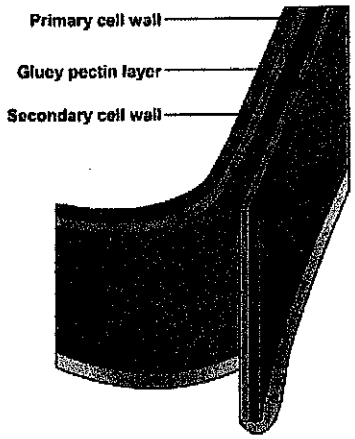
- Cytoplasm - Jelly-like substance (protects)
- cell membrane - controls what is able to get in and/or out
- nucleus - contains DNA, directs + controls all activities
- ribosome - makes protiens, involved in protein synthesis
- Smooth ER - stores, manufactures, transports compounds
- chloroplasts - converts sunlight, carbon dioxide, and water into glucose and oxygen. (Gives plant green color)
- Rough ER - contains ribosomes, stores and packages protiens
- cell wall - border of plant cell, helps maintain plants shape and structure.
- Mitochondria - break down carbohydrates + sugar to make energy, when sunlight is scarce.
- Golgi Apparatus - receives, stores, modifies materials and ships freshly made protiens to areas of the cell.
- Vacuole - stores compounds, takes part in plant growth

Jacob Gilger

Cell organelles

SC.6.L.14.3: Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, mitochondria, and vacuoles.

Cell walls are only on plant cells. They have many functions such as provide shape, form a block between other cells, and keep bad things out.

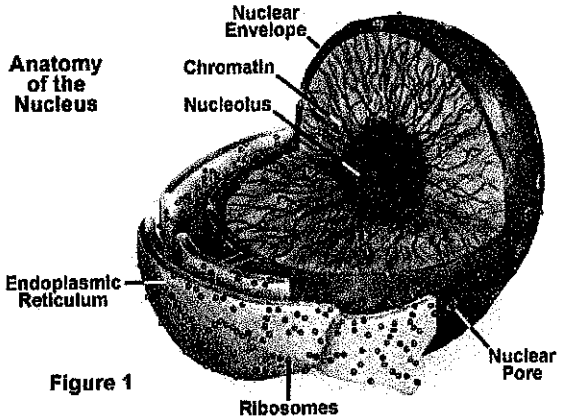


This image shows the two types of cell walls.

The **cell membrane** is a thin semi-permeable membrane that surrounds the cell. Its function is to keep a balance by letting certain things in and out and keeping some things out. Both plants and animals have them.

Vacuoles are storage bubbles found in cells. They store food, nutrients or waste for the cell.

The **nucleus** is a specialized organelle that serves as the information processing center of the cell. It controls all cell functions.



This image shows the makeup of the nucleus.

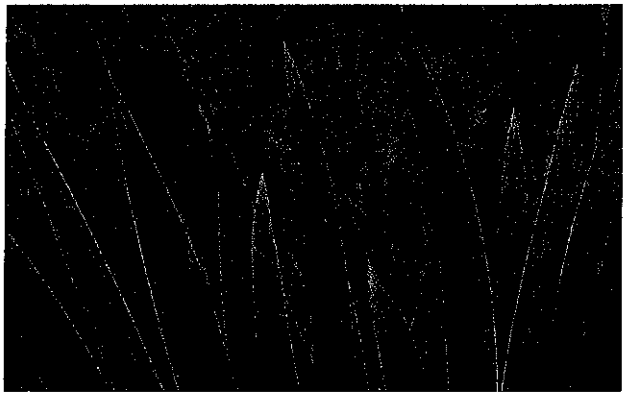
Cytoplasm is a jelly-like substance that fills the cell. It l 80% water and clear. It is more like a thick substance than watery.

Mitochondria are the powerhouse of the cell. They take in nutrients and break them down to make energy for the cell, this is called cellular respiration.

Remy Brooks

Different Landforms on Earth's Surface

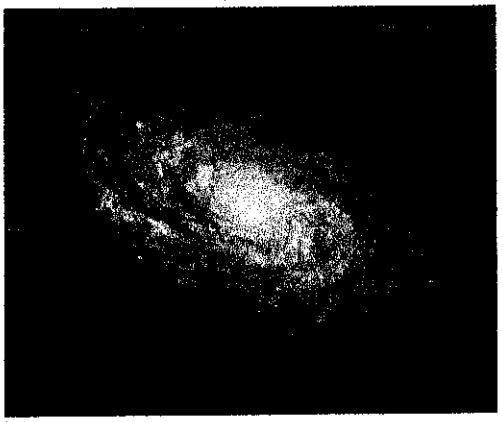
In many places of the Earth, there are many different landforms that appear on the Earths surface. From Mountains to hills, to Dunes and Rivers. But not all of these appear in Florida. Most of the landforms that appear in Florida are lakes and rivers. We usually have swamps and Flat places of grass.



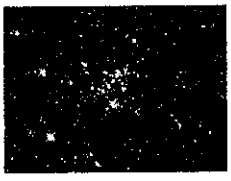
Patrick Lynch
February 24, 2014
FCAT Page

Billions of Galaxies, Billions of Stars

As you know, our universe is made up of **galaxies**. A galaxy is a system of millions or billions of stars, together with gas and dust, held together by gravitational attraction. We live in one right now. Our galaxy is the Milky Way, and no it is not named after the candy bar.



Within each galaxy, there are so many **stars**. A star is a fixed luminous point in the night sky that is a large, remote incandescent body like the sun. They are really big and last for billions of years. Looking out into the night sky will show you some stars



Now that we know the basics, we can get to the information. Galaxies are formed by dust and gravity. This happens very often so thousands of galaxies can be formed in a short period of time, well for space. In our solar system, there are millions if not billions of stars. Just think about how many there are in another galaxy!

Stars are formed by big clumps of dust being attracted together. And there is so much dust in our universe. Someone needs to get a sweeper or something. Anyways, if you were able to see all the stars, you would be amazed at how many there are. And all the stars are distributed into different galaxies. So that is why there are billions of stars within billions of galaxies.

Zach Irving
P.1
SC.7.L.17.2

Relationships Among Organisms

Organisms depend on each other to survive; sometimes this is helpful or harmful. They do so in predation, mutualism, parasitism, competition and commensalism.

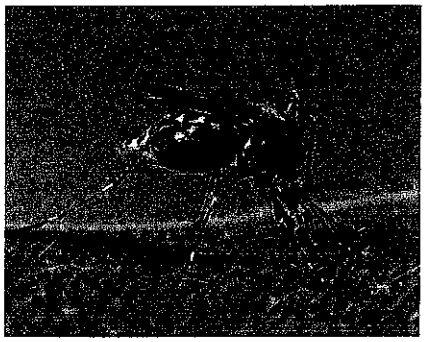
Predation- Predation is when one organism (the predator) hunts, kills and eats another organism (the prey).

The fox is a predator and is killing the squirrel or prey.

Mutualism- When two organisms exist in a relationship where both benefit.

The bee gets nectar to make honey from the flower and the flower gets pollinated so they both benefit.

Parasitism- When one species (the parasite) benefits at the expense of the other (the host).

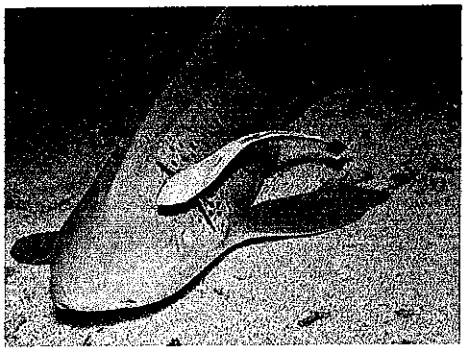


The mosquito benefits but the human does not.

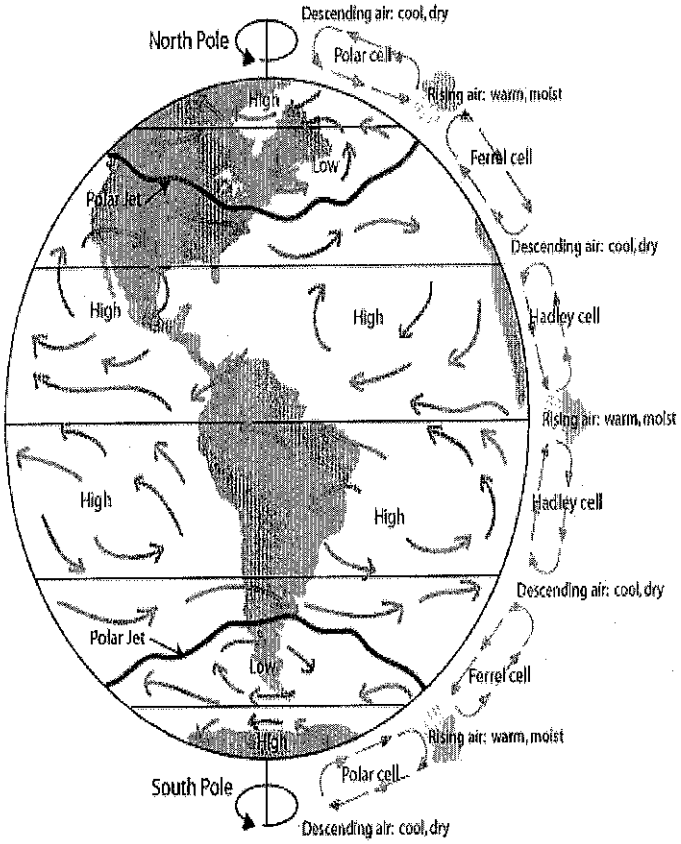
Competition- The struggle between multiple organisms for resources.
EX: Food, water, shelter

The two birds are competing over the piece of bread.

Commensalisim- When one organism benefits without affecting the other.



The remora benefits from eating leftover food from the shark and the shark is not affected.



Key Points:

The global wind pattern is also known as the "general circulation"

HOW THE SUNS ENERGY INFUENCES GLOBAL PATTERNS

- The sun doesn't influence global patterns it causes them.
- There would be no atmospheric movement without the sun

TEMPERTURE DIFFERENCES BETWEEN WATER, AIR, AND WIND

- Air is a mixture of several gasses, such as oxygen, hydrogen, carbon dioxide, etc.
- Temp differences between two places causes air to flow from low to high temperatures.
- Temperature is the measure of how hot or cold something is.

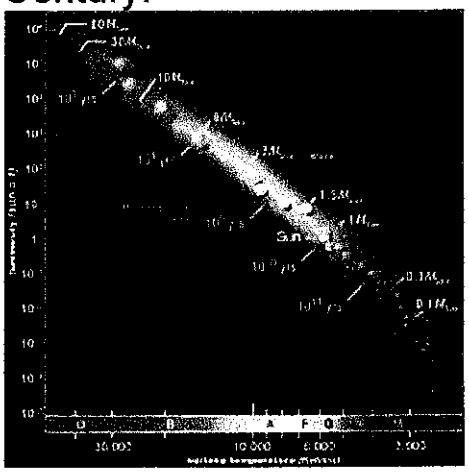
By: Cassidy Hays
Period 1

STANDARD: SC.8.E.5.5 STARS

Apparent Magnitude is how bright Stars are as they appear to us on Earth.

Color= temperature
Size= age
Number= brightness

-The Hertzsprung-Russell (or H-R) diagram is named after the Danish and American astronomers who developed versions of the diagram in the early Twentieth Century.

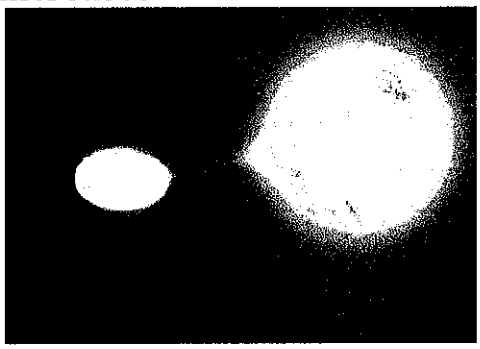


The hottest stars are blue and white. And the coldest stars are red.

This image shows a map of how scientists classify stars

Absolute Brightness/Lumosity is how bright a star really is.

The **apparent magnitude** decreases as its distance from us increases.



This image shows a very hot star about to implode.

Sina Imani

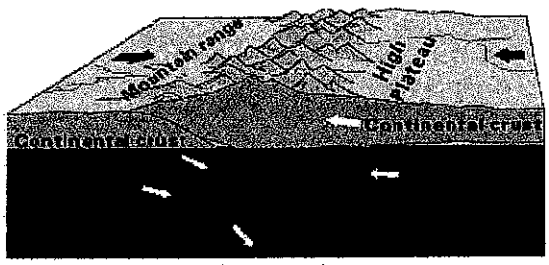
EVOLUTION OF EARTH OVER NATURAL PROCESSES

SC.7.E.6.4 – Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.

Many theories explain how Earth has changed over time due to natural processes, or processes that occur without a cause made by us. These natural processes that occur and change our Earth are caused by things like water and wind. These theories are made to explain why our Earth's land is shaped a certain way. These natural processes form mountains, valleys, deltas, and volcanoes.

MOUNTAINS

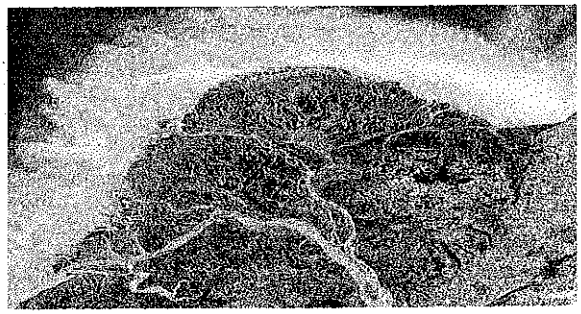
The theory of plate tectonics is one theory that tries to explain the formations of mountains. The natural process of the movement plates under the Earth's crust forms convergent plate boundaries. We have evidence that the plates under us move because of how our continents are formed and the mountains they form.



Continental-continental convergence

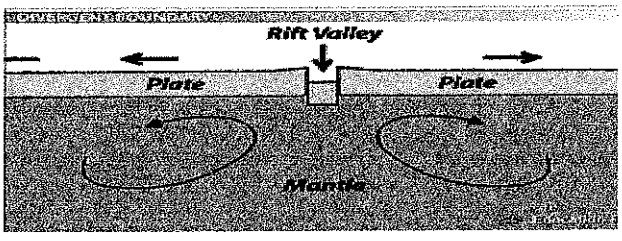
DELTAS

Deltas are the places at the mouths of rivers where the waters flow into the ocean. These are formed by deposition. Rivers flow through land, forming many other landforms. When they flow through land and get to the ocean, however, the mouth is now a delta.



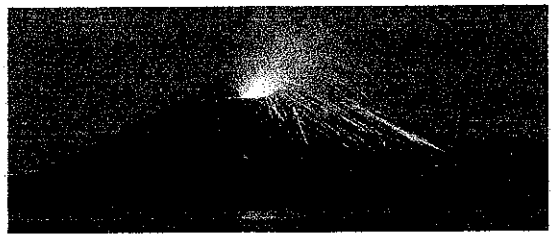
VALLEYS

Valleys are like mountains, but much lower to the ground. They are formed from erosion from a river or by erosion of a glacier. Divergent plates under the crust allow for valleys to form. Divergent plates move apart, or are separated. Erosion is the breaking down of rock or soil by wind or, in this case, water.



VOLCANOES

Volcanoes are another landform formed by natural processes over time. Volcanoes are also a part of the theory of plate tectonics, forming because of the plate's movement outward allowing magma to get to the surface. Over time, eruptions from volcanoes can form islands.



Distances and Travel in Space

SC.8.E.5.1 Recognize that there are enormous distances between objects in space and apply our knowledge of light and space to understand this distance.

The vacuum of space is so incredibly vast. The Sun is about 150 million kilometers away from our very own planet Earth. Compared to other objects in space, the Earth and the Sun are right next to each other. Galaxies can be trillions of kilometers away. It wouldn't exactly be practical to measure these distances in meters or kilometers. Instead, scientists often use astronomical units and light years to measure these distances in space.

An **astronomical unit** (AU) is roughly the average distance between the Earth and Sun, often used to measure distances between planets and other objects in our solar system. It is exactly 149,597,870,700 meters, or about 93 million miles for those using the customary system.

A **light year** is how far light travels in a vacuum in a year. A light year is almost 9.5 trillion kilometers (exactly 9,460,730,472,580,800 meters), or almost 6 trillion miles for all you customary folks. A light year is often used for measuring the distance between stars and galaxies in our universe.

About the size of a light year.

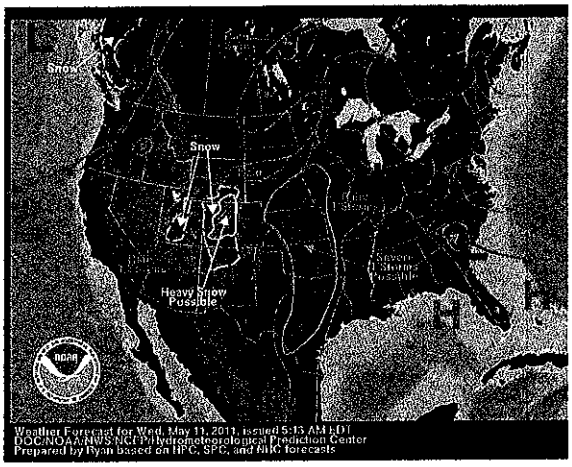
Astronomical Object	Average Distance from Sun (in AU)
Mercury	.39
Venus	.7
Earth	1
Mars	1.5-2
Asteroid Belt	2-3.4
Jupiter	5.2
Saturn	9.539
Uranus	19.2
Neptune	30.06
Pluto	39.5
Kuiper Belt	30-55
Oort Cloud	5,000-100,000

Chart info from http://solarsystem.nasa.gov/planets/profile.cfm?Object=KBOs and http://www.enchantedlearning.com/subjects/astronomy/glossary/AU.shtml

-Weather and Climate-

Crysta Booth

SC.6.E.7.6: Differentiate between weather and climate.

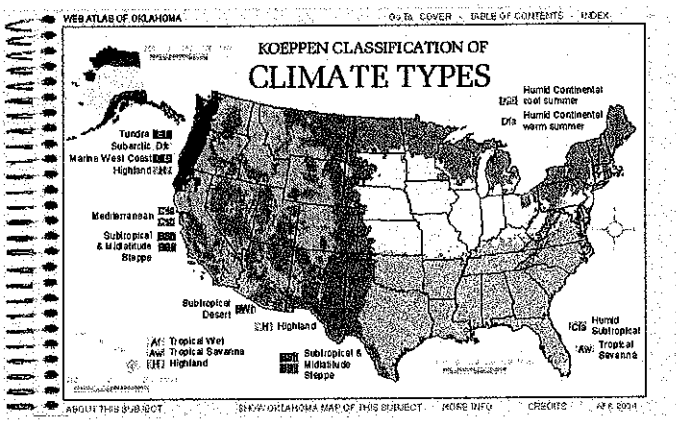


Weather and climate are differentiated by the measure of time. Both deal with the conditions and behaviors of atmospheric change. Climate is atmospheric behaviors over a relatively long period of time. Weather is atmospheric conditions over a short amount of time.

Weather patterns in the US.

Ex. Fog, snow, hail, rain, etc.

Precipitation- water in either solid of liquid form that falls from earth's atmosphere.



Climate types in the US.

Ex. After looking at rain gauges and reservoir levels scientists can tell if it will be dryer than normal.

Climate- Atmospheric behaviors over a relatively long period of time.

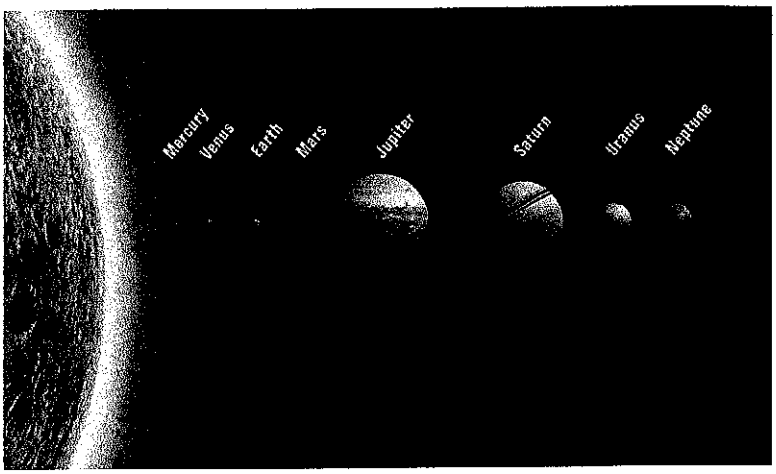
Objects in the Solar System

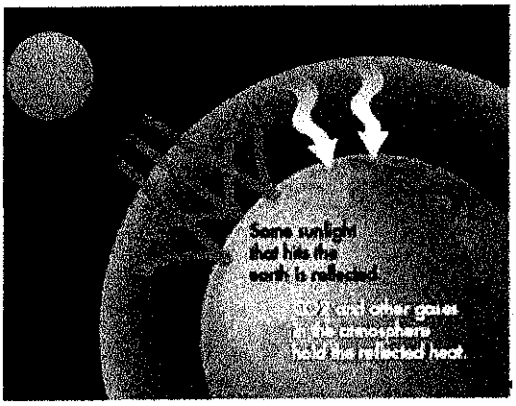
Have you ever looked up to the starry, night sky and wondered, 'How far away are planets actually? How do we survive on Earth?' The objects in the solar system all revolve around each other, pulling gravity to the very center of our solar system, which consists of the sun.

How gravity reacts with objects

All of our objects are centered around the sun.

The Eight planets, (Pluto is classified as a dwarf planet) Revolve around the sun's gravity, first starting as Mercury, then Venus, Earth, Mars, Jupiter, Uranus, Neptune, and Pluto. The pull of gravity effects the planets' rotation around the Sun. The moons pull at the planets as well. This is why we have ocean tides on Earth, because both the moon and the sun pull at the Earth.





How do we on Earth survive?

We survive because of Earth's atmosphere, which gets the temperature just right for Earth to have life. It allows some sunlight to get in, and other light bounces off the atmosphere. So, not all of Sun's light reaches the actual surface of Earth. The atmosphere suits just the right temperature so that it doesn't get hot during the day, and it doesn't get that cold during the night.

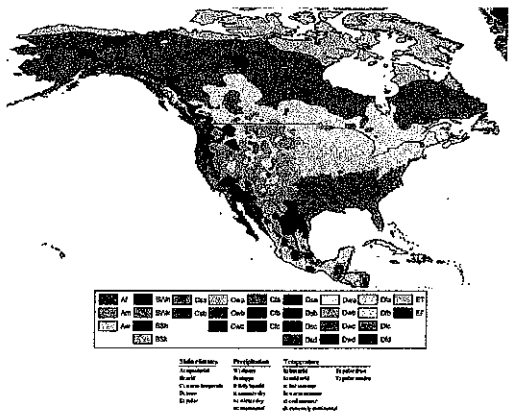
Science Page 2 Standard

Evan Wright
2nd period

SC.6.E.7.6 : Differentiate between weather and climate

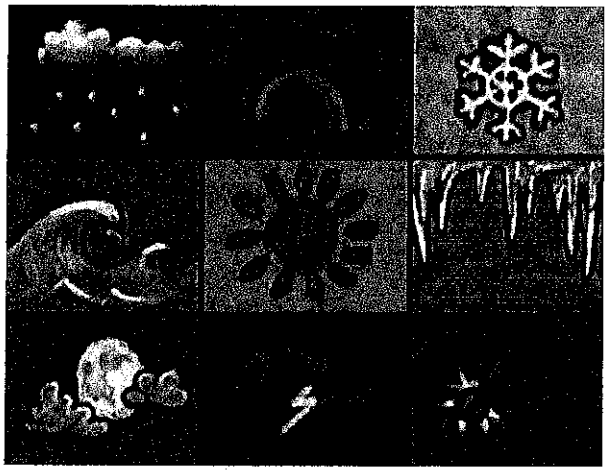
Climate

Climate is the measure of the average pattern of variation in temperature, humidity, atmosphere, wind, precipitation, and other meteorological variables in a given region over long periods of time.



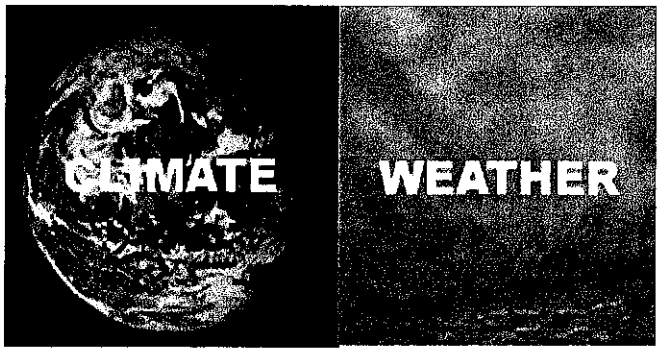
Weather

Weather is the state of the atmosphere, that it is hot or cold, wet or dry, calm or stormy, clear or cloudy.

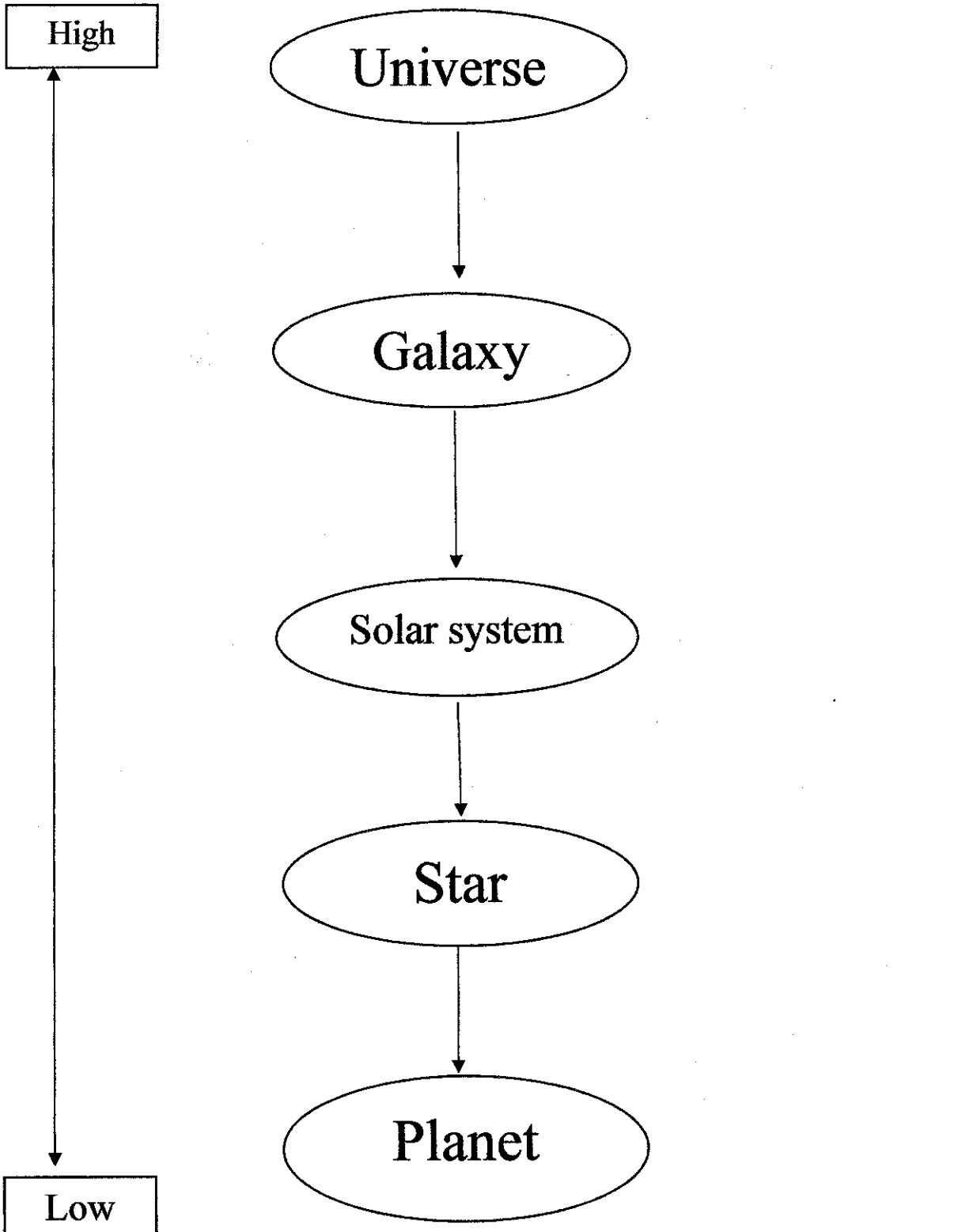


The Difference

The difference between weather and climate time. Weather is what conditions of the atmosphere are over a **short** period of time, and climate is how the atmosphere behaves over relatively **long** periods of time.



Daniel Webster



Hierarchical relationship between planets

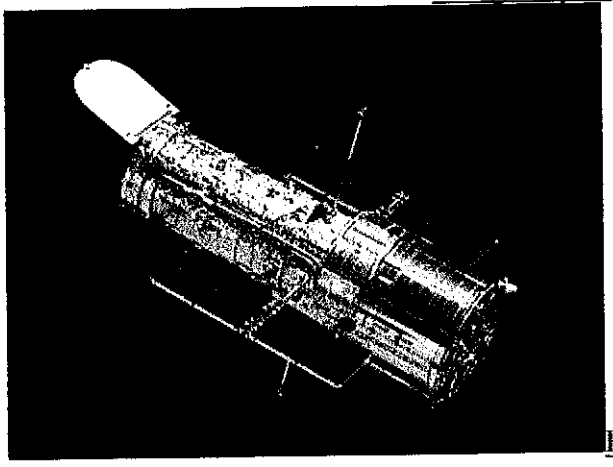
80

Chase Garick

Galaxies

A galaxy is a massive, gravitationally bound system consisting of stars, medium of gas and dust, and dark matter. The Milky Way consists of billions of stars and has enough dust to make many more. In the middle of the galaxy it has a bunch of energy. The astronomers think that in the middle there is a large black hole. There is a estimate of hundreds of billion galaxies out there. Galaxies are sprawling space systems composed of dust, gas, and countless stars. And there are tiny dwarf galaxies with a fraction of our number of stars. Galaxys are giant colud like things that contain many different things that could have life in them. Our galaxy is the milky way.

Our galaxy the Milky Way



Hubble telescope

Relationships Among Organisms

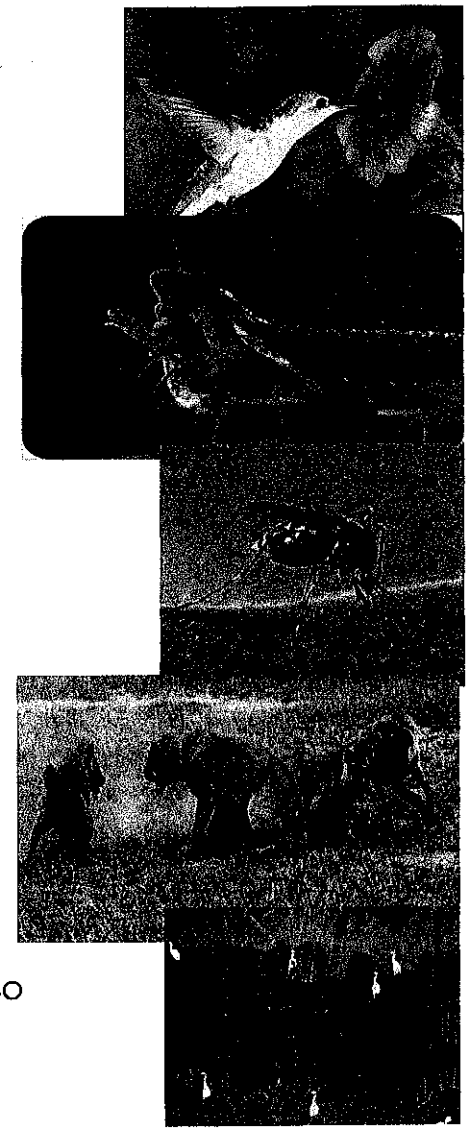
Mutualism- *a* relationship between two species of organisms in which both organisms benefit from.

Predation- A relationship between two species of animal in a community, in which one (The Predator) hunts, kills, and eats the other (The Prey).

Parasitism- When one organism feeds off of another one.

Competition- When organisms fight for food so that they can survive.

Commensalism- A type of relationship between two species of a plant, animal, fungus, in which one lives with, on, or in another without damage to either.



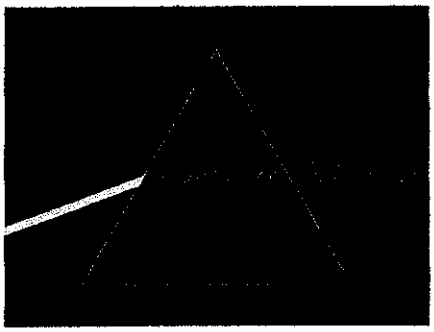
Sources:

http://www.biology4kids.com/files/studies_relationships.html
http://www.seaslugforum.net/find/symbio

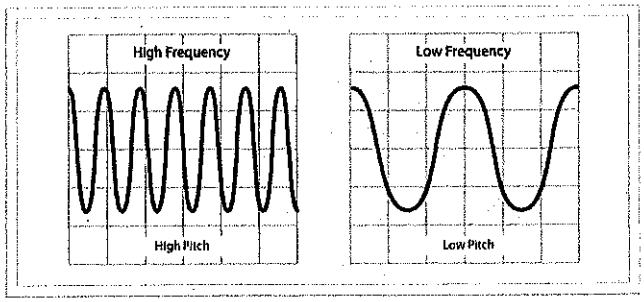
Waves

There are many different categories to classify waves such as light, sound, and other.

Visible light waves- Are the only electromagnetic waves we can see. We see these waves as the colors of the rainbow. Each color has a different wavelength. Red has the longest wavelength and violet has the shortest wavelength. When all the waves are seen together, they make white light.



Sound Waves- Sound is a series of longitudinal or compression waves that move through air or other materials. Like any waveform, sound has the characteristics of wavelength, frequency, amplitude and speed or velocity. Sound waves are created by the vibration of objects.



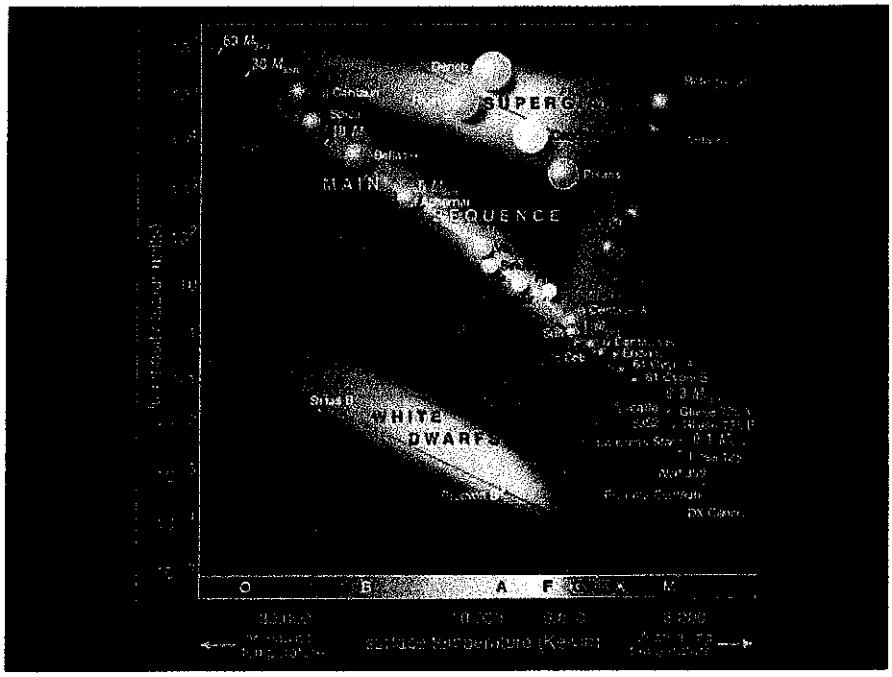
A transverse wave- is a wave in which particles of the medium move in a direction perpendicular to the direction that the wave moves.

Sources:

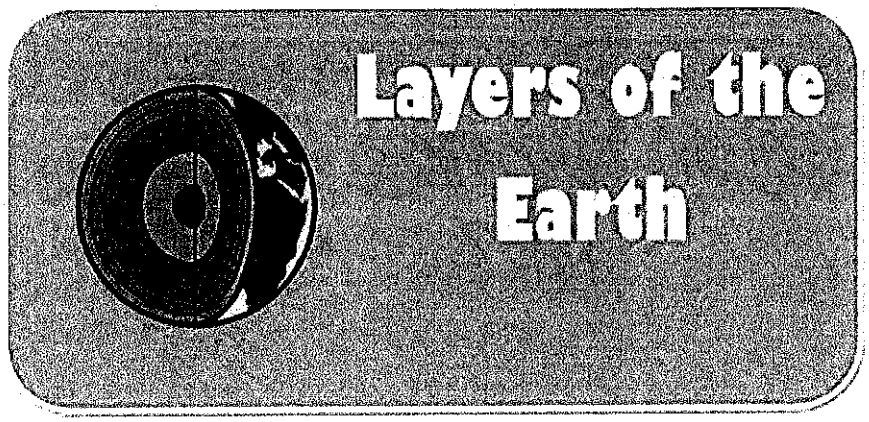
http://www.mediacollege.com/audio/01/sound-waves.html
http://scienceprimer.com/types-of-waves

NICKM

SC 8.E.5.5- Describe and classify specific physical properties of stars: Apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness)



Through this star chart you can tell many different things about the characteristics of stars like the temperature and brightness, with age. The **luminosity** can be seen through the y-axis of the chart and shows the **absolute brightness** or how bright the star actually is compared to **apparent magnitude** which is the brightness of a star as it appears from earth, the closer the brighter the farther the dimmer. In this chart you can tell the size of the stars, but in 2D chart you would need to have them in a category, in the order from smallest to largest. White dwarfs, Main Sequence, giants, and super giants, with many different variations. The life of a star can be told through its many characteristics, such as a **size** and brightness. Stars get bigger as they grow older and their **temperature** increases, but soon they implode and become white dwarfs which can become small and cold as they start to die out. All of these stars are characterized and categorized through this chart.



The Earth is formed in layers. The layers consist of a lithosphere, crust, mantle, outer core and inner core.

Lithosphere ~ The outermost layer of the Earth and it means rocky. This is the layer under the crust that is just rock.

Crust ~ The Earths crust is where humans live. Its where the trees grow and animals walk. The crust is the rocky shell of the Earth.

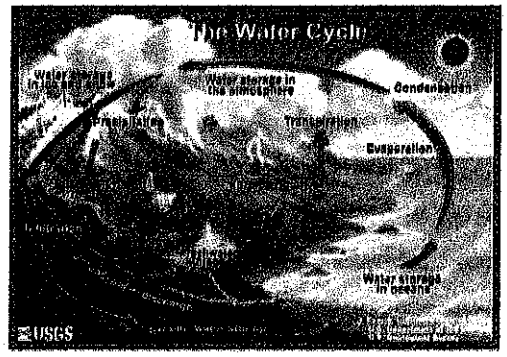
Mantle ~ The mantle is the second layer of the Earth. In the mantle convection currents happen. The convections current move the tectonic plates and they form mountain, valleys, and stuff of that sorts.

Outer Core ~ The outer core is a 2,266 km and liquid rock. It is about 4400 degrees Celsius. This layer in mostly made on iron and nickel.

Inner Core ~ The inner core is the innermost part of the Earth. It is a solid ball with a radius of about 1,220 km. It is the hottest part of the planet.

Quinn

<u>How energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.</u>



←The energy from the sun causes the Hydraulic Cycle (Water Cycle). It causes water to change states of matter by heating up (particles move faster) or cooling down (becoming dense as particles slow down).

The heat from the sun heats up the earth and over time Methane and Carbon Dioxide gets trapped in the atmosphere and warms the Earth even more.

VOCAB:

Radiation

Water Cycle

Convection

Conduction

Convection Currents

EXAMPLES:
An example may be global winds which are created by the movement of air between the equator and the two poles.
Earth rotates from west to east, so the winds look like they're curved. This curving of those winds are known as the Coriolis Effect.

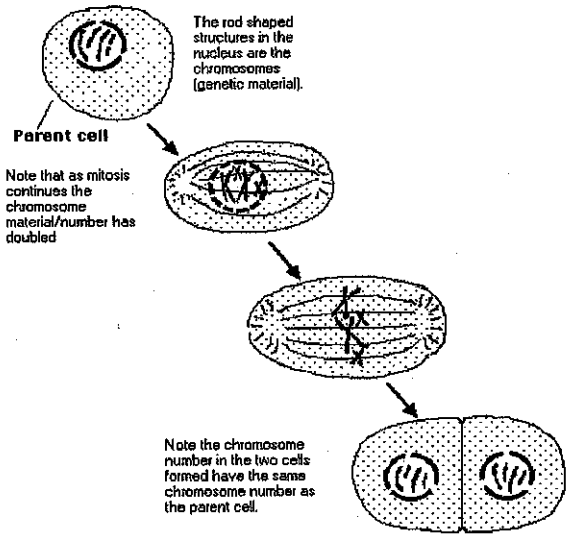
Going back to the Water Cycle, the sun's energy heats up the water particles and the water evaporates into the atmosphere. The evaporated particles start to cool down and get heavier forming clouds

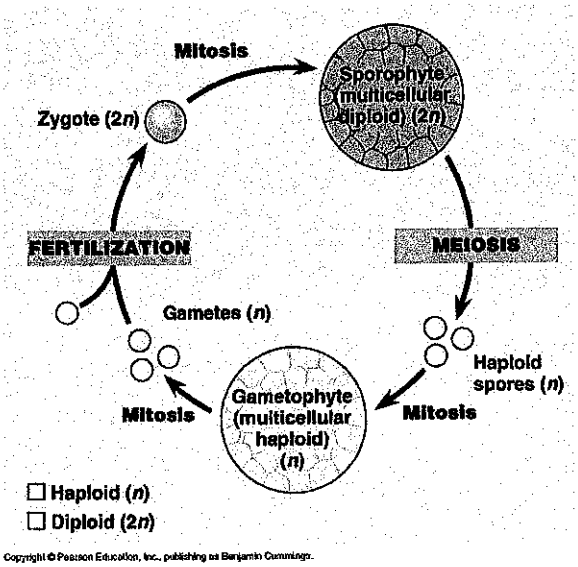

←This is an example of how solar energy hits the equator

SEXUAL AND ASEXUAL REPRODUCTION

SC.7.L.16.3 : Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.

ASEXUAL REPRODUCTION	SEXUAL REPRODUCTION
-requires one organism -cell divide by mitosis -no genetic variation (exact copy) -at least 2 organisms are produced (can be more than two)	-requires two organisms -cell divide by meiosis -genetic variation (acquires traits from both parents) -at least one organism is produced (can be more than one)





Comparisons:

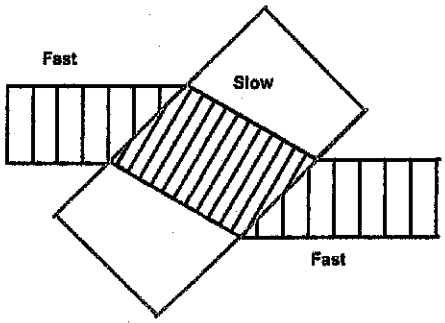
-both are a kind of reproduction
-both generate offspring
-both occur in plants and animals

REFLECTION, REFRACTION & ABSORPTION

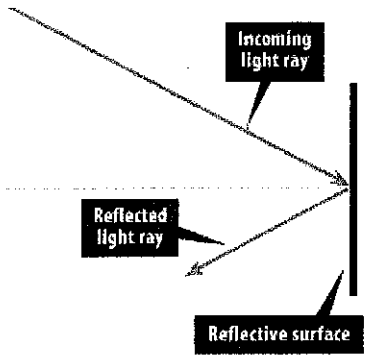
SC.7.P.10.2 : Observe and explain that light can be reflected, refracted, and/or absorbed.

REFLECTION:	when light waves bounce off of an object
REFRACTION:	when light rays bend or change direction because they change speed when they enter a new medium.
ABSORPTION:	when light waves are absorbed or soaked up.

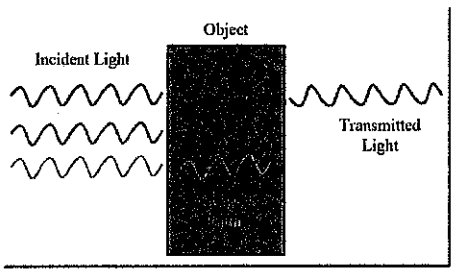
REFRACTION:



REFLECTION:



ABSORPTION:

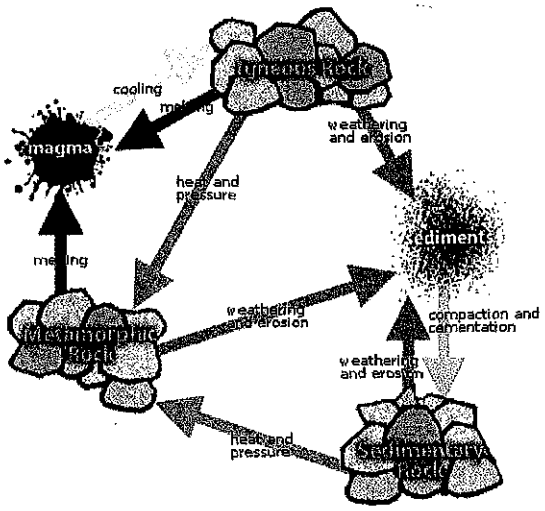


SC.7.E.6.2 Rock Cycle and Related Events

Igneous rock is made when magma cool. It can also be formed when metamorphic rock is melted into magma.

Sedimentary rock is made when Igneous is eroded and weathered and turned into sediment. Then when sediment is affected by compaction and cementation Sedimentary rock is formed.

Metamorphic rock is formed when pressure and heat are added to Sedimentary rocks. It can also be formed when igneous rock is heated or has been added pressure.



The rock cycle and all of its effects.

Weathering and erosion are big factors in the rock cycle. If any type of rock is eroded or weathered they will become sediment. Then when sediment is affected by compaction and cementation Sedimentary rock is formed.

Heat and pressure also play a great role in the rock cycle. When rocks are effected by large amounts heat and pressure added to Sedimentary and Igneous rocks. This will cause the rocks to change to metamorphic rocks.

This is a real life example of the rock cycle in action.

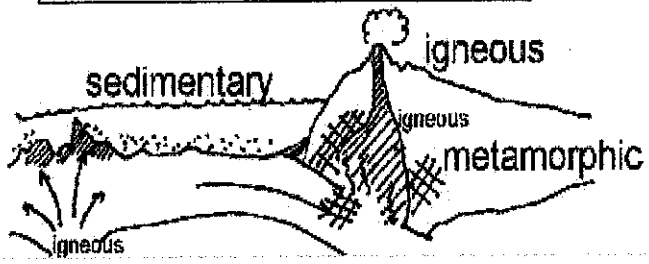
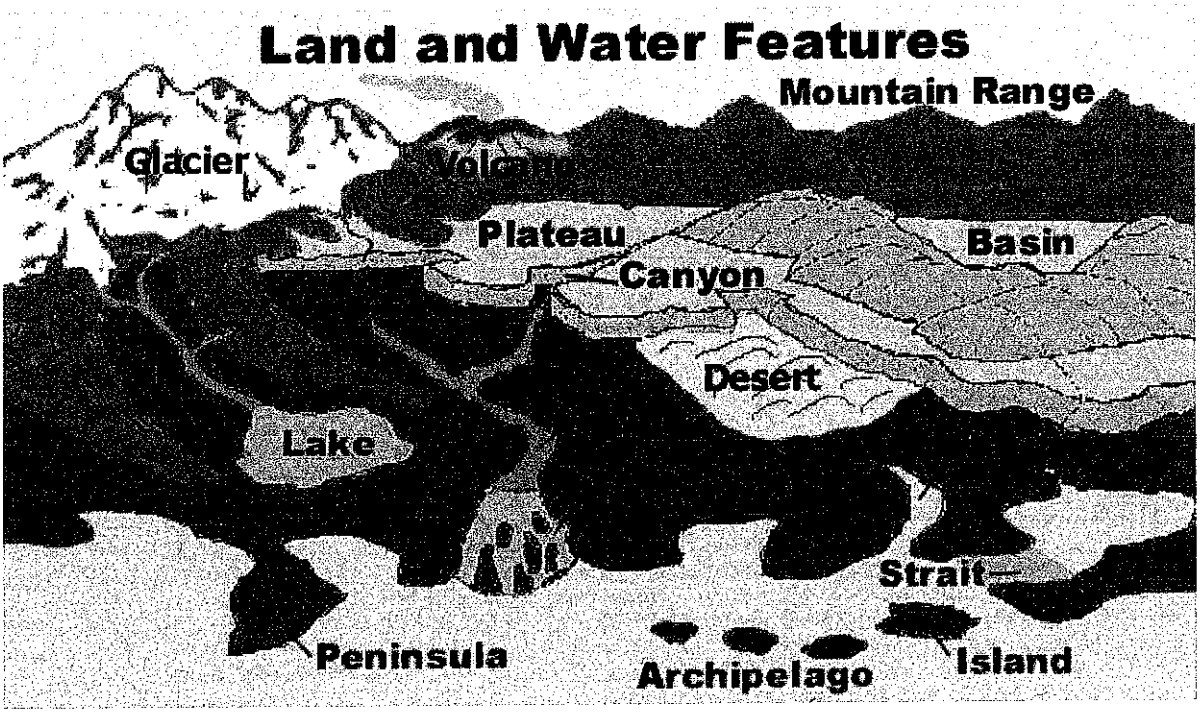


Plate tectonics also affect the rock cycle. When the plates move rocks are pushed back into Earth's mantle. Then the rocks are put back into the cycle.

Explain

EARTHTACULAR LANDFORMS

Landforms exist everywhere. Mountains, beaches, rivers, glaciers you name it! Landforms in Florida include: beaches, dunes, lakes, coastlines, rivers, and hills.



Key Terms:

- Landforms (i.e. everything listed in the diagram above)

SOLAR PROPERTIES

By: Chase Walker

SC.8.E.5.6 Create models of solar properties, including rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.

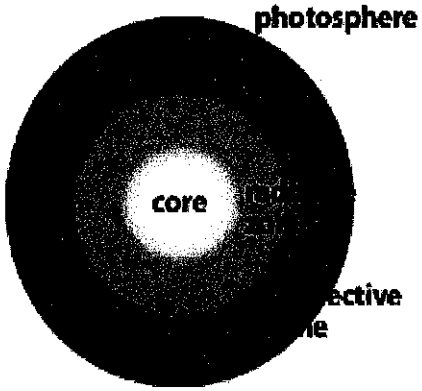
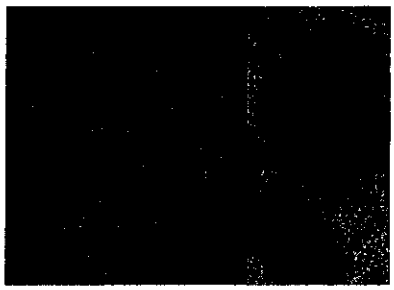


Diagram of the Sun's structure

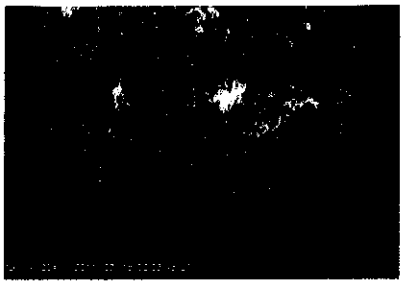
The sun consists of; the core, radiative zone, convection zone, photosphere, chromosphere, corona, sunspots, granules, and prominences.

The convective zone is right under the photosphere, and chromosphere. Like the Earth's mantle it is where all the convection happens. Convection in the circular motion of heat transfer where heat rises and cold sinks.



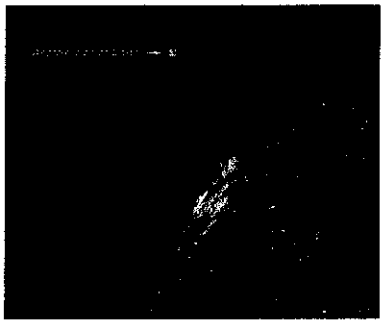
Sunspots on our Sun

Sunspots are temporary phenomena on the photosphere of the Sun that appear as dark spots compared to surrounding areas. They are caused by intense magnetic activity, which causes convection forming areas of reduced surface temperature. They usually appear as pairs, with each sunspot having the opposite magnetic pole to the other.



Solar flares on the Sun (white areas)

Solar flares are defined as a sudden, rapid, and intense variation in brightness. A solar flare occurs when magnetic energy that has built up in the solar atmosphere is suddenly released. They are visible as bright white or blue light.



A prominence is a large, bright, gaseous feature extending outward from the Sun's surface, often in a loop shape. Prominences are attached to the Sun's surface in the photosphere, and extend into the Sun's corona.

A Prominence on the sun (also compared to size of earth)

Sun rotation: Observations also indicate that the Sun does not rotate as a solid body, but it spins differentially. This means that it spins faster at its equator and slower at its poles. The gas giants Jupiter and Saturn also have a differential rotation.

Galaxies and the Universe

SC.7.E.5.2

Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.

"**Copernicus** – Heliocentric view of the solar system

Ptolemy – Geocentric view of the solar system

Galileo – First to use telescopes to observe the solar system and moon. Discovered evidence for the following:

-Jupiter's four moons revolve around the planet

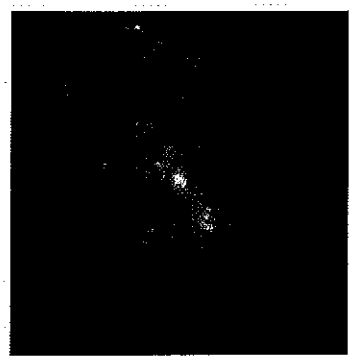
-Venus goes through phases similar to that of Earth's moon

Galaxies – Galaxies are large scale groups of stars that are bounded together by gravity."

-Earth in Space in Time power point

There are theories as to how the universe came about. A popular and widely accepted theory is called the Big Band Theory. It states that at one time the universe was small and dense, and then it exploded creating solar systems, stars, and galaxies. A less popular theory is that the universe is constantly renewed.

To travel to the nearest star beyond our sun, it would take us 70,000 years using our fastest space ship. As the Earth rotates, the background of stars changes slightly. That is how scientists know which ones are closer or farther away.

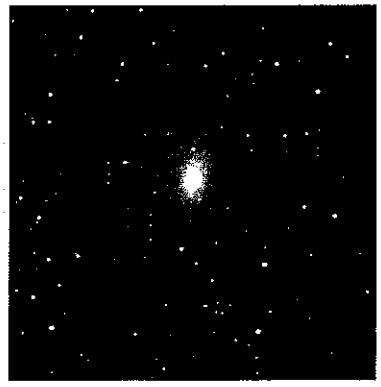


Irregular Shape Galaxy:

-Uncommon

-Closest to the Milky Way

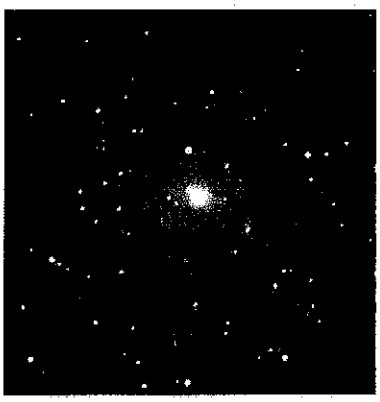
-Not much structure



Elliptical Shape Galaxy:

-Stars cannot form

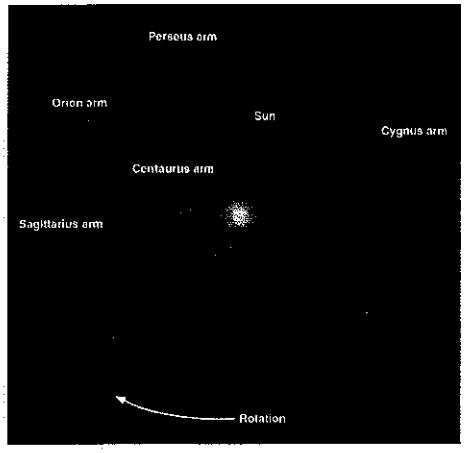
-A smooth oblong shape



Spiral Shaped Galaxy:

-Bulge in the middle with lines sticking out like a spiral

-Milky Way Galaxy is a spiral shaped galaxy



The Milky Way galaxy diameter is about 100,000 light years

"The nucleus is 2000 l years thick"

-Earth in Space in Tim Power Point

Functions of Organelles in Plant and Animal Cells

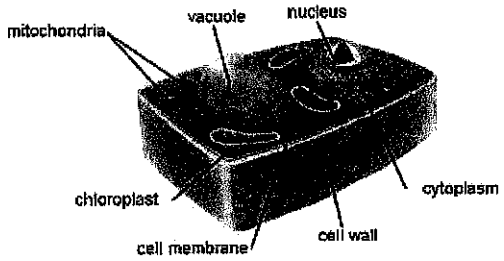
SC.6.L.14.4: Compare and contrast the structure and function of major organelles of plant and animal cells, including cell wall, cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria, and vacuoles.

Plant cells contain cloroplasts and a cell wall, which animals cells do not have. Both types of cells have cell membrane, a nucleus, cytoplasm, mitochondria, and vacuoles.

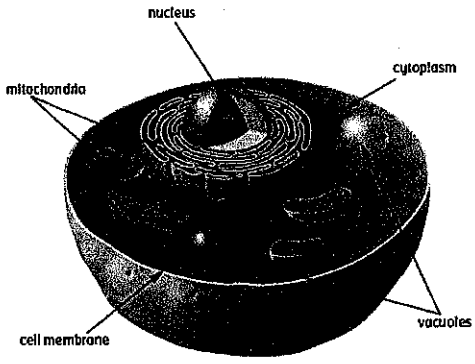
Organelle	Plant/Animal	Function
Cell Wall	Plant Cells	Rigid outer layer that protects and supports the cell. The cell wall is made of cellulose.
Cell Membrane	Plant and Animal Cells	Helps control what passes in and out of the sell and is semi-permeable*
Nucleus	Plants and Animal Cells	Directs all activities of the cell. "Control center of the cell."
Cytoplasm	Plant and Animal Cells	The fluid that fills the cell and all organelles are suspended in it. It ensures the cell does not shrink by maintaining the cell's pressure.
Choloroplasts	Plant Cells	Converts the sun's energy into energy the cell can use. It contains chlorophyll which is a pigment that produces glucose by capturing the sun's light in photosynthesis.
Mitochondria	Plant and Animal Cells	They produce an energy-rich molecule called ATP that fules most actions in the cell.
Vacuoles	Plant (large and central) and Animal Cells	In plant cells the vacuole is mostly filled with water to give the plant suppport. They act as storage areas that hold food, water or waste.
Endoplasmic Recticulum (ER)	Plant and Animal Cells	Prepares protiens to be transported to the Golgi Apparatus or directly to other parts of the cell.
Lysosomes and Peroxisomes	Animal Cells	Breaks down waste, cleans up cell, and salvage materials the cell can use. "Recycling Station"
Ribosomes	Plant and Animal Cells	Follow intructions from the nucleus and make proteins the cell needs which either stay inside or leave the cell.
Golgi Apparatus	Plant and Animal Cells	Its main job is grouping items such as lipids and protiens and packaging them. Then the vesicles (packages) are exported to different destinations. "Packaging Plant"
Peroxisomes	Plant Cells	Covert stored oils into molecules that can be used as energy.

Permeable: Allows certain materials to pass trought but not all materials.

Cell Theory states that cells are the basic unit of life and all organisms are composed of one or more cells.



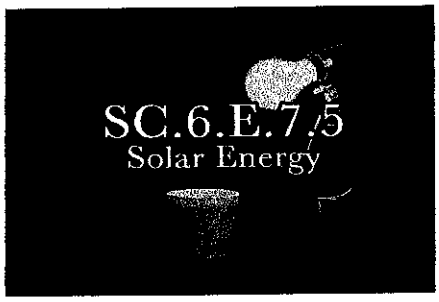
Plant Cell



Animal Cell

The Sun's influences on global patterns

Standard SC.6.E.7.5: Explain how energy provided by the Sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.



Earth systems and Patterns: The scientific theory of the evolution of Earth states that changes in our planet are driven by the flow of energy and the cycling of matter through dynamic interactions among the atmosphere, hydrosphere, cryosphere, geosphere, and biosphere, and the resources used to sustain human civilization on Earth.

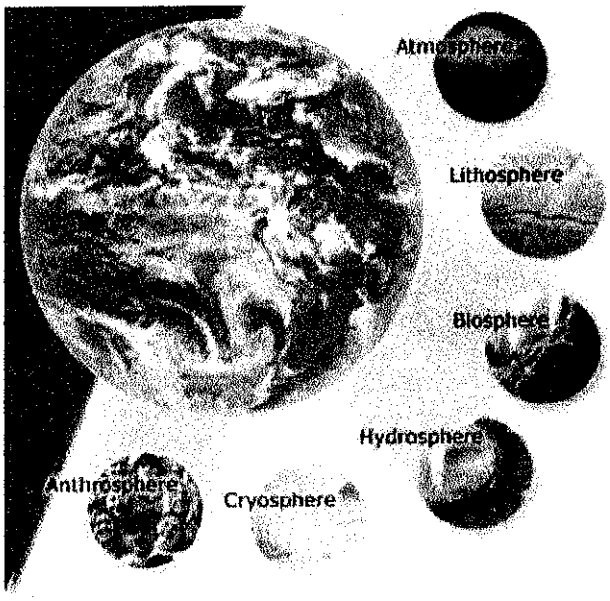
Definition of Biosphere: The regions of the surface, atmosphere, and hydrosphere of the earth (or analogous parts of other planets) occupied by living organisms.

Definition of Hydrosphere: All the waters on the earth's surface, such as lakes and seas, and sometimes including water over the earth's surface, such as clouds.

Definition of Geosphere: Any of the almost spherical concentric regions of matter that make up the earth and its atmosphere, as the lithosphere and hydrosphere.

Definition of Cryosphere: The cryosphere is those portions of Earth's surface where water is in solid form, including sea ice, lake ice, river ice, snow cover, glaciers, ice caps and ice sheets, and frozen ground.

Definition of Atmosphere: the envelope of gases surrounding the earth or another planet.



Jack Streeter
2/25/14
period 4

SC.8.E.5.7

Compare and contrast the properties of objects in the Solar System, including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.

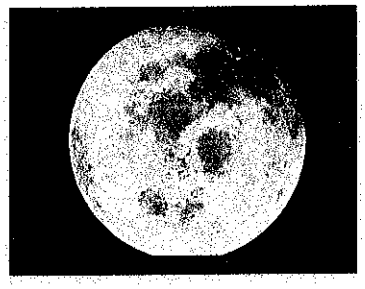
(www.ou.org)

This is our solar system which contains the sun (far left), the planets, and there moons.

Solar System:

The Sun together with the other planets and all other bodies that revolve around the Sun.

Moon



(www.universetoday.com)

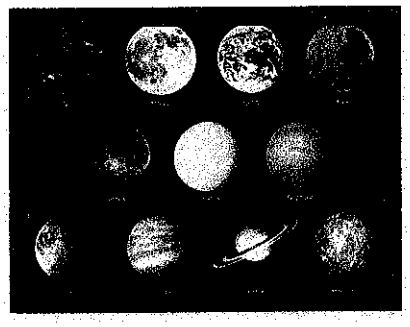
Gravitational Force= 5/6 less than earth's or 83.3%.
Distance from the Sun= 147 million km to 152 million km.
Speed= 2,288 mph.
Movement= Orbits around Earth
Atmosphere= None

Sun

(commons.wikimedia.org)

The sun is the largest object in our Solar System and is the star in the center of the Solar System.

Planets



(www.psychiclibrary.com)

A celestial body moving in the sky, as distinguished from a fixed star, applied also to the sun and moon.

Characteristics of the Electromagnetic Spectrum

SC.8.E.5.11: Identify and compare characteristics of the electromagnetic spectrum, such as wavelength, frequency, use, and hazards, and recognize its application to an understanding of planetary images and satellite photographs.

Wavelength

- The distance between the crests of two waves
- The longer the wavelength, the lower the energy and frequency

Frequency

- The number of complete waves that pass a given point in a certain amount of time.
- The higher the frequency, the higher the energy

Use of Electromagnetic Spectrum

- The electromagnetic spectrum is useful for a variety of purposes.
- Radio waves are used for AM and FM radio and TV
- Microwaves are used for cell phones and for heating food
- Infrared waves are used for thermal imaging and remote controls
- UV rays are how most humans get vitamin D
- X-Rays help to see inside of objects
- Gamma waves help kill cancer cells

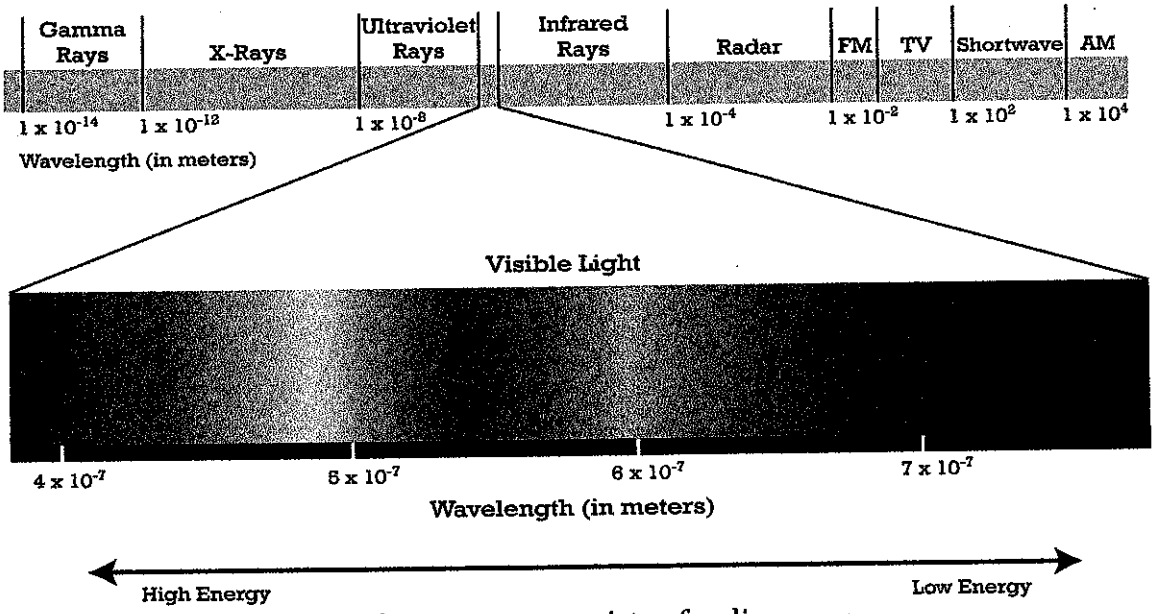
Characteristics of the Electromagnetic Spectrum

Hazards

Radiation from electromagnetic waves can lead to cancer and decline in human health. Gamma rays are extremely dangerous and can cause immediate harm. All of the effects of radiation are not yet known.

Planetary Images

Without the EM spectrum, planetary images and satellite photographs would be impossible. Radar is used to capture satellite images because it can penetrate through many materials. Radio waves are also used for high-powered telescopes. The telescopes then produce an image of distant planets and objects in the universe.



The electromagnetic spectrum consists of radio waves, microwaves, infrared rays, visible light, ultraviolet waves, x-rays, and gamma rays in order from lowest frequency to highest frequency.

Weather vs. Climate

Definition - The state of the atmosphere at a specific time and with respect to its effect on life and human activities. (Source: The Weather Channel)

Key Terms - Specific time, daily, warm or cool, clear or cloudy, dry or humid.

Examples - Oviedo's weather on February 25 - A high of 84° Fahrenheit, a low temperature of 54°. The chance of precipitation is 10%, with 80% humidity.

Definition - The historical record and description of average daily and in seasonal weather events that help describe a region. (Source: The Weather Channel)

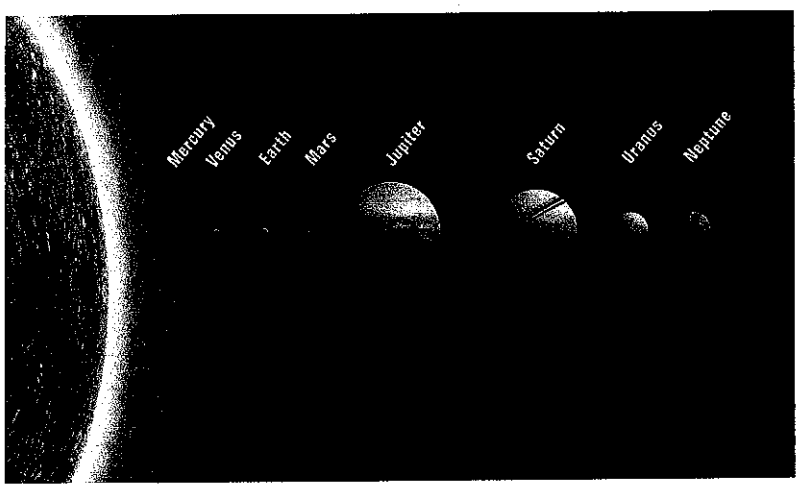
Key Terms - Average, seasonal, long periods of time, or general.

Examples - The climate of Oviedo is warm and humid, with 53 inches of rain per year, 235 sunny days annually, and 0 inches of snowfall.

The main difference between climate and weather is time. Simply put, weather is recorded on a daily basis, while climate is measured over a span of many years.

Distances in Space

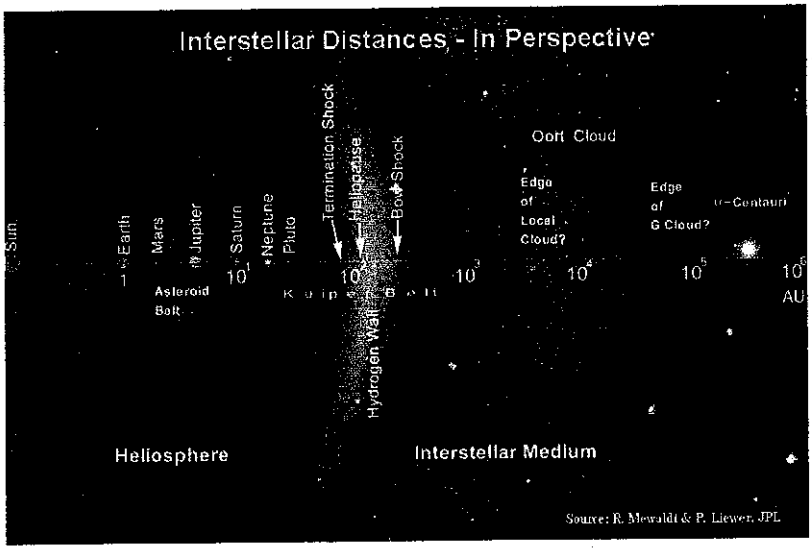
SC.8.E.5.1: Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.



This picture shows the relative sizes of the 8 planets in our solar system.

Earth Is 1 astronomical unit (AU) away from the sun. 1 AU is equivalent to about 93 million miles.

1 light-year is the distance light travels in a single Earth year. 1 light-year is equivalent to 63,239 AU, which is equivalent to 5.8784323×10^{12} miles.



This image shows different objects in our solar system and the distances between them.

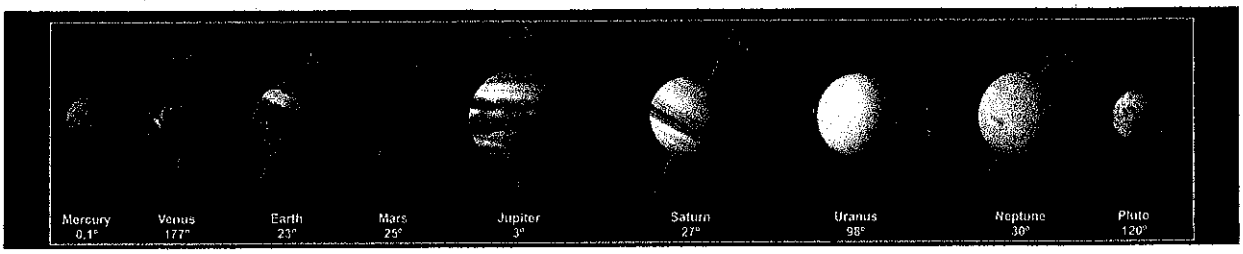
Katelan Cline

Objects in the Solar System

By: Jeremy Rockaway

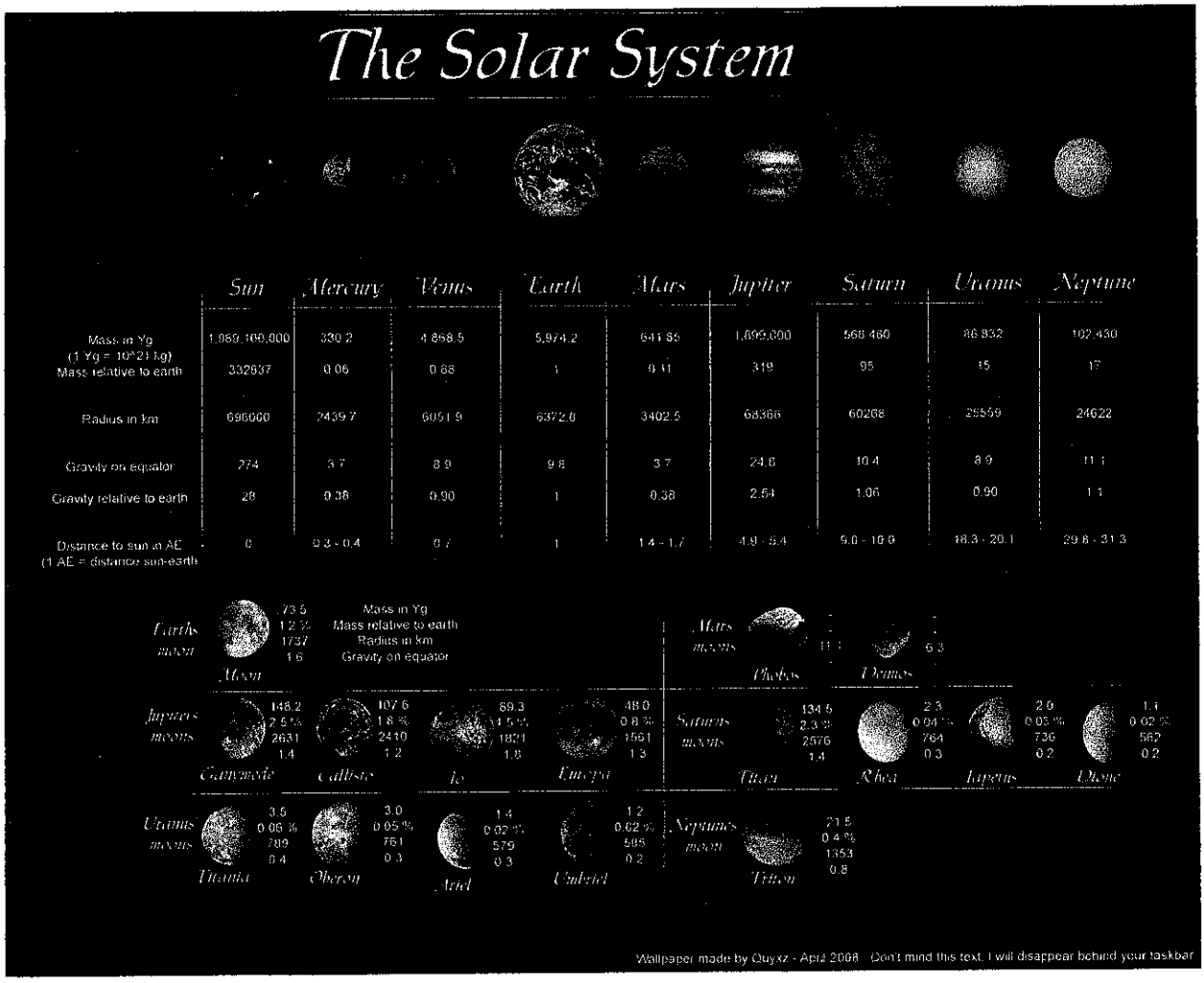
SC.8.E.5.7: Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.

- The order of the planets can be remembered by the saying "My Very Eager Mother Just Served Us Noodles"
- As distance from the sun increases, gravitational force decreases
- Each planet orbits the sun in an elliptical pattern, but the ellipsis increases as the distance from the sun increases due to gravitational force
- The amount of sunlight decreases as distance from the sun increases, so therefore the farther away from the Sun a planet is, the colder its temperature is
- Each planet's year, or the time it takes to revolve around the sun once, increases as the distance from the sun increases
- Each planet actually rotates at a slight angle, as shown in the graph below



Inner Planets	vs	Outer Planets
Small Size		Large size
Solid Surfaces		Made out of gases
Thin atmosphere, if any		Gaseous atmosphere
High density		Low density
Atmospheres different		Atmospheres very similar
Known to exist for a while		More recent discoveries
Spin slower/Long days		Spin faster/Short days
Not many moons		Many moons
No rings on any planet		Rings exist on some planets
Visited by many spacecraft		Visited by one spacecraft

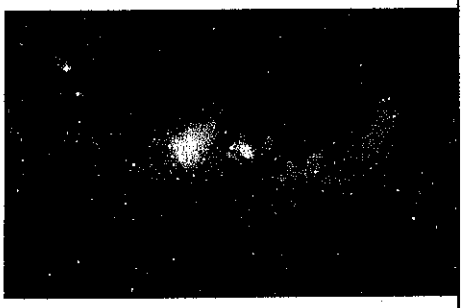
Statistics:


The Solar System
Sun
Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune
Mass in Yg (1 Yg = 10^21 kg)
1,989,100,000
330.2
4 868.5
5,974.2
641.85
1,899,000
568 460
86 832
102,430
Mass relative to earth
332837
0.06
0.68
1
0.11
319
95
15
17
Radius in km
696000
2439.7
6051.9
6372.8
3402.5
68366
60268
25559
24622
Gravity on equator
274
3.7
8.9
9.8
3.7
24.8
10.4
8.9
11.1
Gravity relative to earth
28
0.38
0.90
1
0.38
2.54
1.06
0.90
1.1
Distance to sun in AE (1 AE = distance sun-earth
0
0.3 - 0.4
0.7
1
1.4 - 1.7
4.9 - 5.4
9.0 - 10.0
18.3 - 20.1
29.8 - 31.3
Earth's moon
Moon
73.5
1.2 %
1737
1.6
Mass in Yg
Mass relative to earth
Radius in km
Gravity on equator
Mars moons
Phobos
11.8
Deimos
6.3
Jupiters moons
Ganymede
148.2
2.5 %
2631
1.4
Callisto
107.6
1.8 %
2410
1.2
Io
89.3
1.5 %
1821
1.8
Europa
48.0
0.8 %
1561
1.3
Saturns moons
Titan
134.6
2.3 %
2575
1.4
Rhea
2.3
0.04 %
764
0.3
Iapetus
2.9
0.05 %
736
0.2
Dione
1.1
0.02 %
562
0.2
Uranus moons
Titania
3.5
0.06 %
789
0.4
Oberon
3.0
0.05 %
761
0.3
Ariel
1.4
0.02 %
579
0.3
Umbriel
1.2
0.02 %
585
0.2
Neptunes moon
Triton
21.5
0.4 %
1353
0.8
Wallpaper made by Quyxz - April 2008 Don't mind this text, I will disappear behind your taskbar

Kayla Truhn P.5
9/26/14

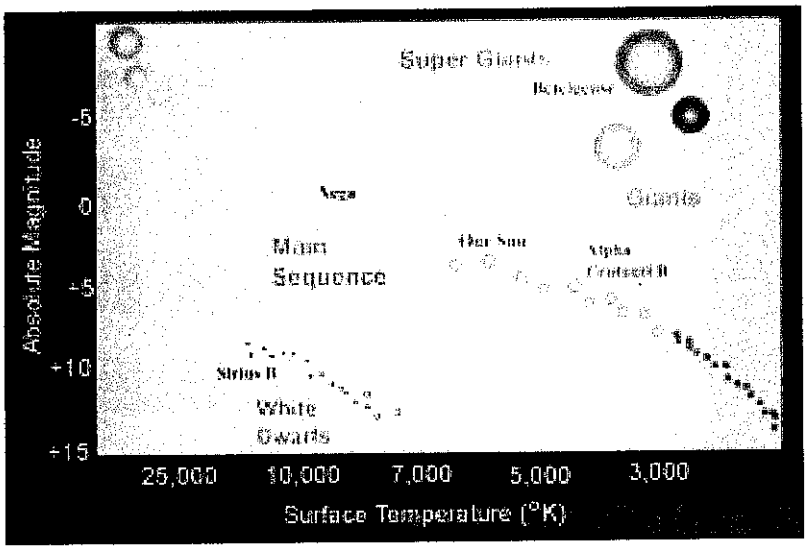
Stars and Galaxies in the Universe

SC.8.E.5.2: Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.



-A galaxy is a massive, gravitationally bound system consisting of stars, stellar remnants, an interstellar medium of gas and dust, and dark matter, an important but poorly understood component. There are probably a lot more to explore, but so far we know there are millions of galaxies out there with tons and tons of stars. Our solar system is in the Milky Way.

-A star is a massive, luminous sphere of plasma held together by its own gravity. The nearest star to Earth is the Sun, which is the source of most of the planet's energy. Our universe is filled with trillions and trillions of stars that are being born and dying. Apparent magnitude- is how bright a star really is. Absolute brightness (luminosity)- the brightness of a star as it appears from Earth.



-The Hertzsprung–Russell diagram is a scatter graph of stars showing the relationship between the stars' absolute magnitudes or luminosities versus their spectral types or classifications and effective temperatures. Scientists use this diagram to classify the main stars that we know of in the universe. This is very useful and we are able to understand and compare certain characteristics of all the stars.

(pg.2)

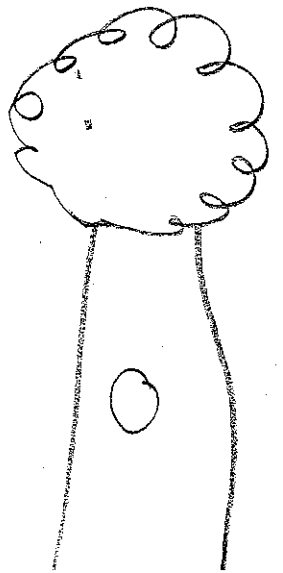
Punnet squares

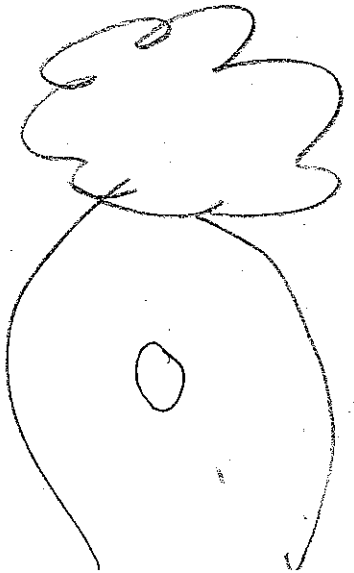
Two birds have A baby. the mom has a gene of (B)lue feathers the Dad has a gene of (R)ed. The Red gene is more Dominant.

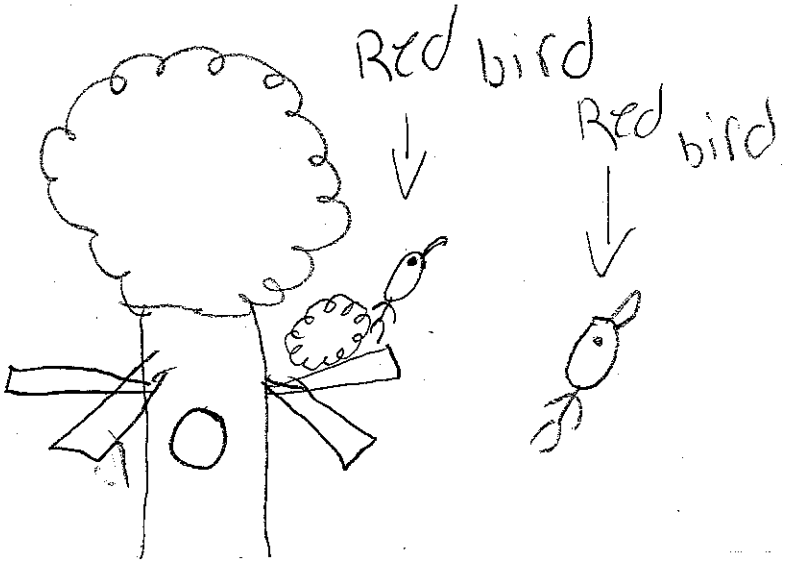
Rb	RR
Br	RC

(the baby bird will have Red feathers because it's more dominant)

(5 Red 2 blue)

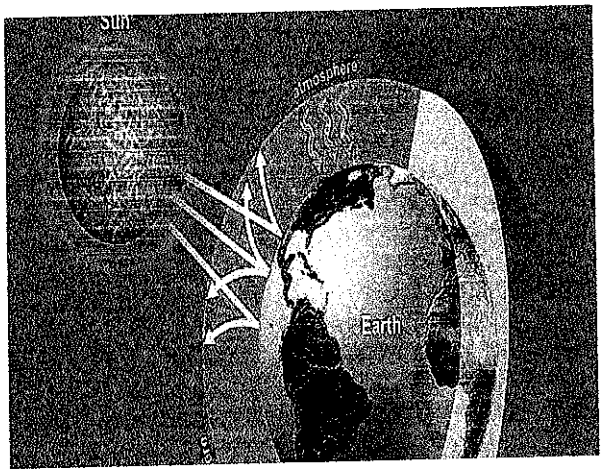






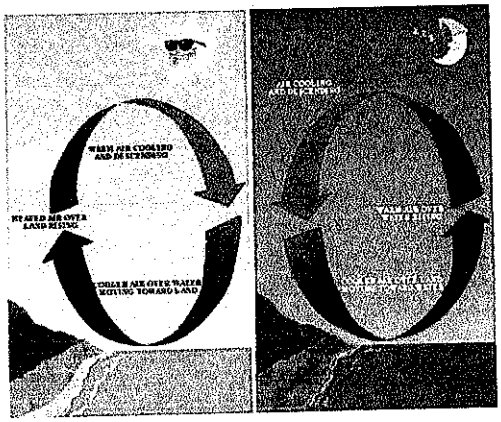
Nelliza Albin

SC.6.E.7.5: Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.

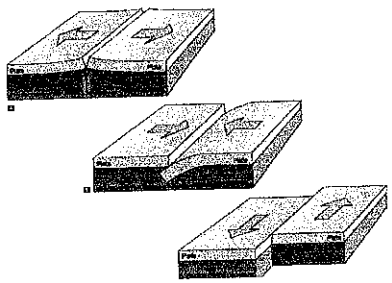


Solar energy. This energy is provided by the sun. The energy travels to the earth in electromagnetic waves. The waves heat air, water, and land.

Air, water, and land are three are affected by the heat of the Sun but not the same way. Air has the highest heat capacity than the rest. The heat capacity of an object is the amount need to heat up an object. Water had the second highest heat capacity. Lastly land has the lowest heat capacity which means it takes less heat and time to make land hot than air and water.



This process of heating causes convection currents. Convection currents are when cool air sinks and hot air rises. As convection currents rise and sink they cause plate movements. The plate movements can result in convergent boundaries, divergent boundaries, or transform boundaries

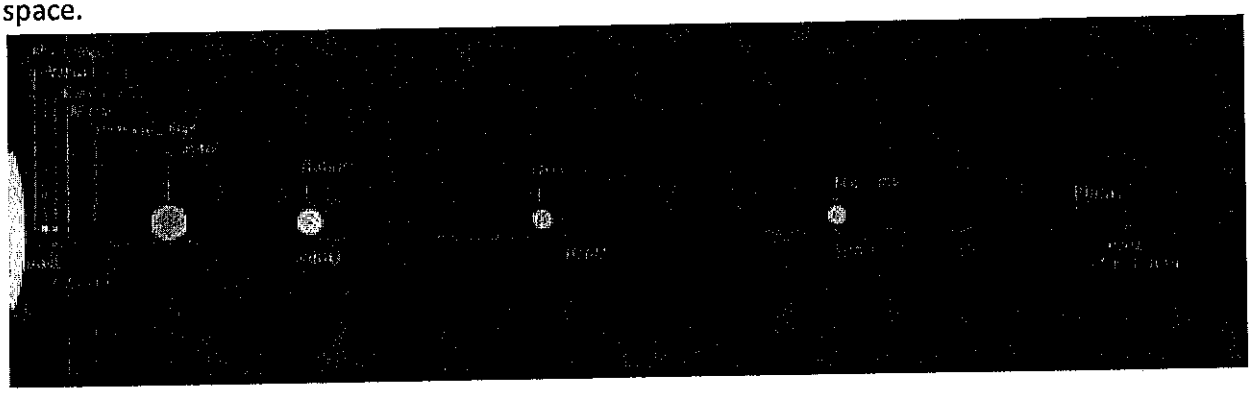


Justin Denning
Pd.5

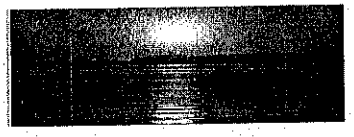
Distances in space

SC.8.E.5.1: Recognize that there are enormous distances between objects in space and apply our knowledge of light and space. Travel to understand this distance.

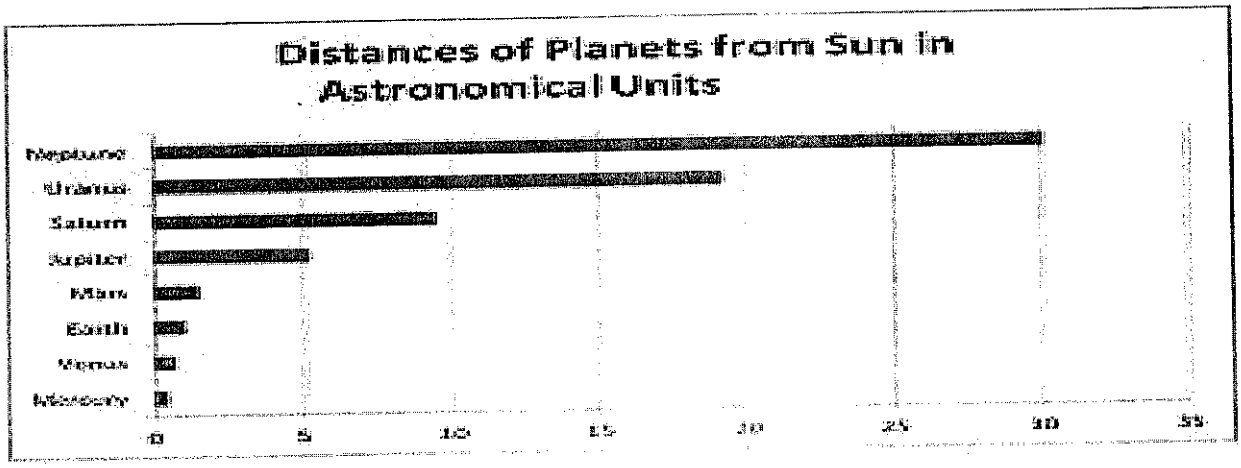
There are great distances in space. Weather it is from planet to planet or star to star. Stars can be just millions of miles away from each other, planets as well, along with other objects in space.



Light comes from the sun in our solar system and other stars we see. Since the sun in so large and bright, it can even be seen from Pluto and so on, just like many other stars we seen at night time here on planet Earth.



Distances in space are so great that scientists had to make a new unit to measure distance of objects in space, astronomical units (au). Astronomical units are equal to 149,597,871 kilometers (about 93 million miles) or the distance from Earth to the Sun.

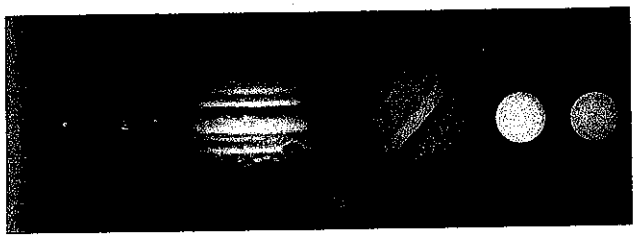


Danielle Askin

The Sun And The Moon Effect on Earth

THE SUN

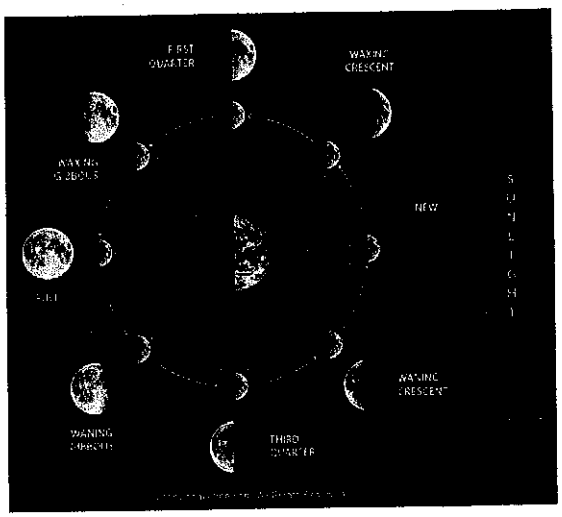
The sun has a huge effect on earth, not only it's light and heat supply. The Sun has a very strong gravitational pull, which keeps Earth in its orbit. If it wasn't as strong as it is, and Earth had drifted from the Sun since it formed, we would be somewhere around Mars or Jupiter by now. The Earth is tilted on it's axis. This causes seasons, because throughout the year, some parts of the Earth are in the shade and some are in the sun.



To scale model of our solar system.

THE MOON

The moons small gravitational pull combined with the Sun's pull, causes the tides on Earth.



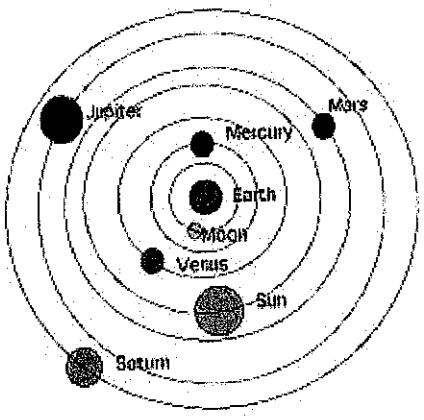
Our moon's phases.

To scale example of the distance from Earth to the moon.

A lunar eclipse is when the moon is directly behind the Earth and the Sun is in front of the Earth. A solar eclipse is when the moon passes between the sun and the Earth, or blocks out part of the Sun.

Mingyin Zhu

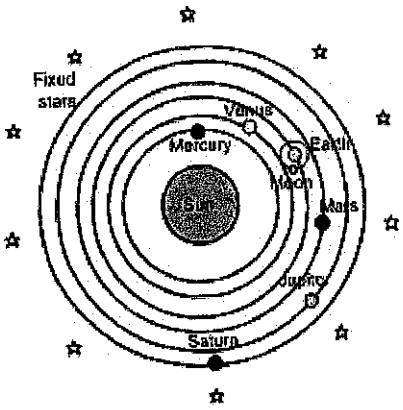
SC.8.E.5.8

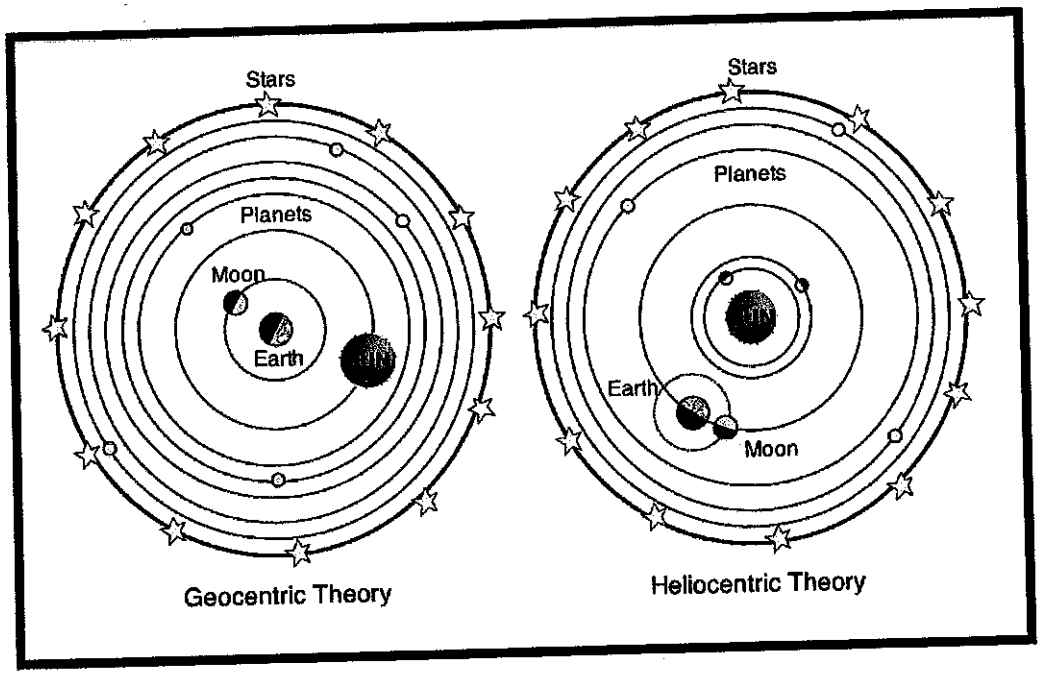


Compare various historical models of the Solar System, including geocentric and heliocentric.

The geocentric model was the most common model of how our solar system rotated back in Ancient Greece. It is also called the Ptolemaic system because it was developed by Claudius Ptolemy. In this model, the earth is in the center and all of the other planets and our Sun revolved around the earth.

The heliocentric model has the planets orbiting around the sun. It was thought of as early as 200 B.C. In the 1500s, Copernicus, a Greek astronomer, created his own version of the heliocentric model based on past astronomers' notes and theories. His model became very well-known and eventually replaced the geocentric model. It was very hard for the heliocentric model to replace the geocentric model, though. The Roman Catholic Church, which was very powerful at that time, tried to suppress the heliocentric model.





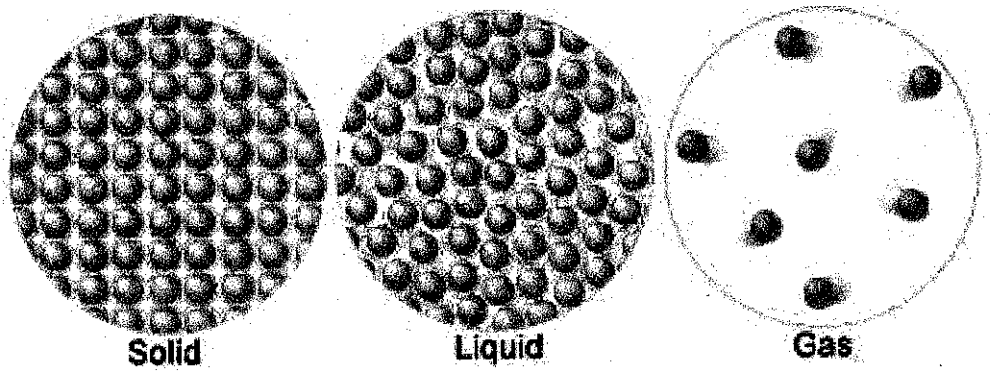
This picture shows the comparison of the geocentric model (left) and heliocentric model (right).

There were also many variations of these two models. As technologies began to advance, models became more and more accurate.

Olivia
J. B.

SC.7.P.10.3 Recognize that light waves, sound waves, and other waves move at different speeds in different materials.

Sound, light, energy, and more all travel in waves. Before I get into why they travel at different speeds through different materials, first let me review the basics. Matter can be a solid, liquid, or gas. In a gas, the particles are spread out, while in a solid the particles are tightly packed together, and in a liquid they're somewhere in between.



Since most waves travel through matter, then they most of the time will be travel through one of these three things. Now, looking at the diagram above, you can see that the particles in a solid would have to go less distance to bump into one another than in a solid or liquid. This is because solids are denser, which means that they have more matter in a given space.

Now take sound for example. Sound waves absolutely must travel through matter, and the faster the wave travels the faster the sound hits your ear. The wave only travels faster when the particles in the matter are bumping into them at a faster pace, and in denser objects the particles bounce off each other quickly because the particles are tightly packed and don't have to go far to hit one another.

So to recap, waves travel through different things at different speeds based on how closely the particles are packed, which is the density of the object.

SC.7.L.17.2 Compare and contrast the relationships among organisms, such as mutualism, predation, parasitism, competition, and commensalism.

Before comparing/contrasting two or more things, you must know what those things are. So:

Mutualism: a relationship between organisms in which both organisms benefit

Predation: a relationship between organisms in which one organism attacks and feeds on the other organism (doesn't really work out for the one being fed on, huh?)

Parasitism: a relationship between organisms in which one organism benefits and the other is harmed

Competition: a relationship between organisms in which they are competing for use of food and other resources

Commensalism: a relationship between organisms in which one organism benefits and the other is unaffected

As you can see, all of the above describe ways in which organisms interact with one another. All but competition involve at least one organism benefiting from the interaction, and in parasitism, predation, and completion, at least one organism is harmed in some way.

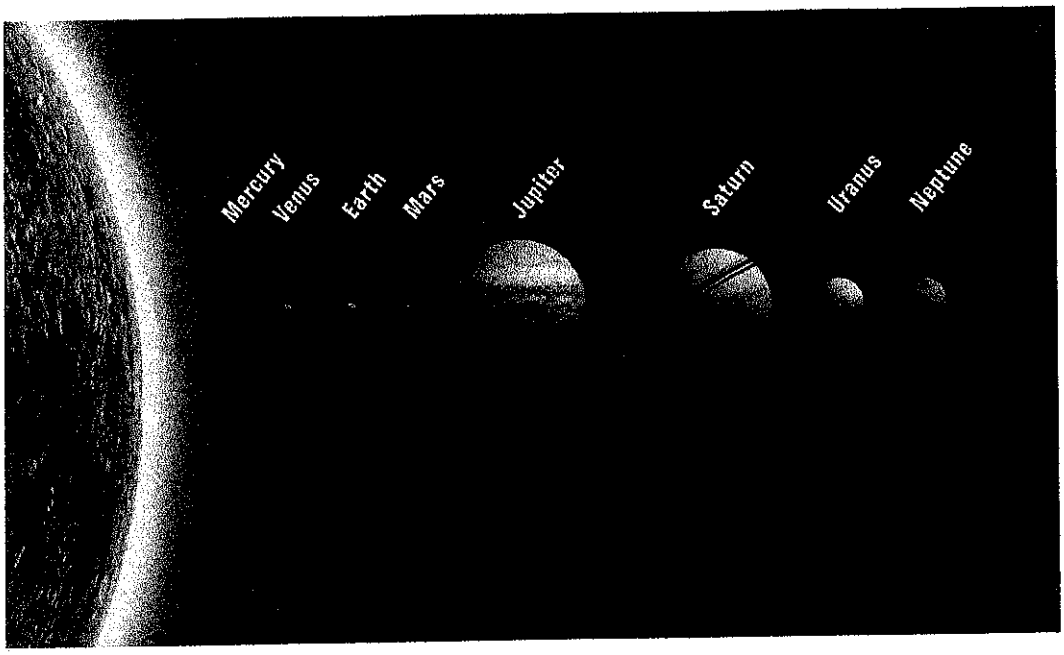
In the above picture, all of those species of birds are competing over the same resources in that particular area, and while it may not appear that any of them are being harmed, having to share resources may cause one species' extinction.

Here the ferocious ladybug devours its prey in a gruesome and terrifying display of predation.

Relative Distance, Size, and Composition

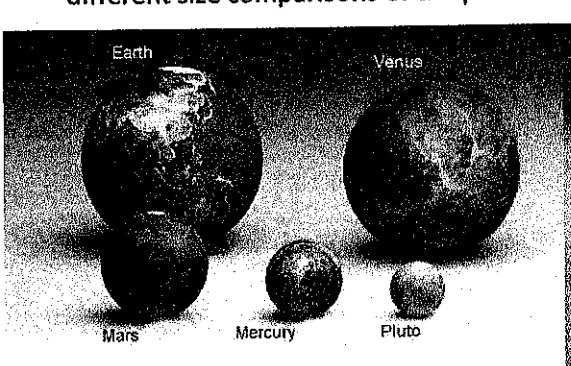
SC.8.E.5.3

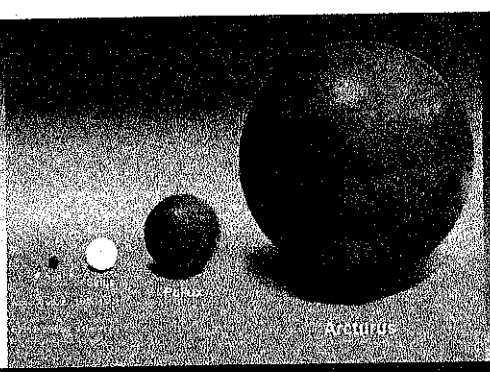
Distinguish the similarities and differences between, the planets in our solar systems and beyond, and their distance, size, and composition.

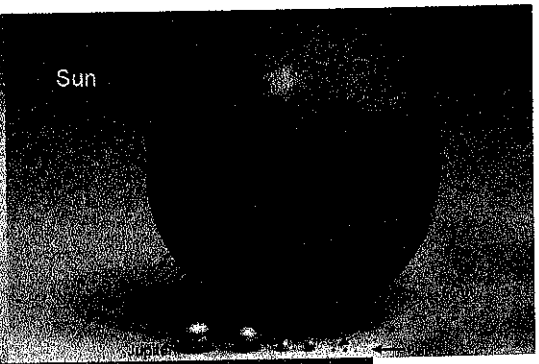


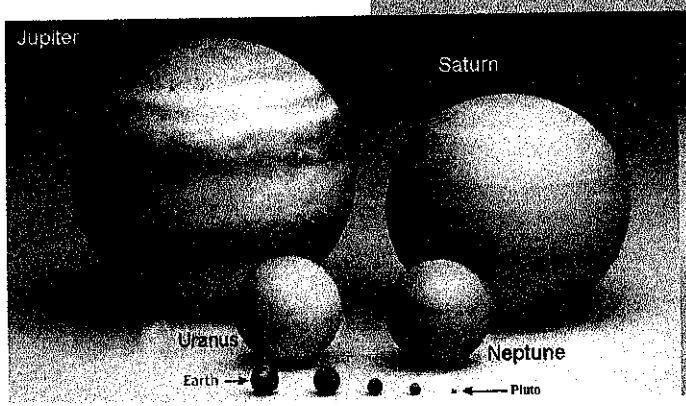
Units that are used on Earth are far too small to be practical in terms of distance of objects in space. This is why scientists came up with special units to measure distance in larger quantities that are used to measure distances in space. The first unit is an Astronomical Unit (AU). This unit was created to the relativity of the Earth to the sun. The distance between Earth and the sun is one AU, or 149,597,871 kilometers (92,955,807.3 mi). Light years are another measurement of distance in space. Light years are much larger than AU, measuring the distance light travels in a year which is around 9.4605284×10^{12} kilometers ($5.87849981 \times 10^{12}$ mi).

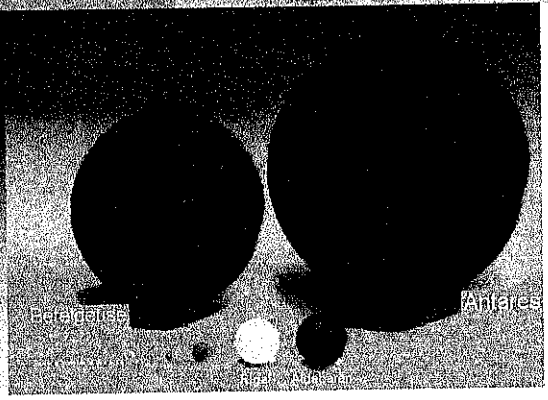
Earth is a rather small speck of dust in the large scale of the universe. Just our sun is, in terms of volume, about 1,300,000 times larger than planet Earth. Our solar system is a tiny part of our universe. Our solar system belongs to the Milky Way galaxy, which exists with all of the other billion of galaxies in our universe. Out of all of these planets, stars, and galaxies, there are only 118 different elements scientists have found that all matter is composed of. Below are different size comparisons of the planets and the sun in our solar system.









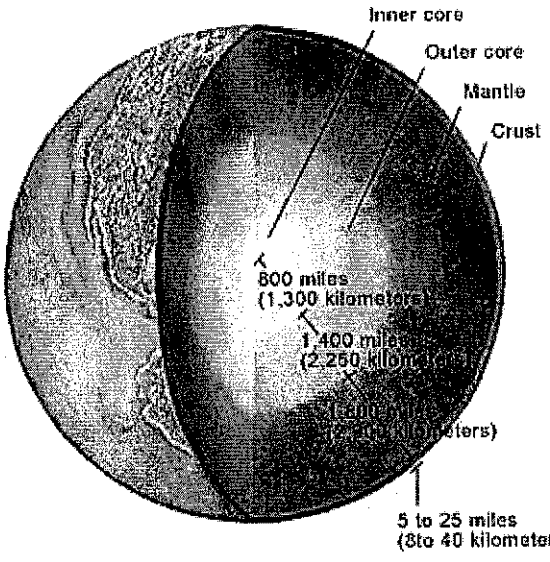


The Layers of Solid Earth

Parks Peters

There are many layers of the solid Earth. After all, Earth is just a bunch of different materials thrown together with a gravitational pull. You may be wondering what the layers of Earth consist of, and I'm here to explain that!

The layers of the Earth consist of the crust, mantle, outer core, and inner core.



As you can see, these are the layers of Earth and how large they are.

The crust is made of dense rock, while the Mantel is basically a hot convection current that stimulates heat. The outer core consists of metallic liquids of high heat level, while the inner core is an *extremely* dense solid.

The lithosphere consists of the crust and the upper most part of the mantel.

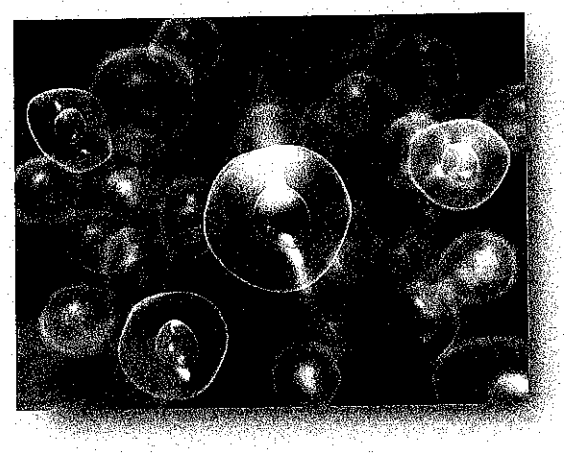
Emma Parkes

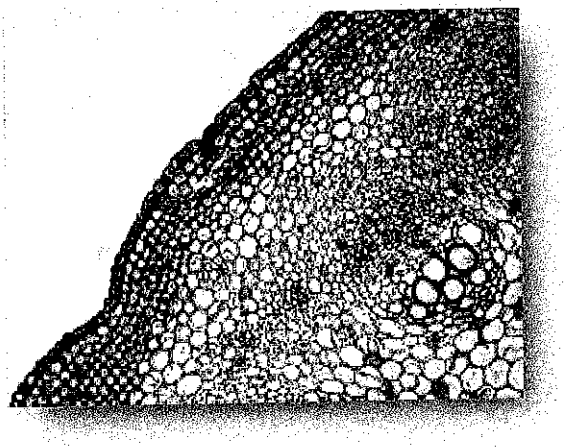
Cell Theory

SC.6.L.14.2: Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multi-cellular), all cells come from pre-existing cells, and cells are the basic unit of life.

In the scientific theory of cells (cell theory), it explains that:

- All organisms are made up of one or more cells
- All cells come from pre-existing cells
- Cells are the basic unit of life





Facts on cells/cell theory

Cell theory is basically a scientific theory that describes properties of cells.

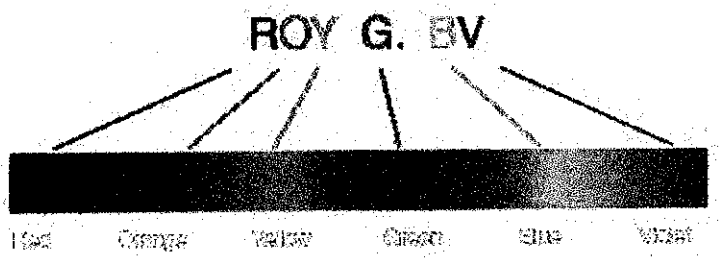
Robert Hooke first discovered the cell in 1665 while examining cork

The cell theory is true for all living things, small or big.

Scientists can use cells to study reproduction and growth

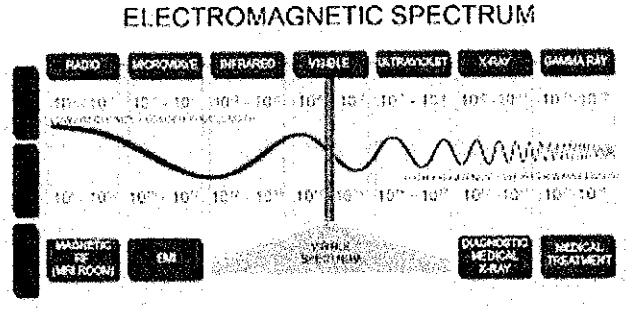
SC.8.E.5.11

The Electromagnetic spectrum has various wave from radio, the smallest in frequency, to gamma, the largest in frequency and which has the greatest energy.



In the middle of the electromagnetic spectrum, there is what is known as the visible light range. This is a part of the spectrum in which we can see, and where color comes from. You can remember the order of colors by ROY G. BIV for Red, Orange, Yellow, Green, Blue, Indigo, and Violet.

The closer you get to the left of the spectrum, the greater the wavelength, and the less the frequency and energy, and the closer you get to the right of the spectrum, the greater frequency and energy, and less wavelength. The more energy a wave has, the more hazardous it can be.



The type of waves in the electromagnetic spectrum are as follows. Radio, Micro, Infrared, Visible light, Ultra-violet, X-Ray, Gamma.

Waves can be used in planetary images, and satellite photographs, because, radio waves can be used to show radio emissions in space, whereas infrared waves can show the heat levels of things in space and even on the Earth to show their safety, temperature-wise.

Sarah Preston Pd. 6

THE SOLAR SYSTEM

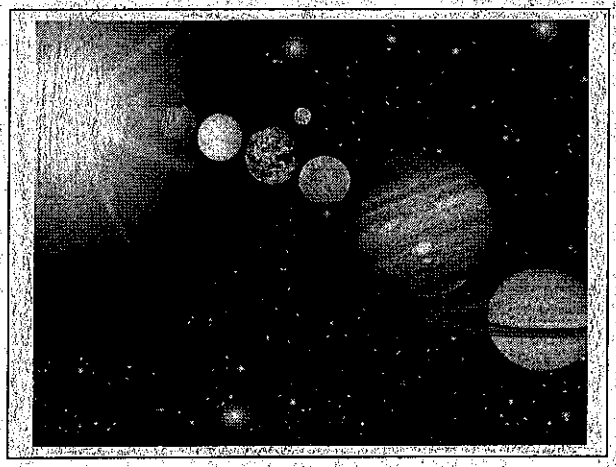
- The solar system is made up of many different planets, stars, and moons.
- The planets are all in orbit around the sun.
- The planets in order from closest to father from the sun are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.
- Some of the planets have moon(s) that orbit around them. Mercury-0, Venus-0, Earth-1, Jupiter-63, Saturn-62, Uranus-27, Neptune-13

Each planet in the solar system has gravitational force acting on it:

Sun	27.9
Mercury	0.37
Venus	0.88
Earth	1.00
Moon	0.16
Mars	0.38
Jupiter	2.64
Saturn	1.15
Uranus	0.93
Neptune	1.22

Distance from the sun:
Mercury: .39 AU
Venus: .72 AU
Earth: 1AU
Mars: 1.52 AU
Jupiter: 5.20AU
Saturn: 9.54AU
Uranus: 19.18 AU
Neptune: 30.06 AU

Temperature of each planet:
Mercury: 254 F
Venus: 802 F
Earth: 32 F
Mars: -130 F
Jupiter: -320 F
Saturn: -317 F
Uranus: -453 F
Neptune: -448 F



	Orbital Distance (AU)	Mass (earths)	Diameter (earths)	Rotational Period (days)	Orbital Period (years)	Density (earths)
Sol	0.0	330,000	109.2	25.4	...	1.42
Mercury	0.4	0.06	0.38	59	0.24	0.98
Venus	0.7	0.81	0.95	243	0.62	0.95
Earth	1.0	1.00	1.00	1.00	1.0	1.00
Mars	1.5	0.11	0.53	1.03	1.9	0.71
(Ceres*)	2.8	0.00015	0.07	0.38	4.6	0.38
Jupiter	5.2	317.8	11.2	0.42	11.9	0.24
Saturn	9.5	95.2	9.4	0.44	29.4	0.12
Uranus	19.2	14.5	4.0	0.72	83.7	0.23
Neptune	30.1	17.2	3.9	0.67	163.7	0.30

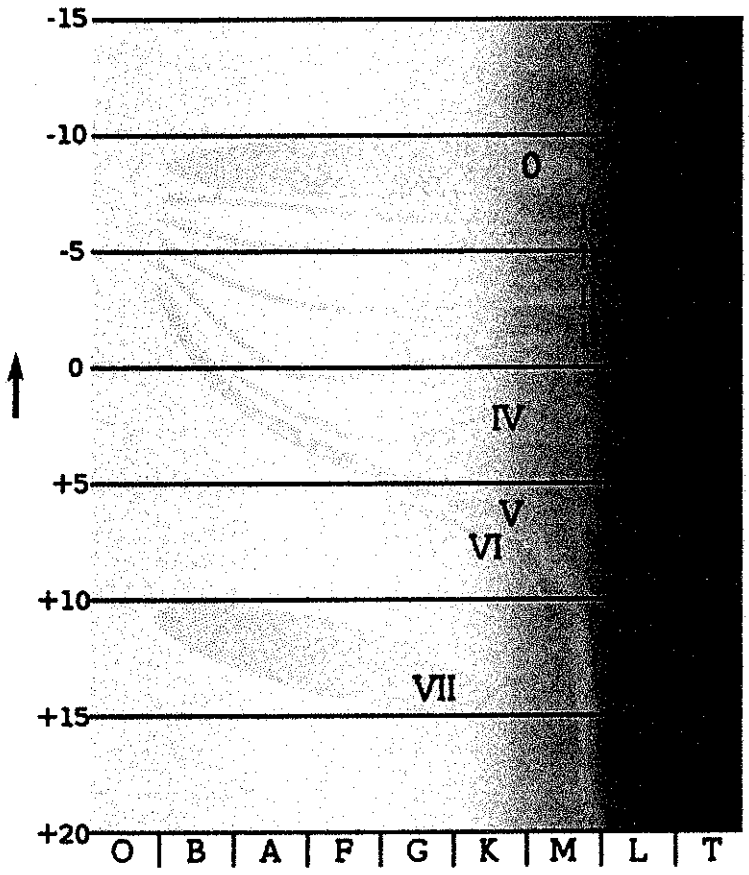
Michael Johnson

Physical properties of stars

The physical properties of stars are apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).

Apparent magnitude- The apparent magnitude of a star is a measure of its brightness as seen by a person on earth.

Temperature- A stars temperature is related to its color, with red being the least hot and blue being the hottest.



Size- A stars size reflects its age. The sizes from smallest to largest are dwarf, giant dwarf, dwarf supergiant,

giant, supergiant, and hypergiant.

Lumosity- Lumosity (absolute brightness) is the actual brightness of a star. It is the opposite of apparent magnitude.

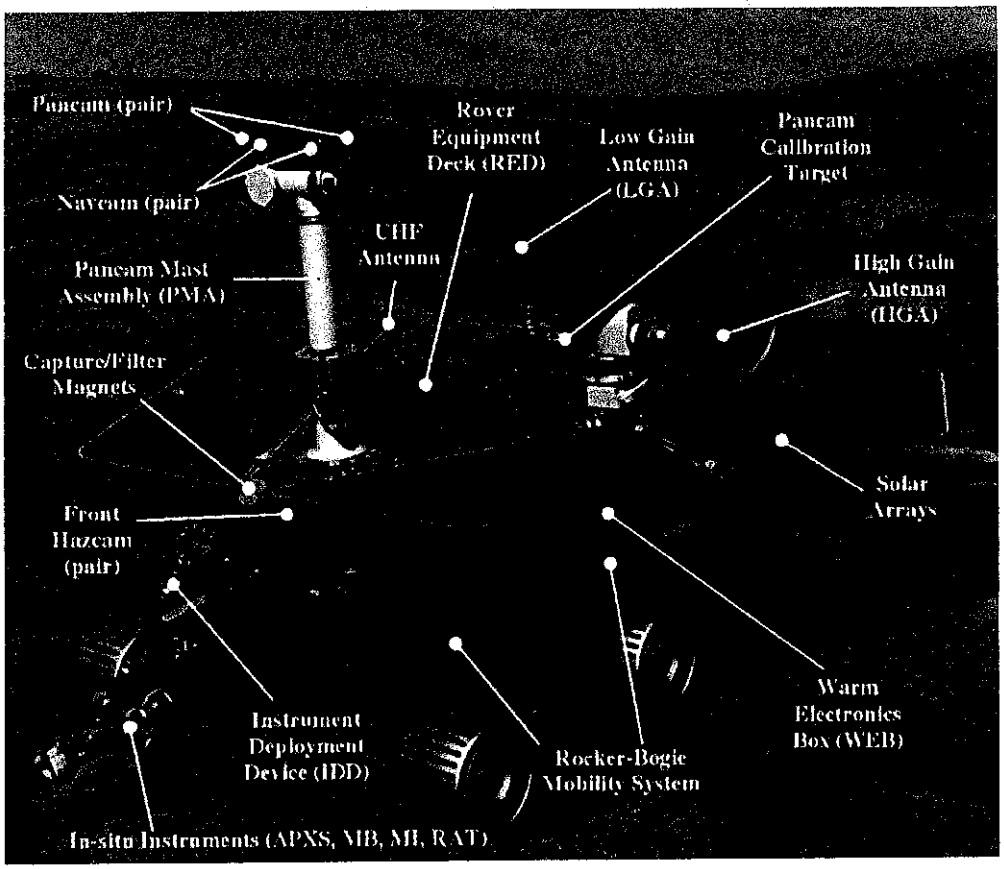
Abby Arthur
February 25, 2013 FCAT PAGE 2 STANDARD

Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.

Thesis Statement: Technology is very important to science in so many ways. Without technology we never would have been able to explore space, or collect any data about it. We use cameras to learn about the geography on other planets as well as computers to computers to organize information.

For example, the Mars Rover, could not possibly collect all of the data about the geology of Mars if it didn't have

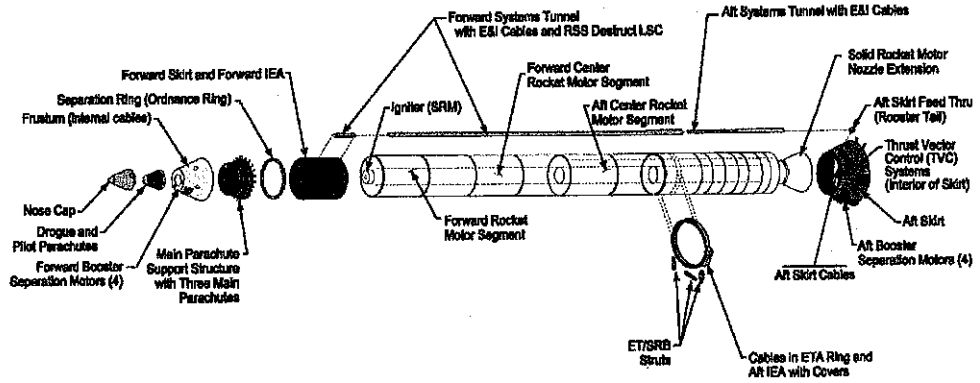
1. Computers to process information
2. Layers of insulation
3. Cameras and other scientific instruments
4. Batteries and solar panels
5. Antennas for speaking and listening

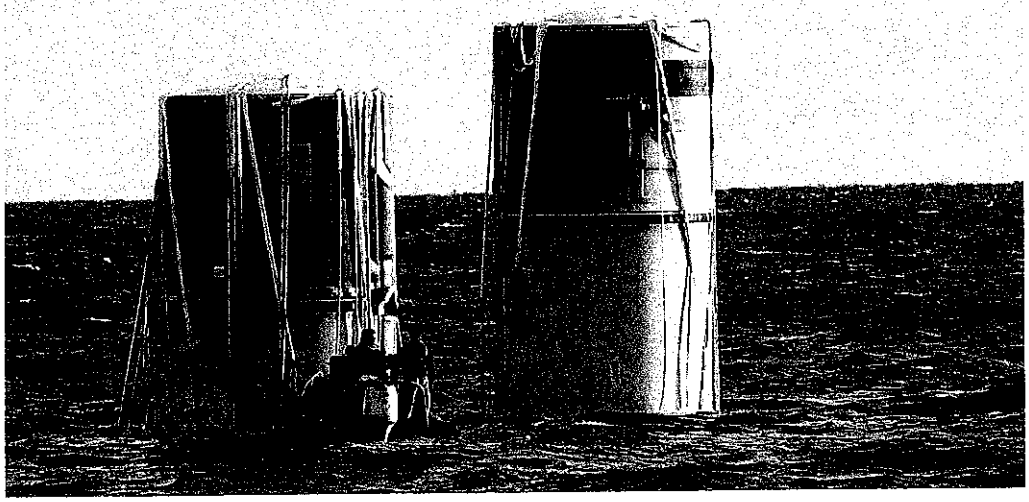


The Space Shuttle could not even have a safe mission without all of the people in Mission Control to make sure everything is going all right, and help them out. They need technology to make sure that the

external tank and solid rocket boosters to make sure that these will and in the ocean, and they need to be able to get to the international space station, do their mission, and get back to Earth.

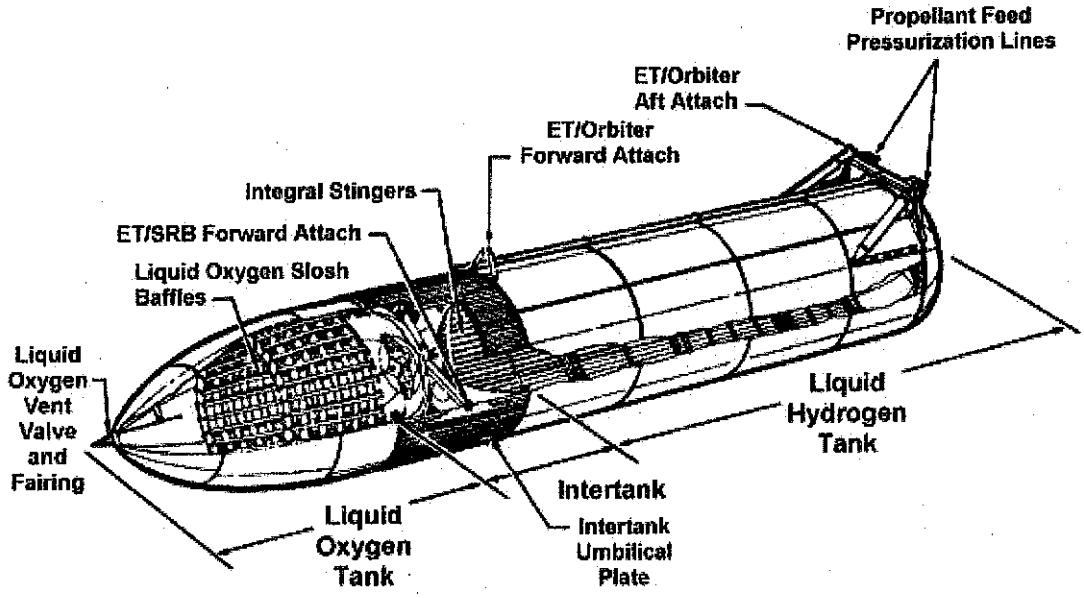
Technology is one of the main reasons science is able to advance.

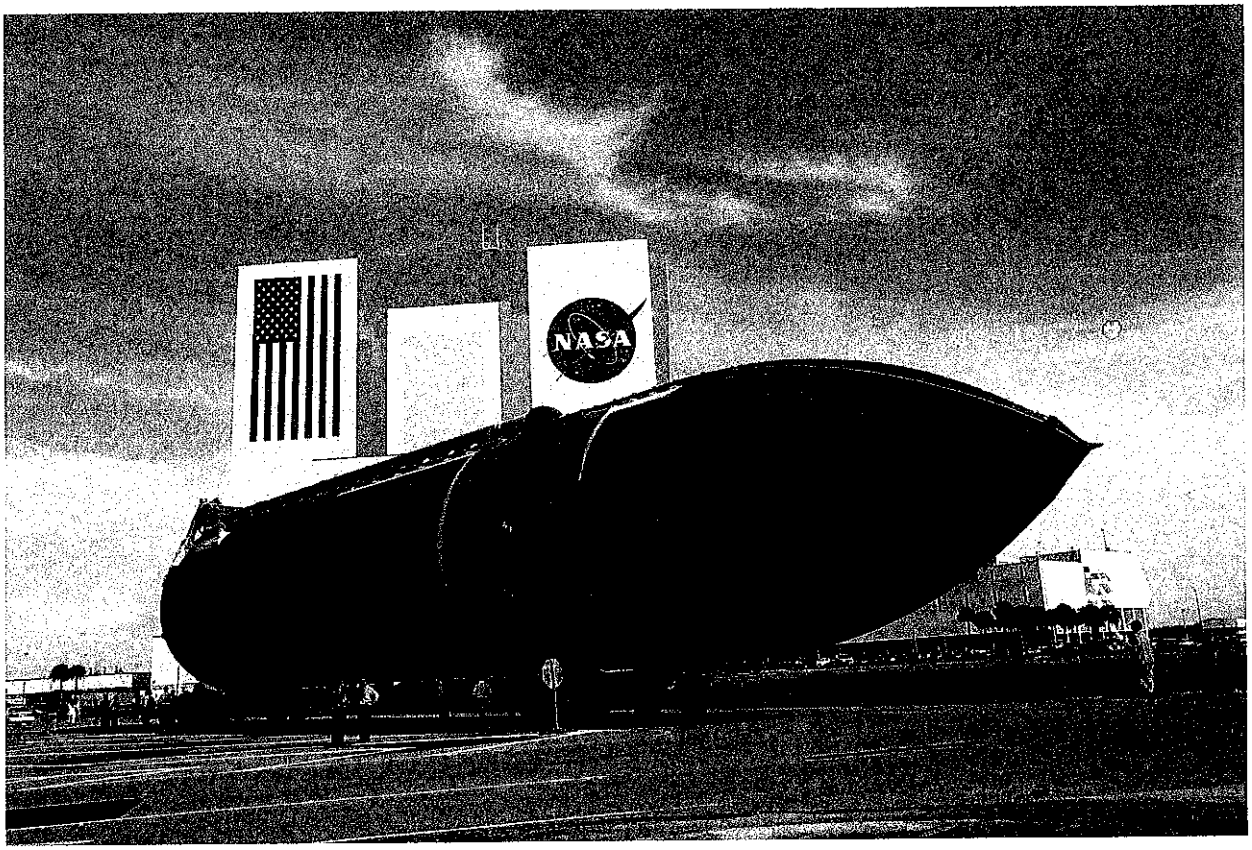




Abby Arthur
February 25, 2013

FCAT PAGE 2 STANDARD



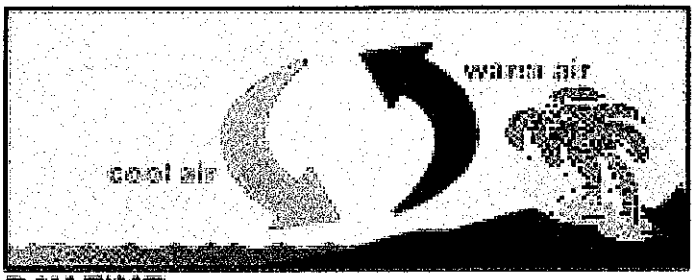


Solar Energy

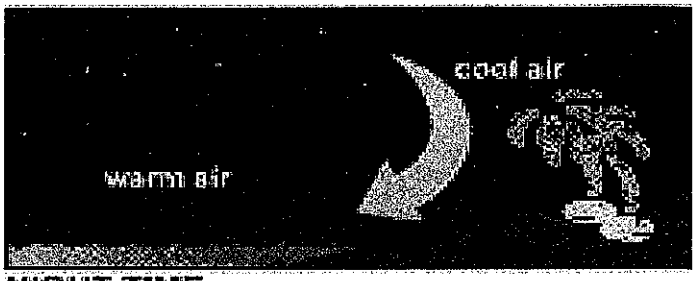
SC.6.E.7.5:
Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.

Water takes longer to be heated by air than land does due to it's physical properties. When the water is heated since it is then evaporated and then cooled again by the atmosphere temperature.

The cooler water during the day rushes onto the hotter water where it is then cycled back into the air. This process occurs several times over and over again creating a convection current. Convection currents cycle warm air (less dense) up into the higher part of the atmosphere where it is then cooled and falls back down till it is reheated then rises again.



DAY TIME



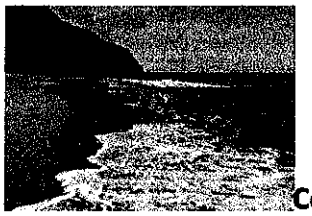
NIGHT TIME

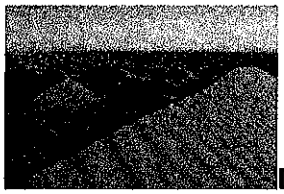
The suns energy is used to heat land and water where it is then able to be cooled. Thermal energy from the sun affects the atmospheric movement and can create various climates in regions.

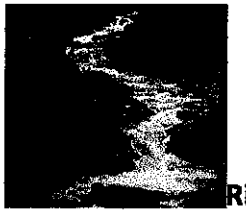
LANDFORMS

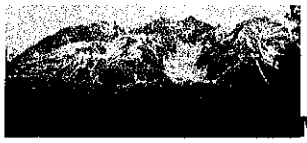
SC.6.E.6.2

A **landform** is any geomorphic structure on the surface of the Earth. Examples of landforms include:

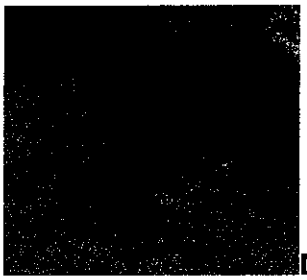

Coastlines-the land and water adjacent to a shoreline


Dunes- mounds of drifted sand formed by wind found in deserts or around sea coasts

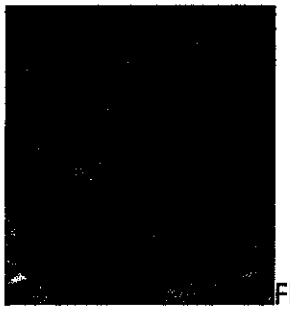

Rivers- streams of water having a definite course that converge at various channels


Mountains- elevations of earth's surface caused by shifts in tectonic plates

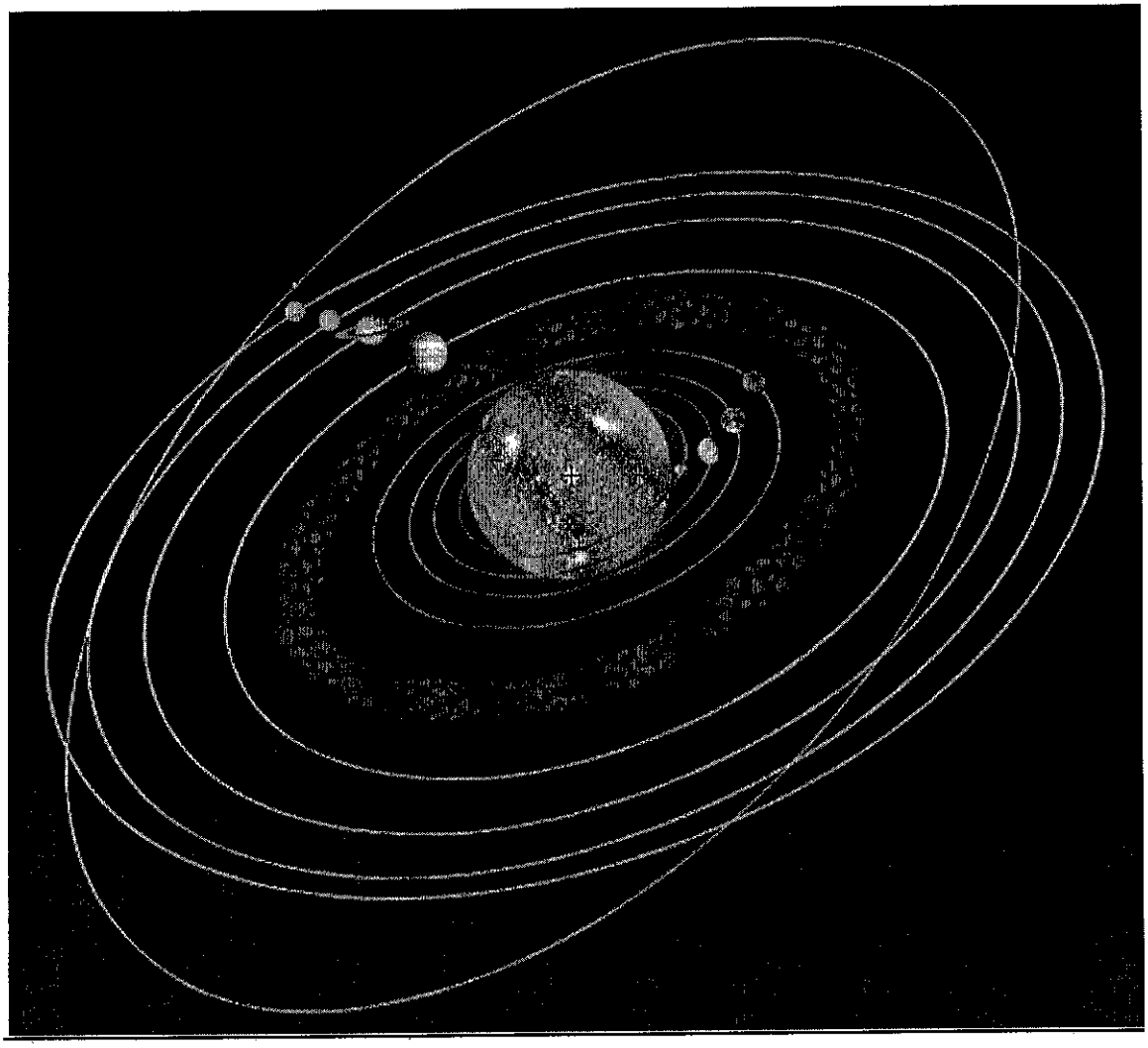

Glaciers- slow moving masses of ice formed from accumulated snow. Continental glaciers spread out from masses of ice and alpine glaciers move down from high valleys


Deltas- masses of sediment formed from sand and rock being carried and deposited at the mouth of a river


And **lakes**-bodies of fresh or salt water

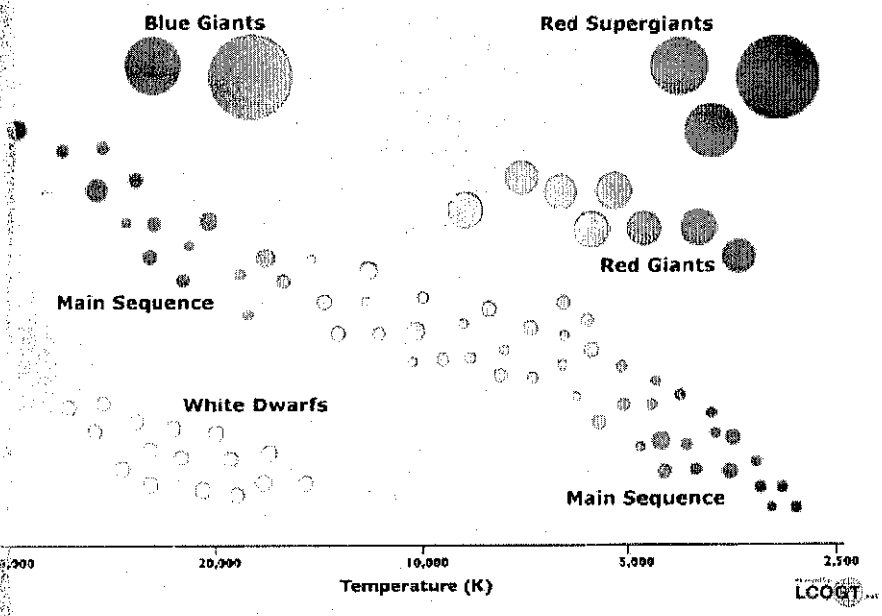

Florida, being a peninsula, is almost entirely bordered by coastlines, many of which have small sand dunes. There are also many lakes and rivers of different sizes. However, there are no mountains; it has small altitudes overall. There are also no glaciers near Florida because it is close to the equator and has a hot climate.

<u>The law of universal gravitation-</u>a law stating that any two masses attract each other with a force equal to a constant multiplied by the product of the two masses and divided by the square of the distance between them.
The strength of the force of gravity between two objects depends on the mass and the distance.
All large collections of mass, which includes both stars and planets, are formed when **gravitational attraction** causes that material to come together.

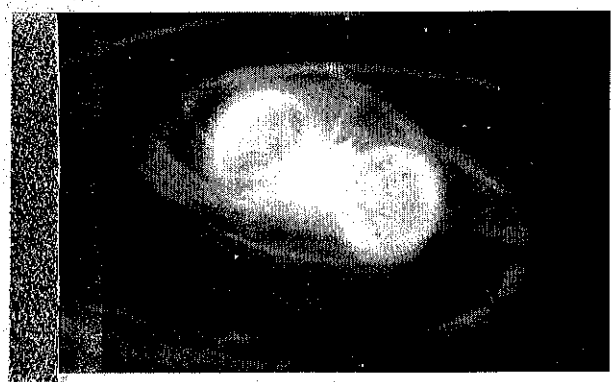


The sun's mass makes it have more force of gravity on the other planets.

STARS



This is the hertzsprung russel diagram. It classifies the stars in to age, brightness, and tempurture. Red super giants are the oldest of the bunch; also the coolest of the stars. Blue giants or white dwarfs are the hotest stars in the solar system. White dwarfs and blue stars are new stars that are just born or created and also the hottest of the hottest stars, reaching tempurtures of 40,000 kelvins.



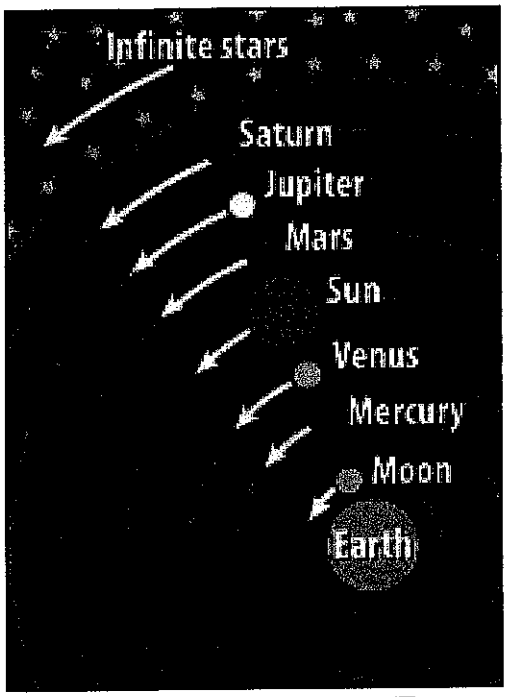
White dwarfs are just forming here in this picture. White dwars are either created from extreme presure or extreme heat. Super novas create a lot of stars including white dwarfs.

Devin fox

Comparing Historical Models of the Solar System

Page Two Standard: S.C.8.E.5.8: Compare various historical models of the Solar System, including Geocentric and Heliocentric

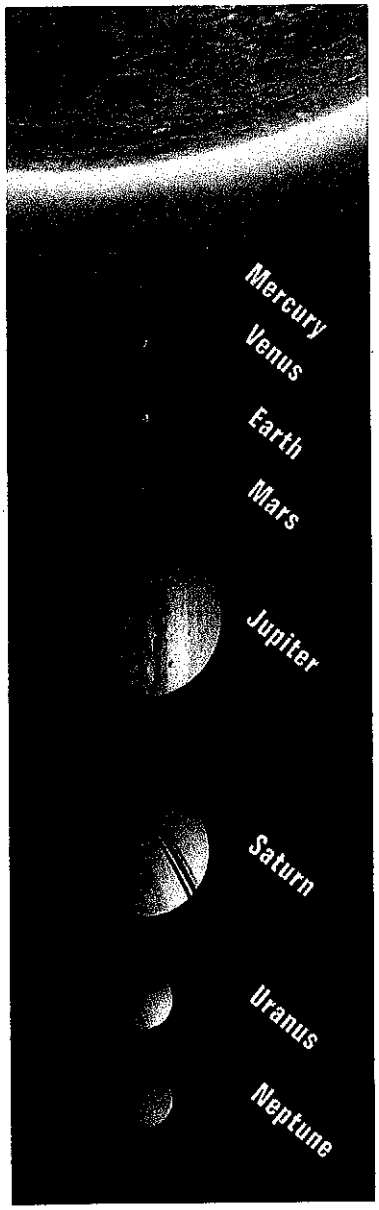
By: Alyssa Martin
2-22-14
Period 7



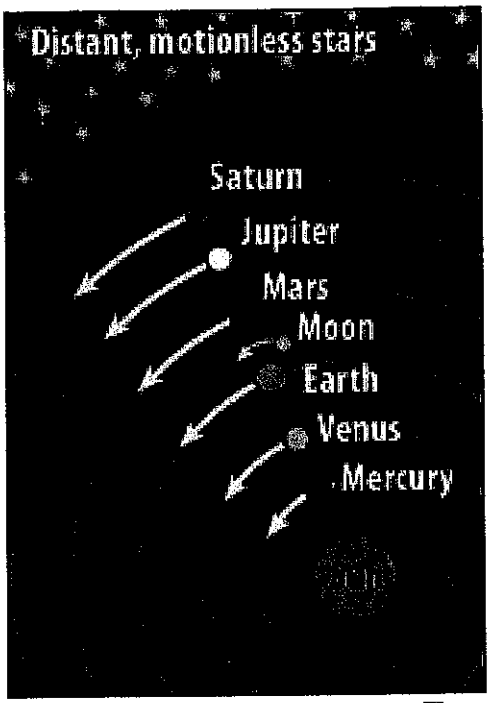
Geocentric

The Geocentric model is also called Earth-centered model. Claudius Ptolemy came up with this diagram in Ancient Greece. He believed the Earth was the center of the universe and it did not move or rotate. He also thought the Sun, Moon and all other planets rotated around the Earth. This model was widely accepted for many years. But, of course, the model was eventually proven wrong by Galileo Galilee.

Pictures From:http://amazing-space.stsci.edu/resources/explorations/groundup/lesson/basics/g37/ and http://en.wikipedia.org/wiki/Solar_System



This is the current model of the solar system. We now know much more about our solar system and beyond, but there is still a lot to learn.



Heliocentric

The Heliocentric model is also called Sun-centered model. This model shows the planets rotating around the Sun and the Moon rotating around the Earth. This model was made by a Polish astronomer named Nicolaus Copernicus. His diagram was later proven correct by Galileo. At first many people didn't like Copernicus's model. Still there were some things wrong with his original model. For example the Sun is not in the center of the universe. It is the center of our solar system.

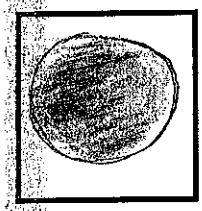
Vis Pham

Planetary Science

SC.8.E.5.7- Compare and contrast the properties of objects in the Solar System, including the Sun, planets, and moons to those of the Earth, such as gravitational force, distance from the sun, speed, movement, temperature, and atmospheric conditions.

Planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

The Sun



Size: 2,715,395 miles (4.730, 005km) circumference

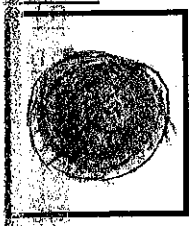
Gravitational Force: 27.9 (if Earth is 1)

The Sun has 6 layers *(including the atmosphere)*, they are the: Core, Radiative Zone, Convection Zone, Photosphere, Chromosphere, and Corona

Sunspots- are dark spots that appear on some regions of the sun. These spots are on the Photosphere.

Solar Flares- are usually active near sunspots. Solar flares are intense releases of energy on the sun's surface. Solar flares also occur on the Photosphere.

Venus



Moons: No moons

Gravitational Force: 0.88 (if Earth is 1)

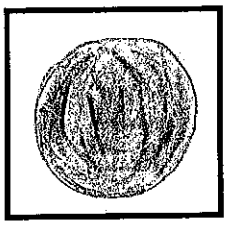
Distance from Sun: 0.72 AU

Orbit: 225 days **Temperature:** 460°C (860°F)

Speed: 35.02 km/per sec OR 78,342 miles/per hour

Atmosphere: Venus's atmosphere is made out of carbon dioxide

Mercury



Moons: No Moons

Gravitational Force: 0.37 (if Earth is 1)

Distance from Sun: 0.39 AU

Orbit: 88 Days

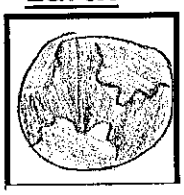
Speed: 48 km/per sec OR 107,372 miles /per hour

Temperature:

- **Sunny Side-** 400°C (750 °F)
- **Dark Side-** -200 °C (-328 ° F)

Atmosphere: No Atmosphere

Earth



Moons: 1

Gravitational force: 1.00

Distance from the Sun: 1 AU

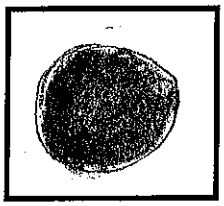
Orbit: 365¼ days

Temperature: an average of about 15°C

Speed: 1,000 mph

Atmosphere: Nitrogen, Oxygen, Argon, Neon, Helium, and Methane.

Mars



Moons: 2

Speed:86854.19 km/ per hour

Gravitational Force:0.38 (if Earth is 1)

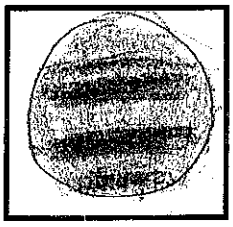
Temperature: Average of -60°C

Distance from the Sun:1.5 AU

Orbit: 687 days

Atmosphere: carbon dioxide, nitrogen, argon, trace of oxygen, water vapor, and other gases

Jupiter



Moons: 64

Speed:47,002 km/h

Gravitational Force: 2.64 (if Earth is 1)

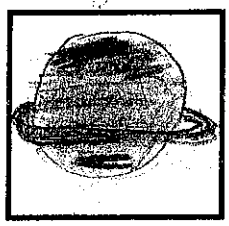
Temperature:145 degrees Celsius

Distance from the Sun: 5.2 AU

Orbit: 12 years

Atmosphere: hydrogen, ammonia, sulfur, methane, and water vapor

Saturn



Moons: 18

Speed: 34,884 km/ph

Gravitational Force: 1.15 (if Earth is 1)

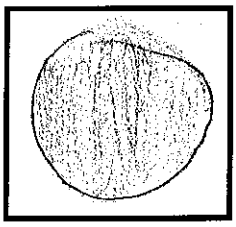
Temperature: -178 degrees Celsius

Distance from the Sun: 9.5 AU

Atmosphere: hydrogen, helium and methane

Orbit: 29 years

Uranus



Moons: 27

Temperature: **224 °C**

Gravitational Force: 0.93 (if Earth is 1)

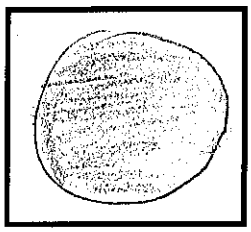
Distance from the Sun: 19.2 AU

Atmosphere: hydrogen and helium

Orbit: 84 years

Speed: 24,607 kilometers per hour

Neptune



Moons: 13

Temperature: -200 Celsius

Gravitational Force: 1.22 (if Earth is 1)

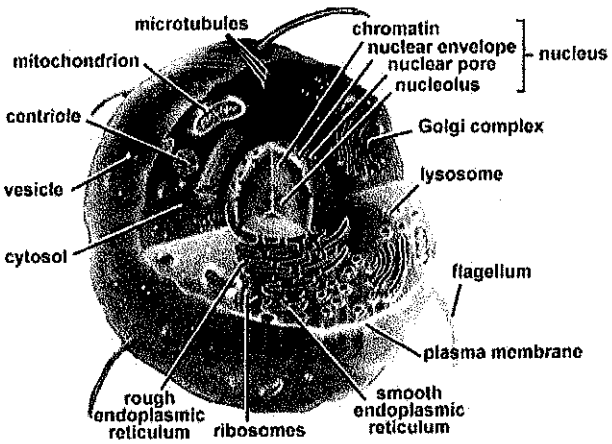
Distance from the Sun: 30.1 AU

Orbit: 165 years

Speed: 19,720 kilometers per hour

The Scientific Theory of Cells

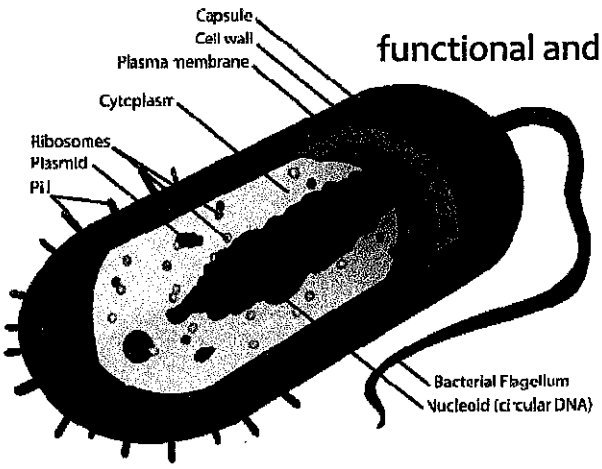
SC.6.L.14.2 Investigate and explain the components of the scientific theory of cells (cell theory): all organisms are composed of cells (single-celled or multicellular), all cells come from pre- existing cells, and cells are the basic unit of life.



There are many parts to a cell and they all have a specific function. Cells make up everything, they a re the basic unit of life.

The cell theory was made in 1838. A man named Matthias Schleiden had three conclusions of his observations that stated the first formation of the cell theory. Two of his theories were right and one was wrong. Now, we know from lots of other investigations and observations from other scientists that the basic cell theory states:

- The basic unit of structure is a cell.
  - This means that the cell is the structural unit of all things living.
- All organisms are made of cells and they are the basic building blocks of life.
  - This means everything around you living is made up of cells.
- All cells are made from cells that already exist by division.
  - This means that cells are not coming from anything else besides a cell.



functional and

Jackson Wydra

Wave Speeds

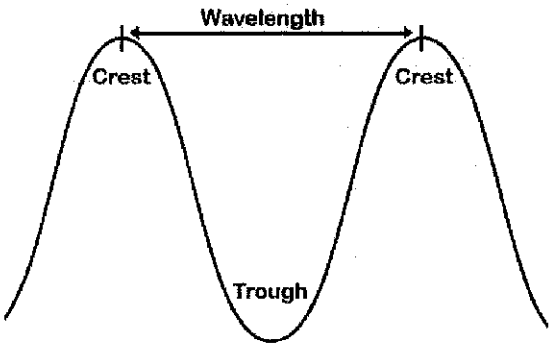
All waves move at different speeds depending on the medium that they are traveling through.

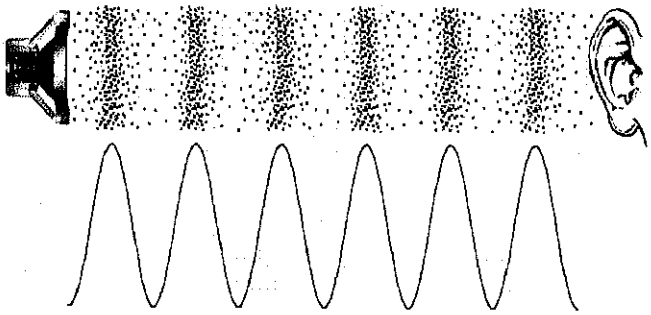
Related Terms

- Electromagnetic waves: "A wave produced by the acceleration of an electric charge." Dictionary.com
- Sound waves: Waves that vibrate the medium they are traveling through to create sound.
- Frequency: The amount of crests that pass in a wave during a particular amount of time.
- Wavelength: The distance between crests in a wave.
- Medium: Matter that a wave travels through.

Facts

- All electromagnetic waves travel faster when put in a vacuum then if they were traveling through a medium.
- Sound waves require a medium to travel through.
- The frequency and wavelength of a wave do not affect its speed.
- The one and only thing that affects a waves speed is the medium it travels through.



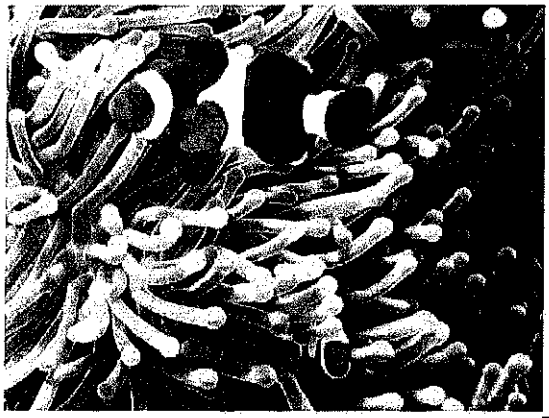


Relationships of Organisms

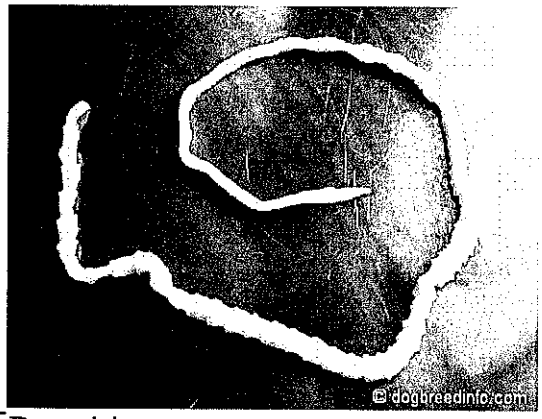
Organisms have relationships that can either benefit one or both of the organisms. The types of relationships they can have are mutualism, predation, parasitism, competition, and commensalism.

Related Terms

- Organism: An animal, single celled organism or plant.
- Symbiosis: An interaction or relationship between two living organisms.
- Mutualism: A symbiosis in which both organisms can benefit.
- Predation: "A relation between animals in which one captures and feeds on the other" Dictionary.com
- Parasitism: A symbiosis in which one organism benefits while the other is harmed.
- Competition: When two organisms fight for the same resource such as food.
- Commensalism: A symbiosis between organisms in which on benefits and the other is neither benefited nor harmed.



Mutualism



Parasitism

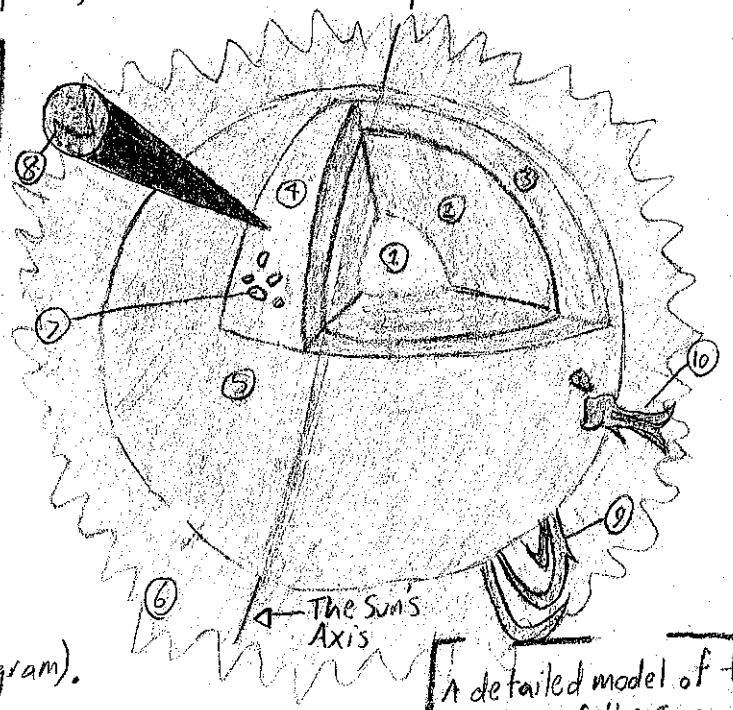
THE SUN

SC.8.E.5.6: Create models of solar properties, including rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.

What is the Sun?

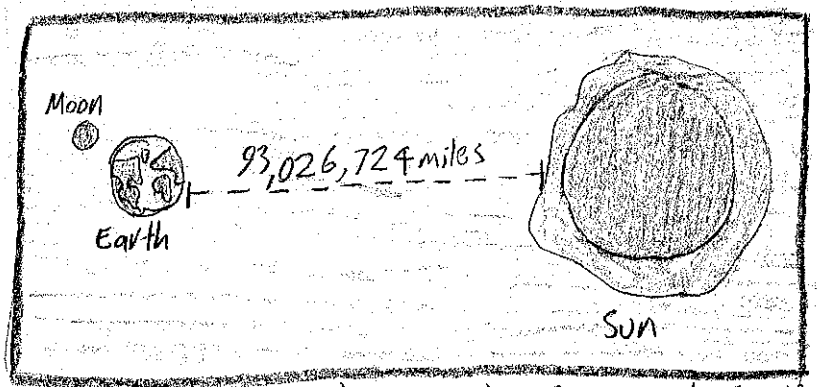
"The Sun is the star at the center of the Solar System" -via Wikipedia
All the planets in the Solar System, including Earth, revolve around the Sun.
The Sun rotates counterclockwise just like the other planets. It rotates on a tilted axis.
Convection in the Sun is in the Convective zone (#3 on diagram) which causes the visual effect of boiling on the Sun's surface, called granulation (#8 on diagram).

1. Core
2. Radiative zone
3. Convective zone
4. Photosphere
5. Chromosphere
6. Corona
7. Sunspot
8. Granules
9. Prominence
10. Solar flare



A detailed model of the structure of the Sun.

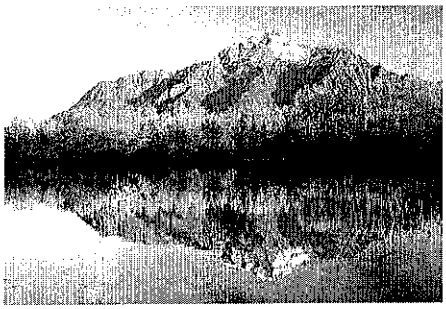
1. The core is the center of the Sun.
2. The radiative zone is the next layer out from the core. This layer emits radiation.
3. The convective zone is the next layer where the Sun's convection occurs.
4. The photosphere is the lower atmosphere of the Sun and is the part that we see as it emits visible light waves.
5. The chromosphere is a reddish layer which is a few thousand miles thick. This layer is visible during solar eclipses.
6. The corona is the outer layer of the the sun's atmosphere.
7. The sunspot is a cool, dark spot on the Sun's surface.
8. The granules are regions of the Sun where hot solar material comes to the solar surface.
9. The prominence is an arc of gas that comes out from the Sun's surface.
10. The solar flare is a magnetic storm on the Sun that looks like a very bright spot and a gaseous surface eruption.



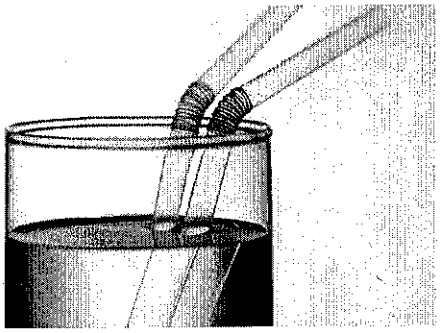
The distance between the Sun and Earth is 93,026,724 miles or 1 astronomical Unit.

Sc.7.P.10.2 Observe and explain that light can be reflected, refracted, and/or absorbed.

Reflected- When waves bounce off an object.



Refraction- Rays of light that bend or change direction. This occurs when the light rays change speed. They enter a new medium at an angle.



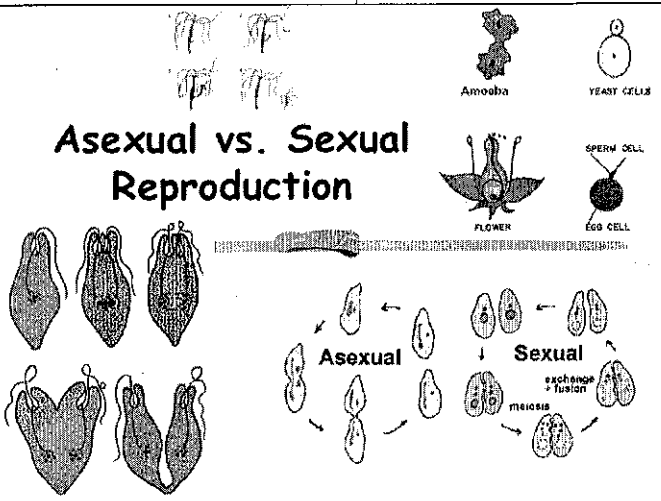
Absorption- Light waves that are getting soaked up by a material.

Examples:	Absorption- Shirts
Reflection- Mirrors	
Refraction- Raindrops	

SC.7.L.16.3- Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.

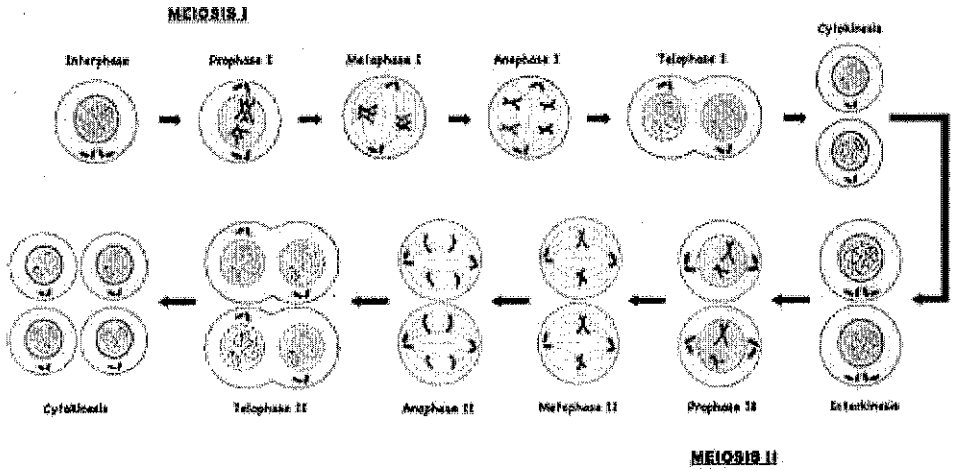
What is Reproduction? A creation of a new individual.

Sexual Reproduction	Asexual Reproduction
Two individuals produce offspring. That have similar DNA.	One individual produces offspring that is identical to itself



What is Meiosis? Meiosis is the process of cells dividing. Organisms that are produced sexually, during meiosis they divide into four nuclei. Which halves the number of chromosomes.

Stages of Meiosis.

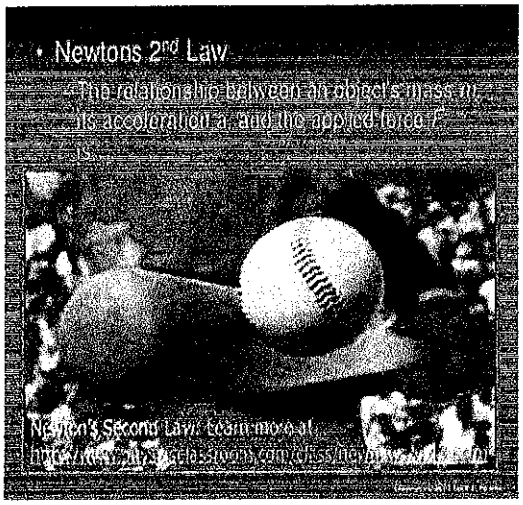


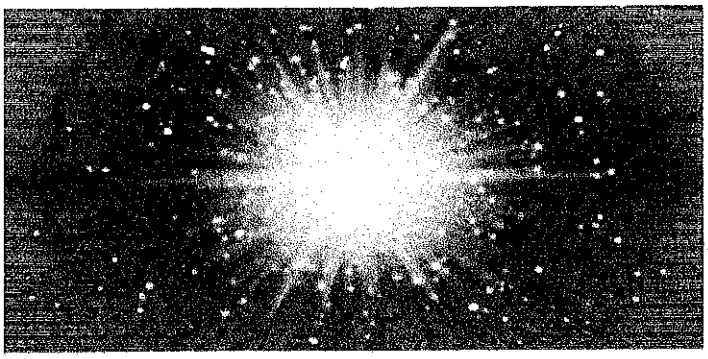
Max
Oahm

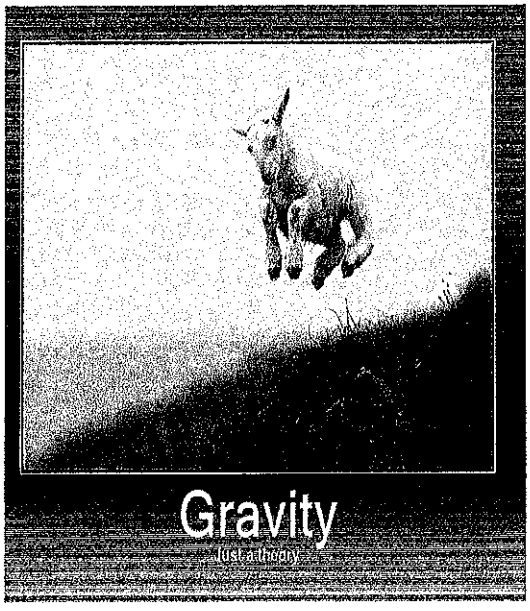
Theories and laws

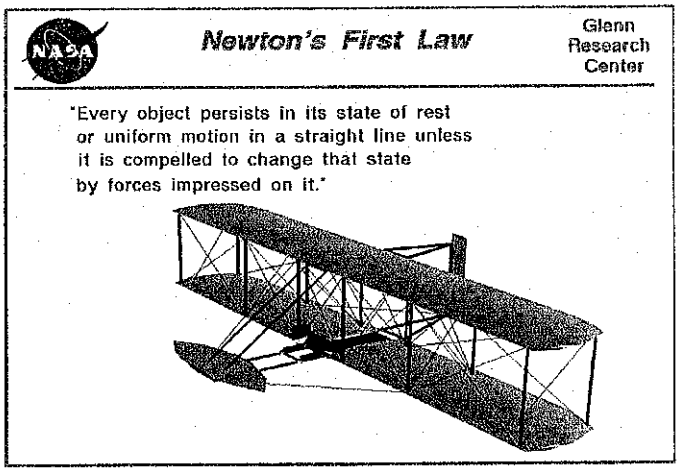
A law is mathematical relationship that is always proven true. The most famous of all laws is Einstein's e=mc^2
A theory is a scientific explanation of an observed phenomenon. Theories explain why things are the way they are unlike laws. A theory is a rule that describes a pattern in nature but does not explain why it happened.

Ex. the Big Bang is a theory cause its not proven.
Ex.Newtons laws of motion is a law cause it's proven every time.
Ex. The idea of gravity is a proven law.

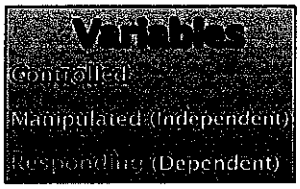




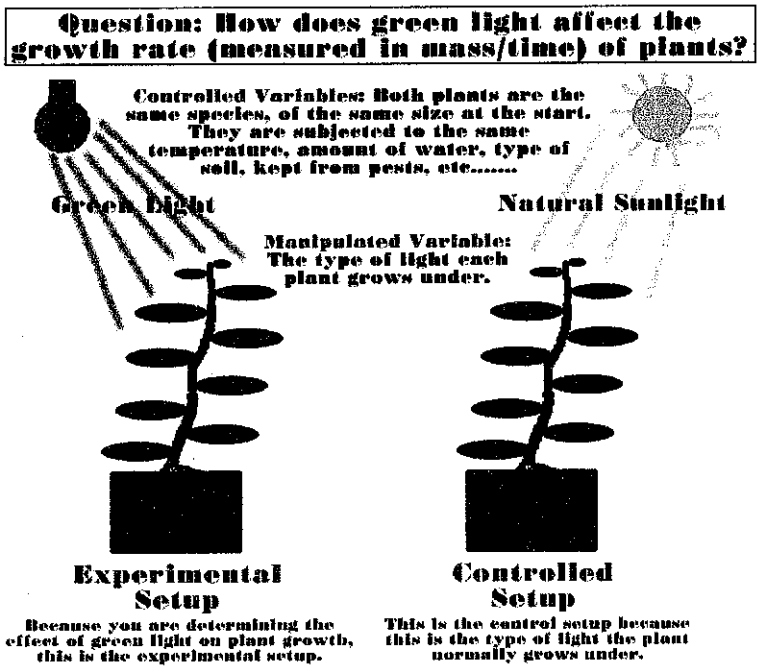




Emily Compton



Scientist call factors in an experiment variables. Experiments should be reasonable tests. You do a reasonable test by making sure that you change one factor at a time while keeping all other factors and conditions the same. a test variable is the one thing you plan to be different in an experiment sometimes referred to as the independent or controlling variable. The independent variable is a variable that's variation does not depend on that of another. The control variable is something that is constant and unchanged in an experiment. The dependent variable is a variable that's value depends on another.

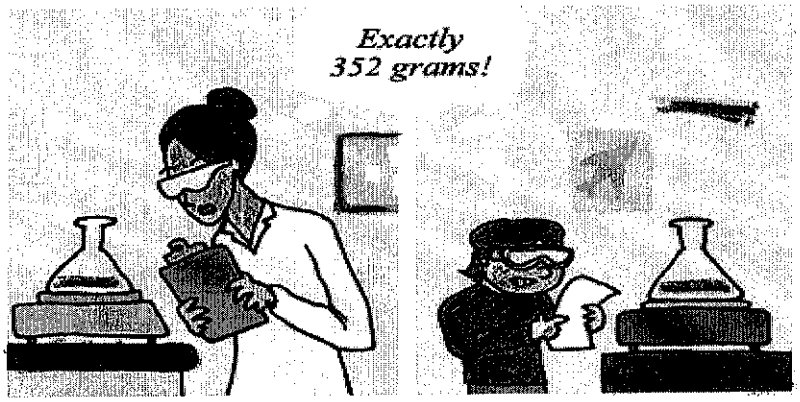


The three main variables used in an experiment or modeling are independent variables which is a variable that is being manipulated in an experiment in order to observe the effect on a dependent variable. Also the independent variable represents the inputs or causes, or are tested to see if they are the cause. The "dependent variable" represents the output or effect, or is tested to see if it is the effect. And the control variable this variable is the only variable that always stays the same, it is used for comparing to the dependent and independent variables to make sure the test is reasonable and fair.

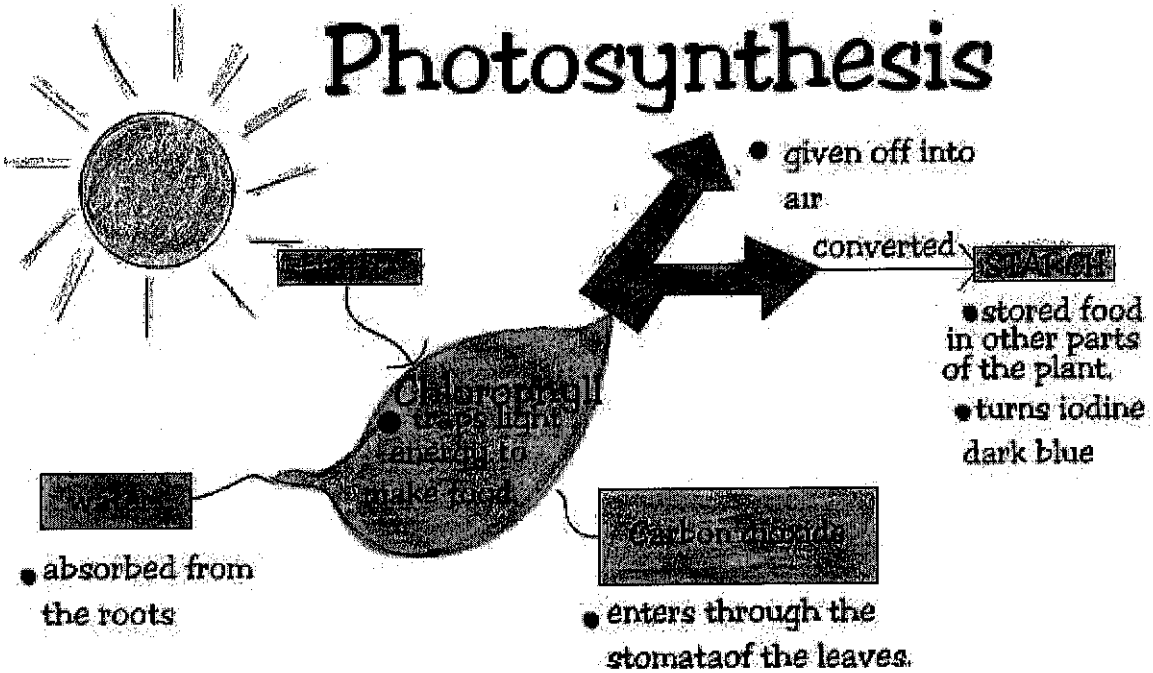
Hailey Andrews
P2

2nd

Replication is when other scientists conduct your experiment to try and get the same results. **Repetition** is when multiple trials are conducted in an experiment to receive accurate data and results. Although both replication and repetition start with an "R" a good way to remember them is repetition sounds like the word "repeat" and in repetition you are "repeating" trials. A good way to remember replication is remembering the word replica or replicate, which is pretty much a copy of something and in replication you are copying someone else's experiment to try and get the same results.



Photosynthesis is how plants use water and light to create fuel for themselves. They take in sunlight, water, and carbon dioxide found in the atmosphere to create a sugar that they use for food to allow them to live and survive. The light they use comes from the sun, chlorophyll traps the light.



Dali Ruiz

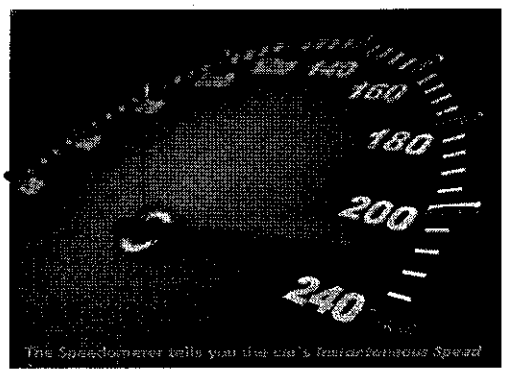
Instantaneous speed

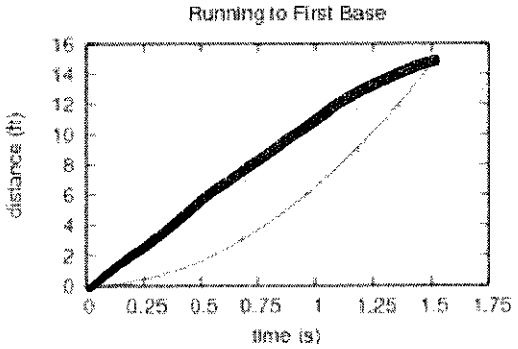
FCAT def: measure & graph distance versus time for an object moving at a constant speed.

The instantaneous speed of an object is not to be confused with the average speed. Average speed is a measure of the distance traveled in a given period of time; it is sometimes referred to as the distance *per* time ratio. Suppose that during your trip to school, you traveled a distance of 5 miles and the trip lasted 0.2 hours (12 minutes). The average speed of your car could be determined as **Ave. speed = 5 miles/ 0.2 hours= 25/miles/hour**

On the average, your car was moving with a speed of 25 miles per hour. During your trip, there may have been times that you were stopped and other times that your speedometer was reading 50 miles per hour. Yet, on average, you were moving with a speed of 25 miles per hour.

A speedometer tells you the speed of the car at the exact moment, otherwise known as the **instantaneous speed.** When a baseball player is running to 1st base, each point is a certain amount of time it took the runner to run to first base.





Dali Ruiz

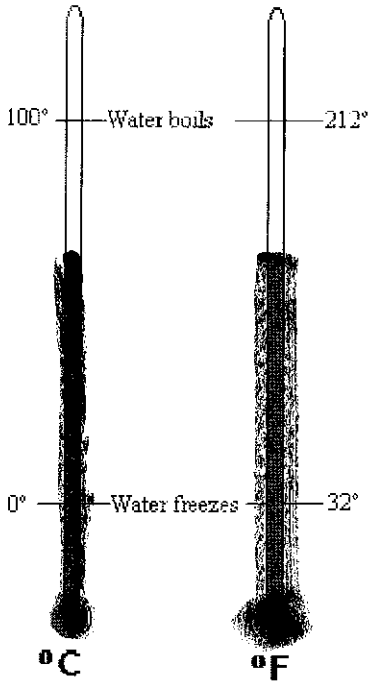
Page 2

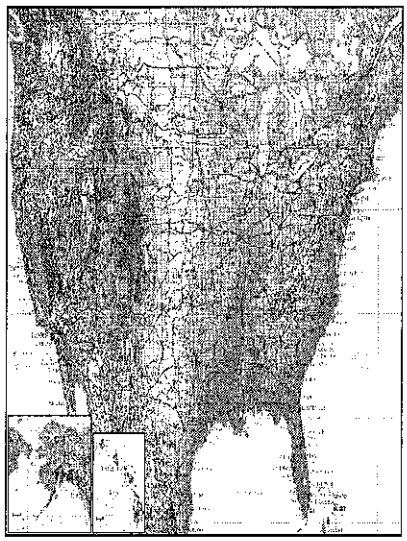
Standard: explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.

Weather

- The atmospheric factors that interact to cause weather are heat energy, air pressure and winds, and moisture.
- Factors that influence air pressure
- Air pressure– measure of force pushing on area.
- Air pressure varies across the Earth's surface. Denser air has more mass per volume so exerts more pressure than less dense air. Density/air pressure is influenced by 3 factors:
- 1) temperature– measure hot or cold; measure average kinetic energy. Generally there is lower air pressure with higher temperatures.
- 2) water vapor – as the amount of water vapor in the air increases, the mass of the air decreases. The air becomes less dense. Large amount of water vapor exerts (to put forth; controls; influences; push) less air pressure.
- 3) elevation– as elevation increases, air becomes thinner, less dense.

barometer– measures air pressure.





Matt 2nd #2

SC.8.P.9.2: Differentiate between physical changes and chemical changes.

Physical Changes are how the object looks or what it is, for example color, size, shape, and if it's broken half. This also pertains its boiling point.

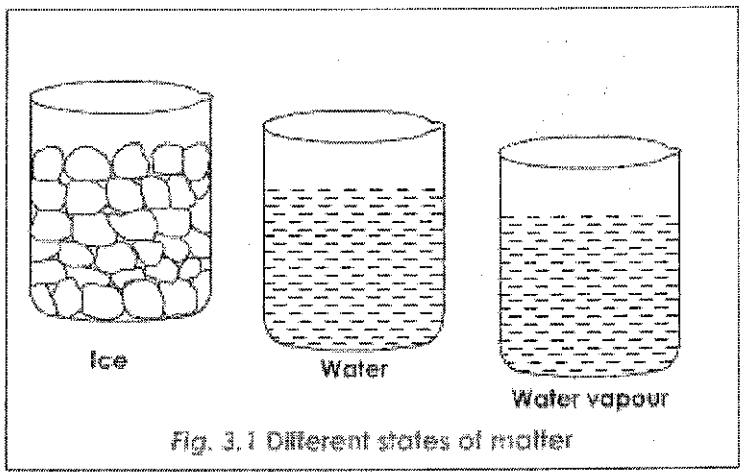
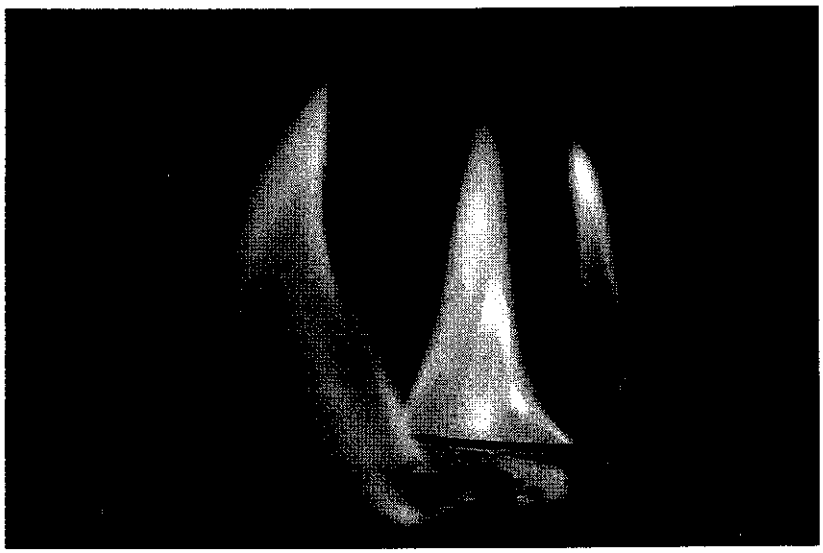


Fig. 3.1 Different states of matter

Chemical Changes are the changes and properties that happen inside the piece of matter. For example chemical bonding is used when two or more elements combine to make one solution. Another chemical change is if its flammable or able to explode.

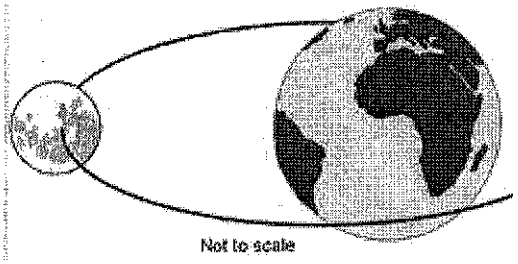


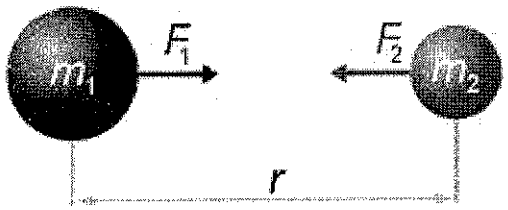
Cemily

The gravitational force between two objects in the universe is their universal gravitational force. There is a gravitational force between me and the earth. There is also gravitational force between me and the sun, between me and all the other planets, and between me and the people sitting next to me. We aren't pulled to the other planets or the sun because the force of gravity between us and earth is much greater than the force of gravity from us and all those other objects.

The force of gravity between two objects can also depend on the objects masses and distance apart. The more mass objects have the larger the gravitational force between them. "Finding the gravitational force between two objects requires multiplying the masses of two objects. If your mass were to be twice as much, the gravitational force between you and earth, which is your weight, would double. If earth were to become twice its weight without changing its size then your weight would also double." If you increase the mass of either of the two objects then the force of gravity increases too.

Universal gravity is how our solar system is still being held together today. Planets all have suns that they revolve around because the mass of the planets sun is greater than the mass of the planet. Think of it like this there is a string connected between earth and the things around it. so its revolving around its axis and the objects around it. So how does the earth not just drop and start falling through space or just freely floating around. That's because the universal gravitational force between the sun and earth, earth and the moon, and the earth and other planets holds it in place.



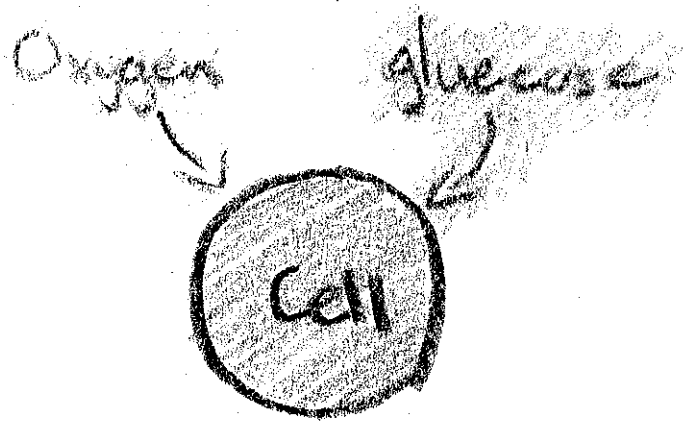


$$F_1 = F_2 = G\frac{m_1 \times m_2}{r^2}$$

CELLS

Cellular Respiration

- cell takes in Oxygen and glucose then using that the cell can turn it into energy for the body

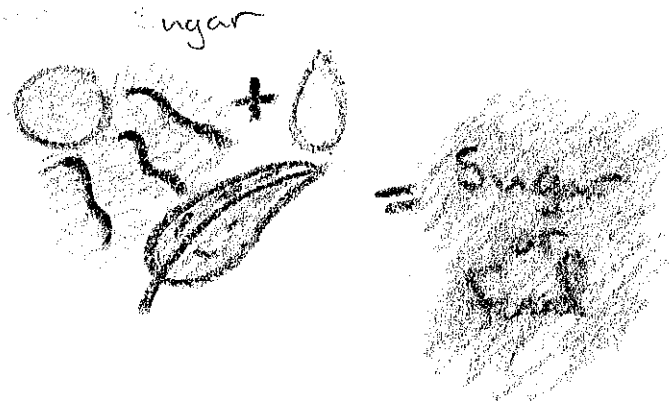


Cellular Reproduction

1) Cells prepare for mitosis
2) Spindle fibers
3)
4)
5) Repeat

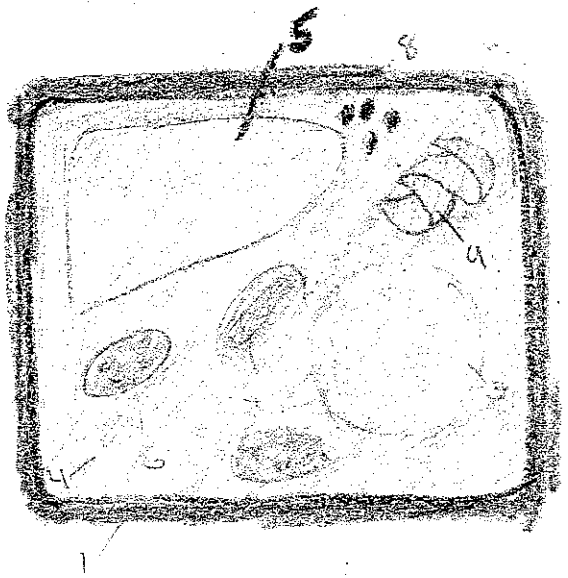
Photosynthesis

- This is the process that plants do through to produce glucose. They use in water & carbon

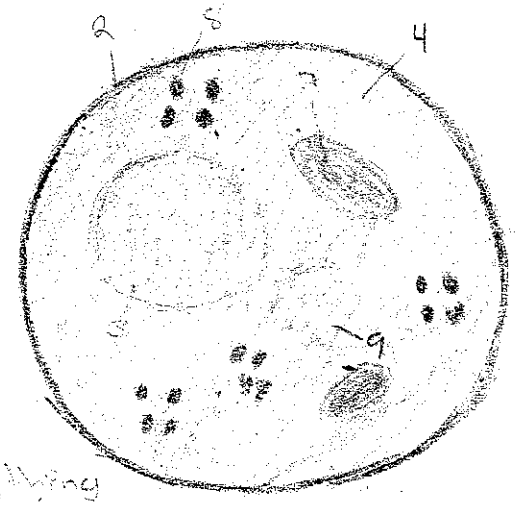


CELL V.S CELL

Plant:



Animal:



Both

2) Cell membrane:
Allows something in & keeps something out

3) Nucleus:
Controls activities of the cell

4) Cytoplasm:
Jelly-like substance that everything floats in

7) Mitrocondria:
Converts the energy stored in the glucose to A.T.P.

8) Ribosome:
makes the protein for the cell

9) Golgi body:
Packages the protein

1) Cell wall:
Something that surrounds the cell

6) Chloroplast:
The green stuff is used for photosynthesis

5) Vacuum:
Is the storage

FCAT page 2

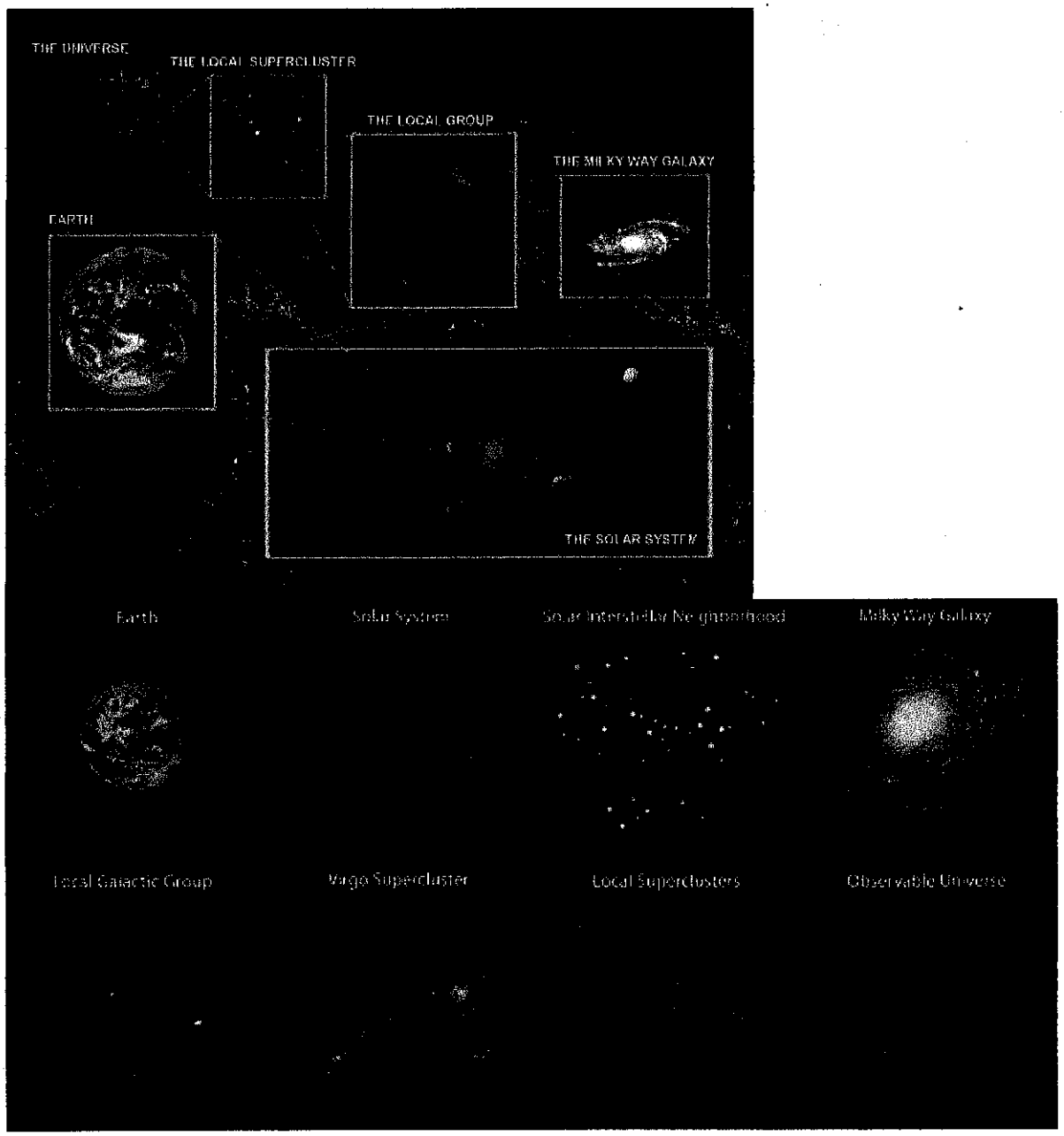
Our planet and other planets revolve around the sun,which is our star and the grouping of this is called a solar system.

There are billions upon billions of other solar systems and those are called galaxies.

Those billions upon billions of galaxies make up our entire universe.

When thinking of this order you can think of it in two ways:
A size order from smallest to largest – A planet, to solar system, to galaxy, to universe.

Or you can view it in a sort of hierarchical stand point:
The planet is the employee, the solar system is the boss, the galaxy is the CEO and the Universe owns the whole company.

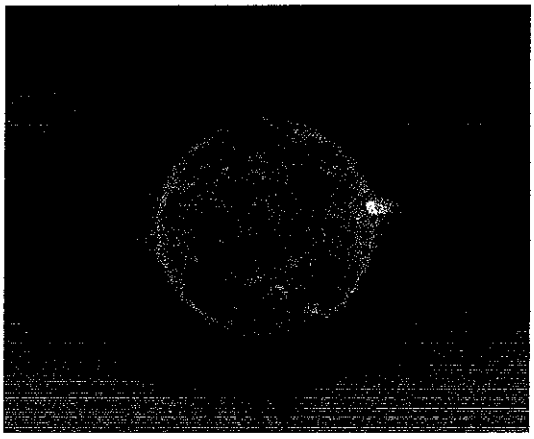


Gravity in the Universe

SC.8.E.5.4: Explore the law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.

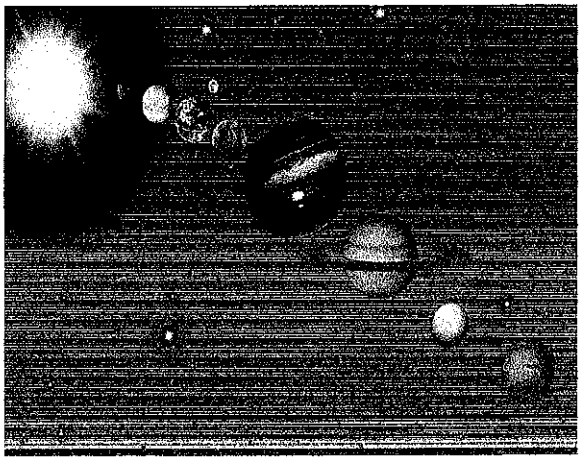
❖ Isaac Newton discovered the universal law of gravity when an apple fell from a tree and knocked him on the head. This sparked an epiphany in his head. *What comes up, must come down*

❖ **Gravity** is the bond that holds all life as we know it together. Without gravity there would be no order in the universe. Nothing to hold and pull everything together.



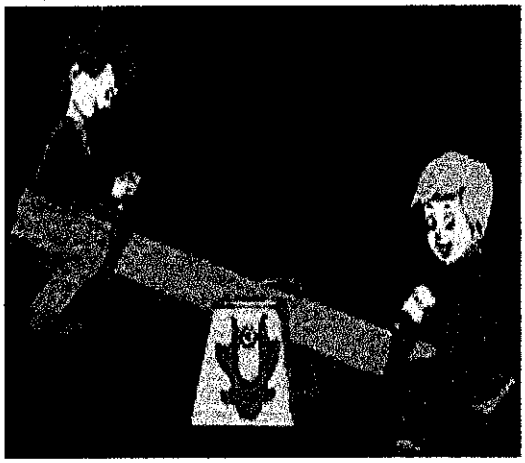
❖ Gravity plays a big role in the formation of stars. In our early universe after the Big Bang, masses of dust and gas in ***Protogalactic Clouds*** due to gravity collapsed. This is what scientists assume and believe caused the formation of stars. Gravity is also what holds the big balls of gas and heat the we call stars together.

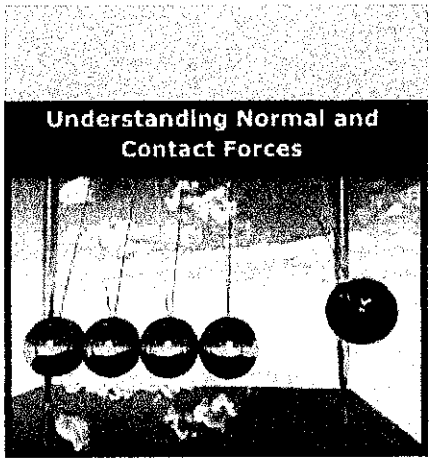
❖ Solar systems are also only possible by gravity. There are many solar systems in the universe similar to ours. They all have one thing in common a center point, and gravity holding it together. Our solar system is held together by the large gravity field around our Sun. The Sun's gravity holds all our solar systems planets together in an orbit. Planets do the same to the moons around them in orbit.



FORCES

- Contact Force
- Electrical
- Magnetic
- Gravitational
- Friction
- Normal Force
- Tension
- Unbalanced
- balanced

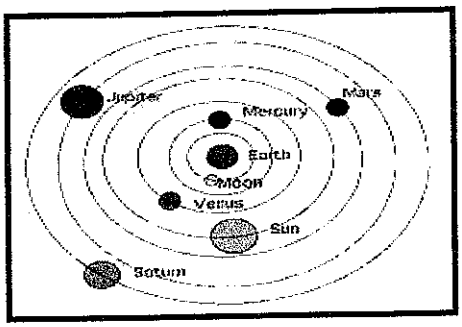




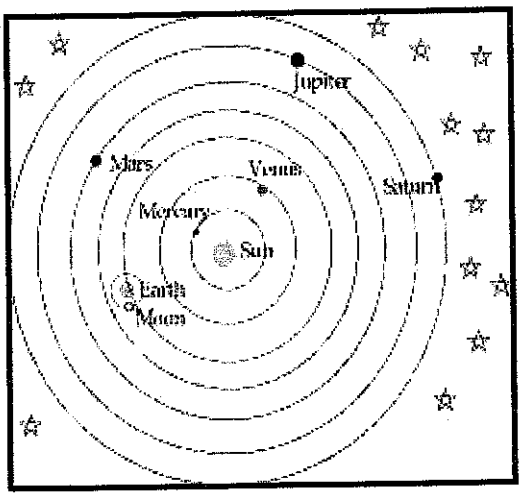
Ender

Geocentric vs. Heliocentric

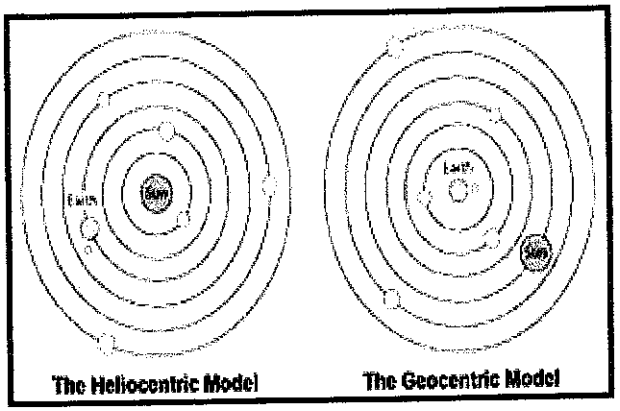
The Geocentric model, also known as the Ptolemaic system is when the Earth is in the center of the solar system. It means that everything orbits around the Earth.



The Heliocentric model is when the Sun is in the center of the solar system. It means that everything orbits the Sun



We often study the Geocentric and Heliocentric models. We believe in the Heliocentric model, where everything in the Solar System orbits around the Sun



Chase Puyton

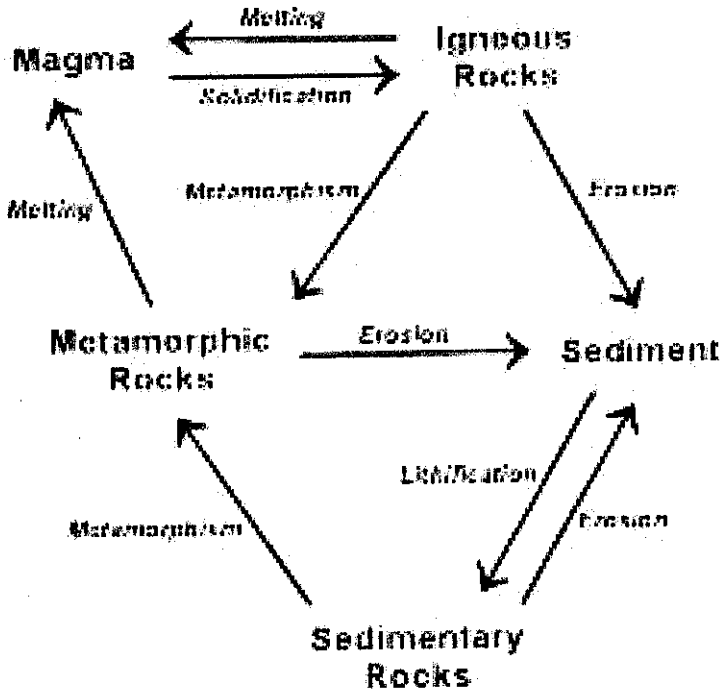
late ✓

The Stones

standard (SC.7.E.6.2): identify the patterns within the rock cycle and relate them to surface and sub-surface events

description: identify what happens to rocks during the rock cycle

diagram of rock cycle:



vocabulary:
- erosion
- weathering
- metamorphic
- sedimentary
- igneous
- magma
- sedimant

SC.6.E.7.3-"Global Patterns such as Jet Streams and ocean current influence local weather in measurable terms such as temperature , air pressure, wind direction, and speed, and humidity and precipitation."

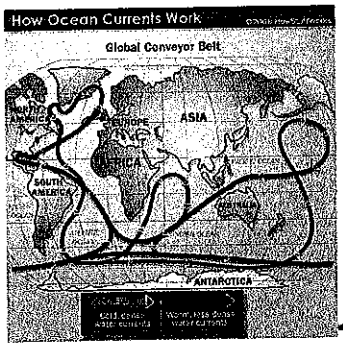
Origin of learning: Most students learned this in the Sixth grade.

The scientific theory of the evolution of Earth. It states that changes in our planet are driven/caused by the flow of energy and the cycling of matter through "dynamic interactions" among the atmosphere, hydrosphere, cryosphere, geosphere, and biosphere,(All of the spheres) and the resources used to sustain human civilization on Earth.

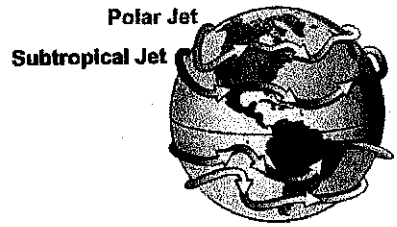
Jet Streams and ocean currents influence the earth ,ultiple ways. They can change the way the land is, and where the air and water go, by force, push and pull. Also humidity and precipitation, which also have to do with water and air.

Jet Streams-They are responsible for transporting the weather systems that affect us. The polar front is the boundary between the cold North Pole air and the warm equatorial air.

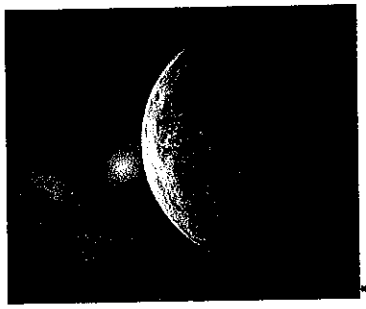
An ocean current is the steady flow of surface ocean water in a prevailing direction.



-The global ocean current conveyor belt.



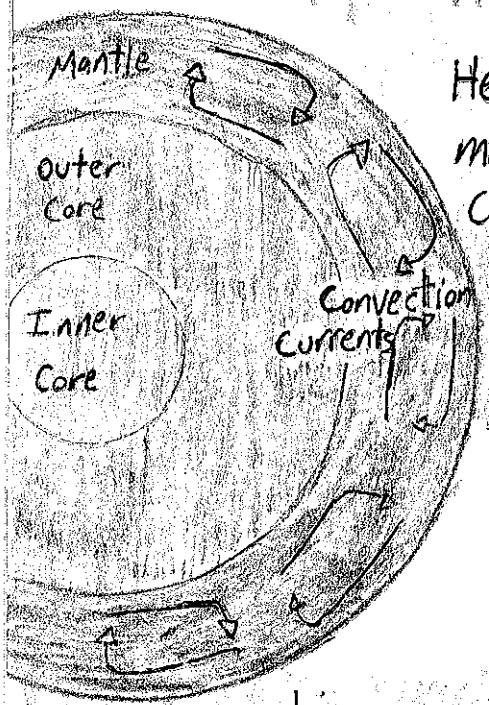
-The polar Jet streams are stronger then Subtropical.



-Earth

Movement Within Earth

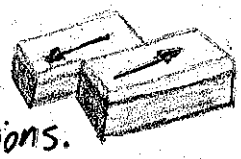
SC.7.E.6.7: Recognize that heat flow and movement of Material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.



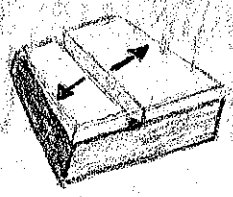
Mantle Convection.

Heat flows from hot to cold in the Earth in the mantle. The heat flows because of convection currents. These movements cause the plates on Earth to move. This is what is known as the theory of Plate Tectonics.

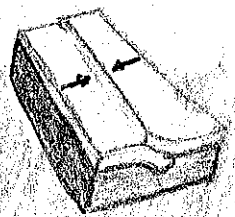
TYPES of PLATE BOUNDARIES



- Transform boundaries. This is when two plates slide past each other in opposite directions. This normally causes earthquakes.



- Divergent boundaries. This is when two plates slide apart from each other. This creates ocean basins.
- Convergent boundaries. This is when two plates slide toward each other to form either a subduction zone (one plate moving under the other) or a continential collision. This creates mountains and when magma flows where the plates meet, a volcano forms, either in land or in the ocean.



WHATS CAUSED BY PLATE BOUNDARIES?

- Earthquakes. They are the result of a sudden release of energy in the Earth's crust that creates seismic waves.*
- Volcanoes. They are openings in the surface of the Earth which allows hot lava to escape out from the magma chamber to the surface.*
- Mountains. They are large landforms that come out from the surface of the Earth, usually in the form of a peak.*
- Ocean Basins. They are large geologic basins that are below sea level.*

*-www.wikipedia.org