رابط قناة الصف الخامس

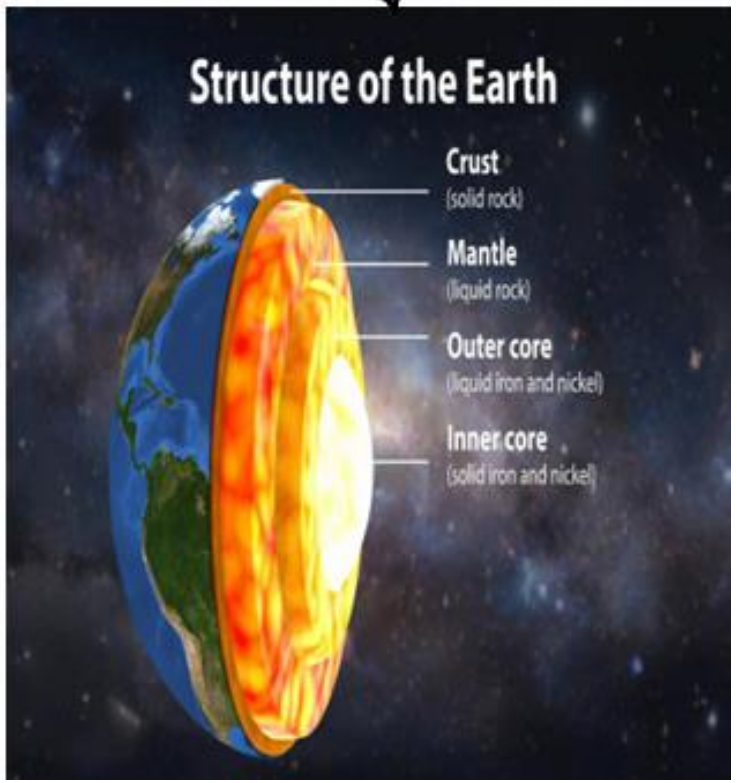
https://t.me/scinspmisshoda

Geosphere and Layers of earth

The geosphere includes the solid and melted rock inside Earth. It also includes the soil, rock pieces, and landforms on Earth's surface.

Moten Rock: Very hot melted rock found in Earth's Mantle.

You have to know how to label the layers in the diagram



Scientists divide the Earth into several different layers.
(4 layers)

- **Crust** - the rocky outermost layer(made of solid rock)
- **Mantle** - is just below the surface and (made partly of molten rock.)
- **Core**- It is very hot, (made mostly of iron). It is divided into two layers:
  -outer core (made of Liquid iron)
  - inner core (made of solid iron) (deepest layer)

Island building

Landform: a physical feature found on Earth's crust. The landforms are changing over time.

The landforms are changing over time.

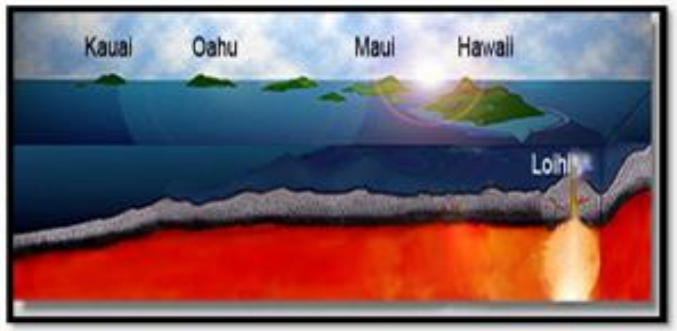
What can change these landforms? Weathering, erosion, deposition, and plate movement.

tectonic plate: Large pieces of earth's crust (made of solid rocks).

hotspot? An area where molten rock from within the mantle rises close to the Earth's Surface.

Magma: Molten rock under the earth.

Lava :Molten rock on the earth surface .



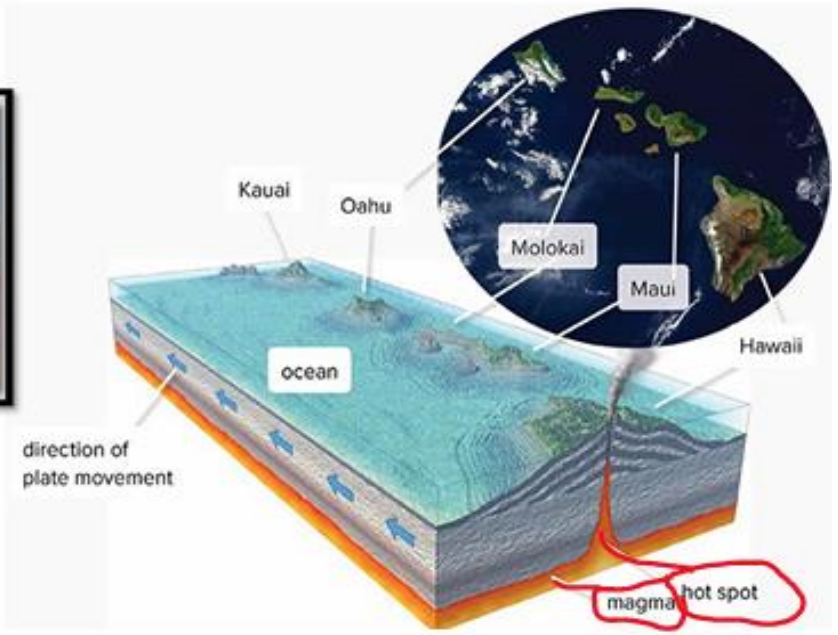
How Island is formed?

-When the plate passes over a hotspot.

-Over millions of years, lava erupting from the underwater hot spot formed a mountain.

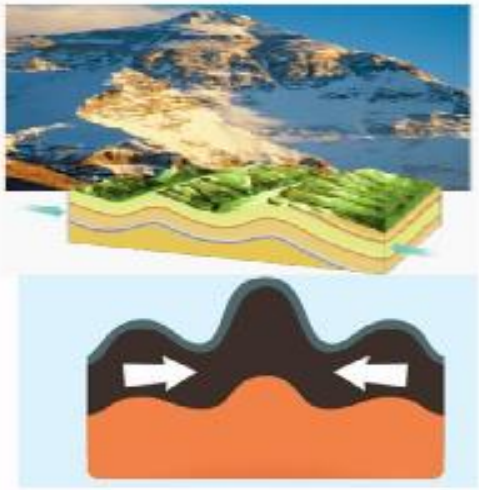
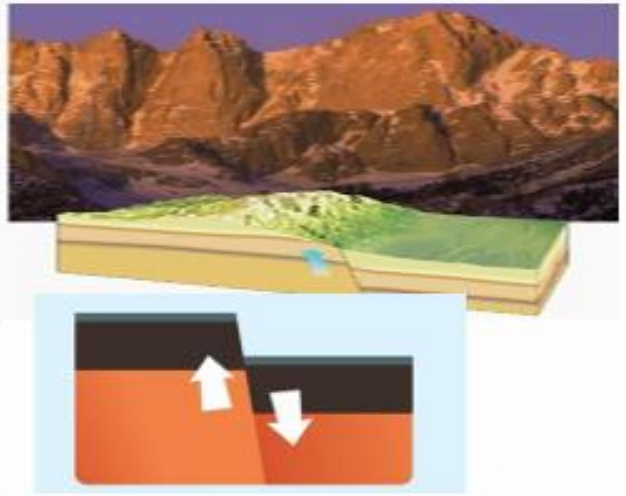
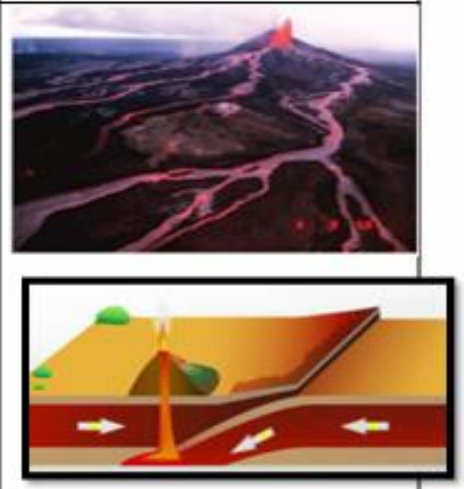
-the mountain grew taller than the ocean's surface and became a volcanic island.

-As the plate moved, the island moved away from the hot spot, and a new island formed.



Mountains

What causes mountains to form? Plate movement.
What makes plates moves ? Tension (force that pulls things apart) and pushing forces.

Types of mountain	Folded mountain	Fault-block mountain	Volcanic mountain
Picture			
Direction of plate movement	It formed when plates are pushed together & Crust is forced upward	When one plate is pushed up and the other plate pushed down .	When one plate pushed below the other plate .
Example of this mountain	Himalaya mountains .	Sierra Nevada mountain	Cascade range

+201119653588

Miss Hoda Ahmed

Volcanoes

What is volcano ?

an opening in Earth's crust.

Where volcanoes can formed?

On land and on Ocean floor .But most of the volcano found on the ocean floor .

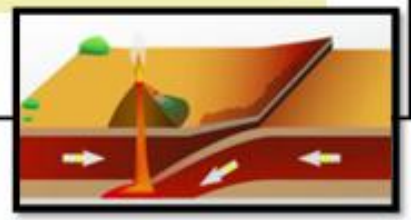
How volcanoes is formed ?

A plate is pushed deep below another plate.

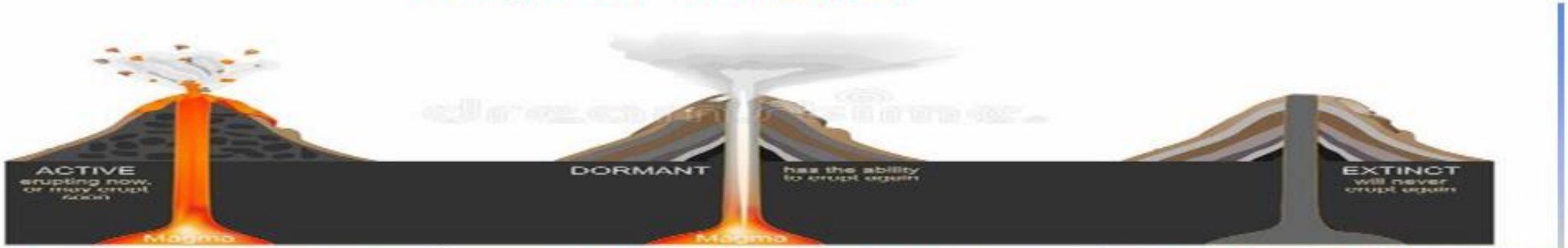
The lower plate melts under very high temperatures and forms magma.

The pressure on the magma becomes big enough to cause a crack in the Earth's

Magma erupts to the surface and is now called lava.



Stages of Volcanoes



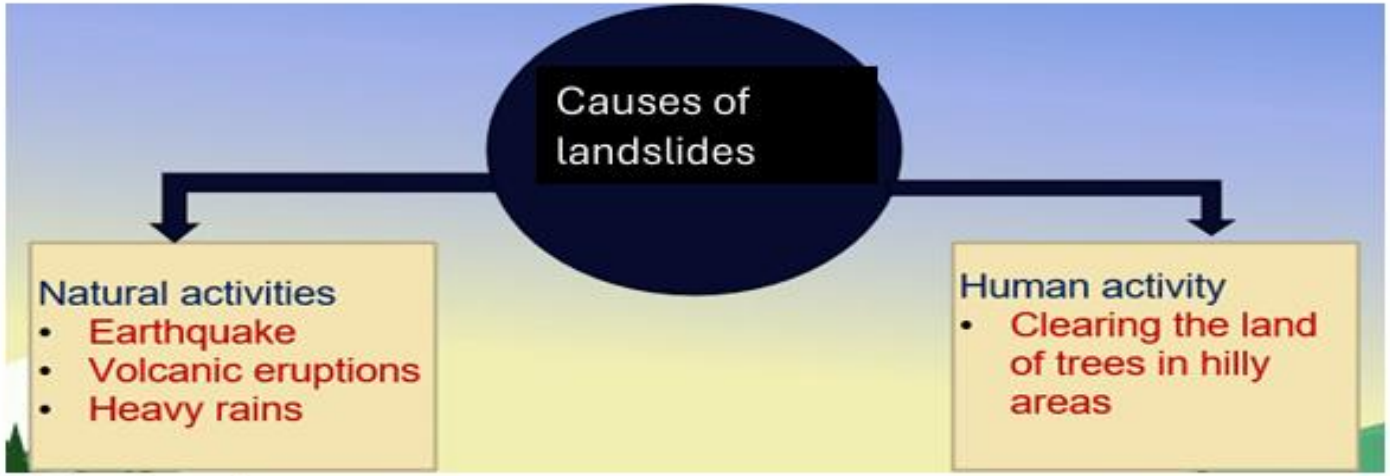
An Active Volcano Is one that is currently erupting or has recently erupted

Dormant Volcano Has not erupted for sometime, but may erupt in future

Extinct Volcano That will not erupt again

LANDSLIDE AND MUDSLIDE

Landslide :Is a Sudden movement of large amount of Soil & Rocks down a slope.



Mudslide :Landslide of mud .

How mudslide is formed ?

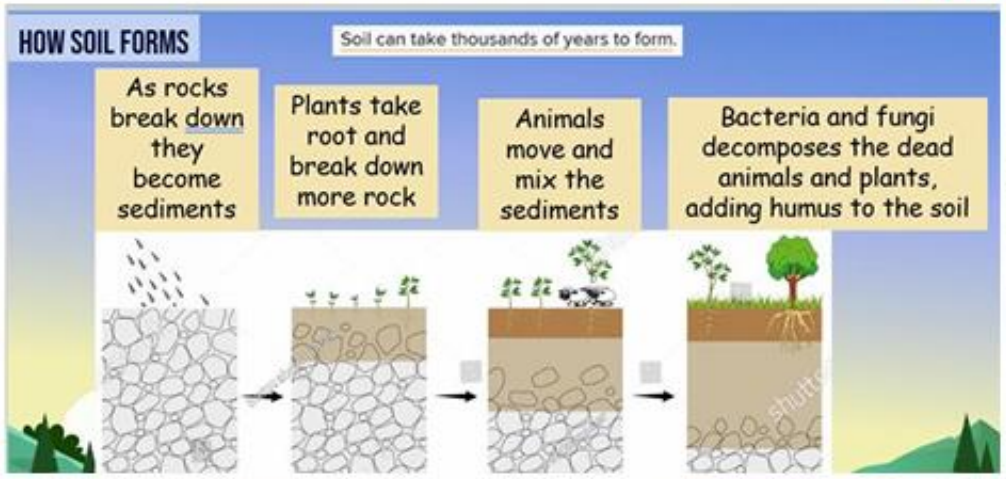
Step 1:Heavy rain can cause the soil in landslide to soak in water.

Step 2: The soil become muddy and heavy.

Step 3 : Heavy mud cannot hold on to a slope .

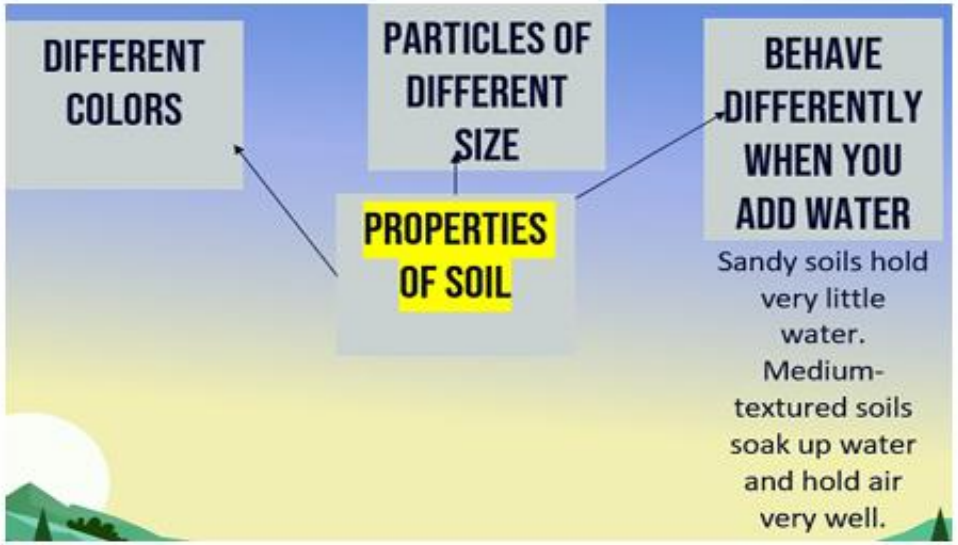
Step 4 : Mudslide is formed and it can knock the trees and destroy what ever in its path.

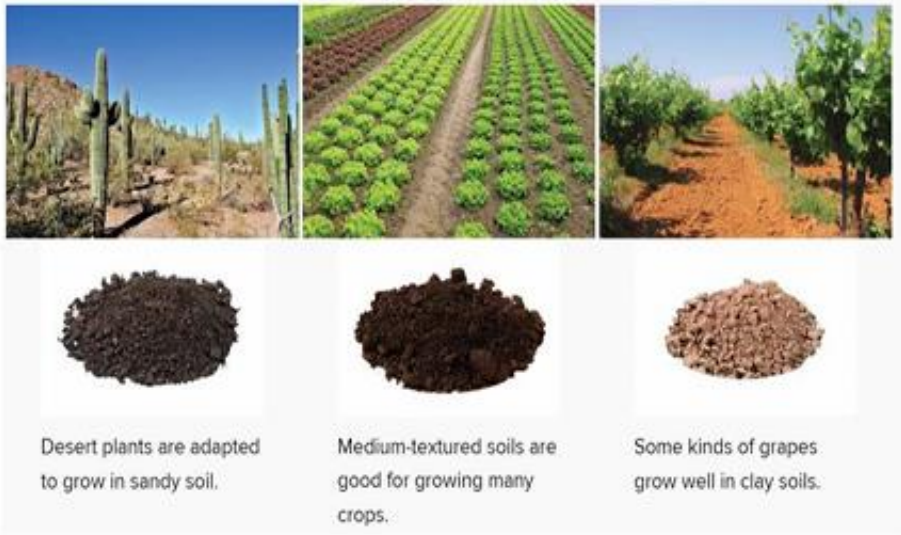
Soil



Why humus is important for soil ?

Because its provide it with nutrients which help plants to grow better.





Desert plants are adapted to grow in sandy soil.

Medium-textured soils are good for growing many crops.

Some kinds of grapes grow well in clay soils.

Types of soil

Forest soil : type of soil that has little humus and is poor in minerals. It is good for trees that have deep roots.

Desert soil :Type of soil that is sandy has no humus. is rich in minerals, and it needs water to grow plants.

Grassland and prairie soil : Type of soil that that found between rocky mountains and eastern forest , its rich in humus and rich in minerals, It is good for growing crops like wheat and corn.

U3-M2-L2. Effect of the Atmosphere Summary

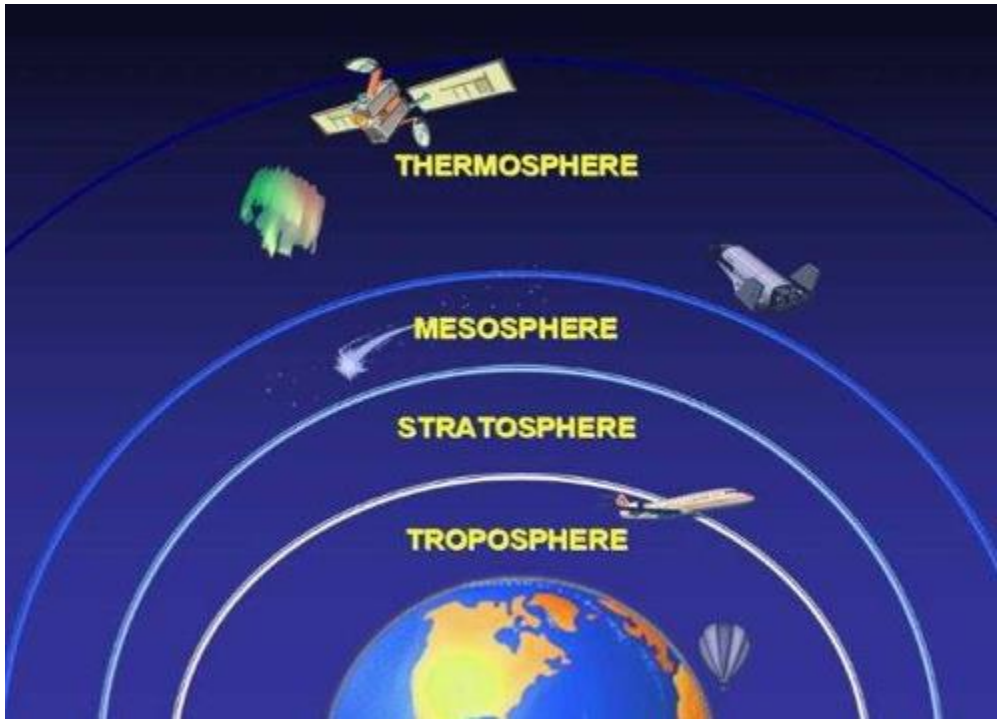
1-Atmosphere is made of air particles, so it is a matter.

2-The air particles in the atmosphere have mass and weight.

3- There are different layers in Earth's atmosphere, which vary in temperature.

a- Troposphere (the nearest to the Earth's surface) b- Stratosphere

Mesosphere d-Thermosphere.



4-The temperature of the atmosphere can determine activity within it.

5-Weather is the condition of the atmosphere at a given place and short period of time.as a day or a week

6-An air mass is a large region of air that has a similar temperature and humidity.

7-The air mass that is passing over an area affects the weather in that area.

8- Air masses can be cool, warm, dry, or humid. Depending on where they form when one air mass meets a different air mass, the meeting place is called a front.

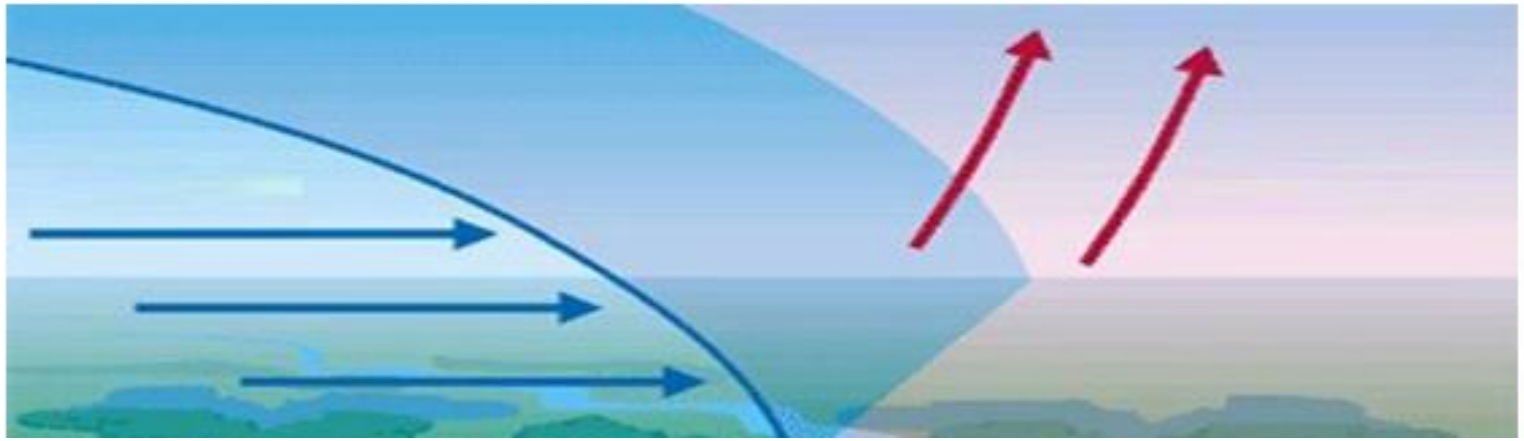
9-A front is the boundary between two air masses that have different temperatures. along fronts, weather can change rapidly.

10-There are three different types of fronts:

a. warm fronts. b. cold fronts c. Stationary fronts.

11-The arrows in the diagram indicate temperature as well as the direction of movement.

12-Red arrows indicate warm air movements. Blue arrows indicate cold air movements.



13-Warm Fronts:

A warm front form when a warm air mass pushes into a cold air mass.

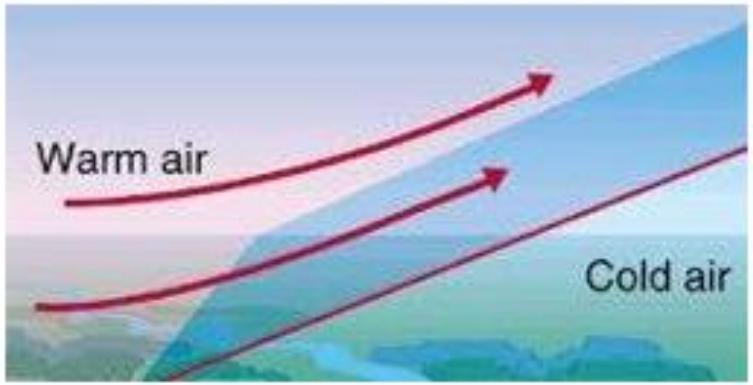
The warm air goes up and over the cold air mass. It often brings light, steady rain.

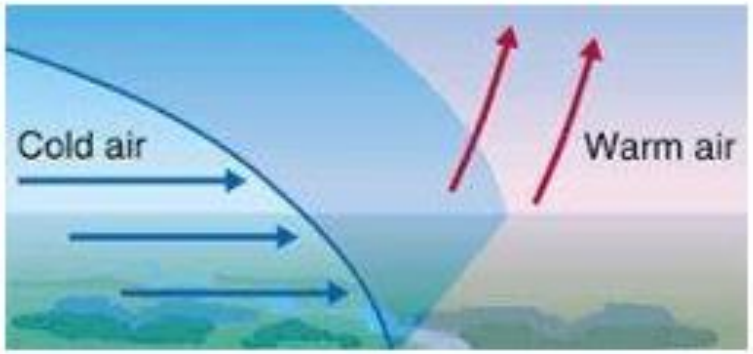
14-Cold Fronts:

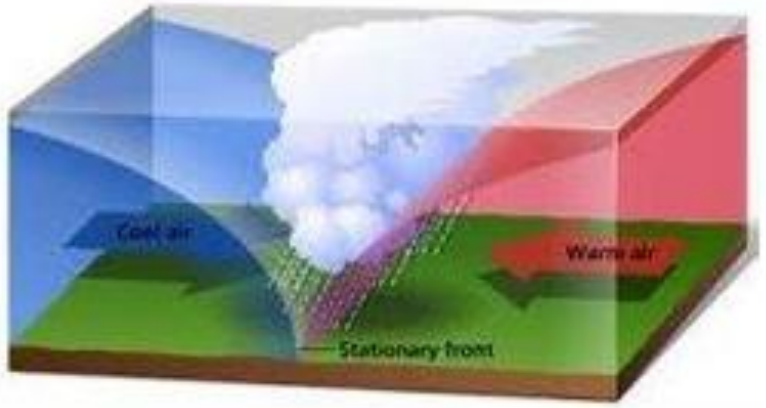
A cold front form when a cold air mass pushes under a warm air mass, forcing the warm air quickly upward, It often brings stormy weather.

15-Stationary Fronts:

Sometimes rainy weather lasts for days. This is caused by a stationary front, which is a boundary between air masses that does not move.







Most weather events are storms.

16-A storm: is a violent disturbance in the atmosphere.

Storms involve sudden changes in air pressure, which cause rapid air movements.

17-Thunderstorms: are rainstorms that include lightning and thunder.
They are the most common type of severe storm. The dangers in thunderstorms are lightning, strong winds, and flash floods.

18-Tornadoes: and Derechos are the strongest types of thunderstorms.

19-A tornado is a rotating, funnel-shaped cloud with wind speeds of up to 512 kilometers per hour (318 miles per hour). They can change direction abruptly, moving in one direction and then another.

20-Tornadoes: can cause terrible damage, breaking buildings, uprooting trees, and lifting cars into the air.

21: A Derech: is a widespread, long-lasting windstorm that occurs with some thunderstorms. They cause damage similar to tornadoes, but the damage occurs in one direction on a straight path.

22- Tropical Storms occur near the equator where the ocean is warm.

23-A tropical storm: is considered a hurricane when winds get higher than 119 kilometres per hour (74 miles per hour).

24-Hurricanes: are dangerous storms, causing coastal flooding and severe wind damage. From space. a hurricane looks like a spiral of clouds with a hole in the centre, called the "eye." The fastest winds and heaviest rains occur next to the eye.

25- Winter Storms occur when a cold, dry air mass meets a warm, humid air mass.
26-Snowstorms such as blizzards happen when snow or sleet occur with high winds and cold air temperatures.

27-Ice storms occur when rain falls, and the ground temperature is cold enough that ice forms on outside surfaces.

28-Winter storms can cause power outages, so it is important to be prepared with supplies before a winter storm occurs.

Weather changes every day. However, the weather in any area tends to follow a pattern.
29-Climate: is the average weather pattern of a region over a long period of time, climate varies from place to place.

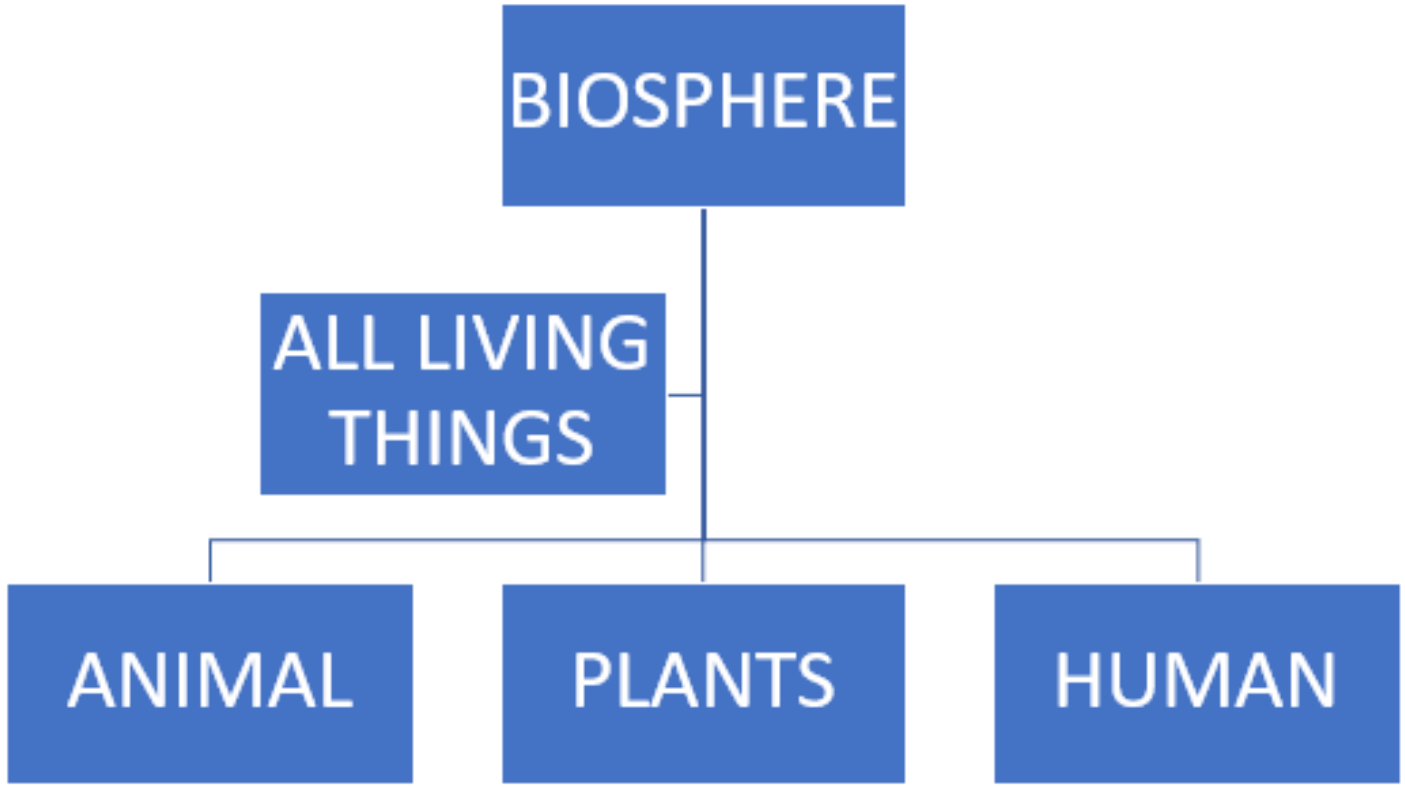
30- The most Important factors of climate are average temperature and average rainfall.
31-Factors affects the climate are latitude, The geosphere, and how the hydrosphere and atmosphere interact

32- Climate is related to latitude, Because of Earth's shape, areas closer to the equator receive more intense energy from the Sun than areas farther from the equator.

33-. Climate is also related to how the hydrosphere and atmosphere interact, the distance a location is from a large body of water affects its temperature and average rainfall throughout the year.

34. The geosphere also affects climate, areas with mountains at higher elevation have cooler climates

Effects of the Biosphere



Natural Resources: material found in nature that human and other organisms can use

Renewable resources	non-renewable resources
Is quickly replaced: WATER WIND SUNLIGHT GEOTHERMAL ENERGY	Takes a very long time to be replaced. Fossil Fuel: OIL – Coal – Natural gases

Ways to protect our natural resources:

- Ride a bike, walk or take public transportation.
- Plant new trees.
- Organize a group to pick up trash.
- Use natural compost fertilizers rather than chemical fertilizers.
- Use renewable resources to generate rather than non-renewable. Like windmills, water dams..

Human activities that have a bad impact on our earth:

1. Releasing bad chemicals to the air and water.
2. Changing the land to allow for farming , living space.
3. Overhunting like over-fishing can cause the animal population to decrease.

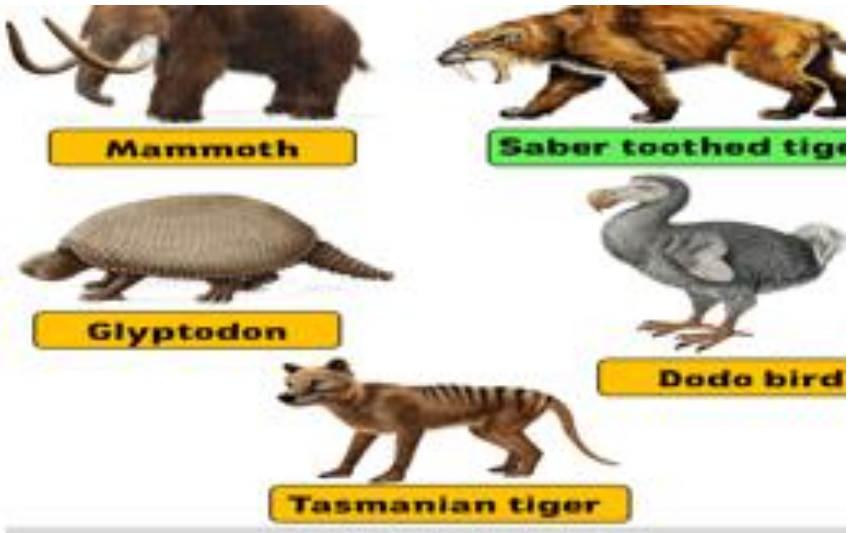



+201119653588
Miss Hoda Ahmed

Protecting plants and wildlife:

- **Endangered:** Do not get what they need to survive. Their population is reduced greatly over the years.

- **Extinct:** Are the species that disappeared and died completely.



- **Deforestation :** removal of large areas of trees.
- The animals that live in the forest are forced to move, they might not find another habitat that has the resources they need.

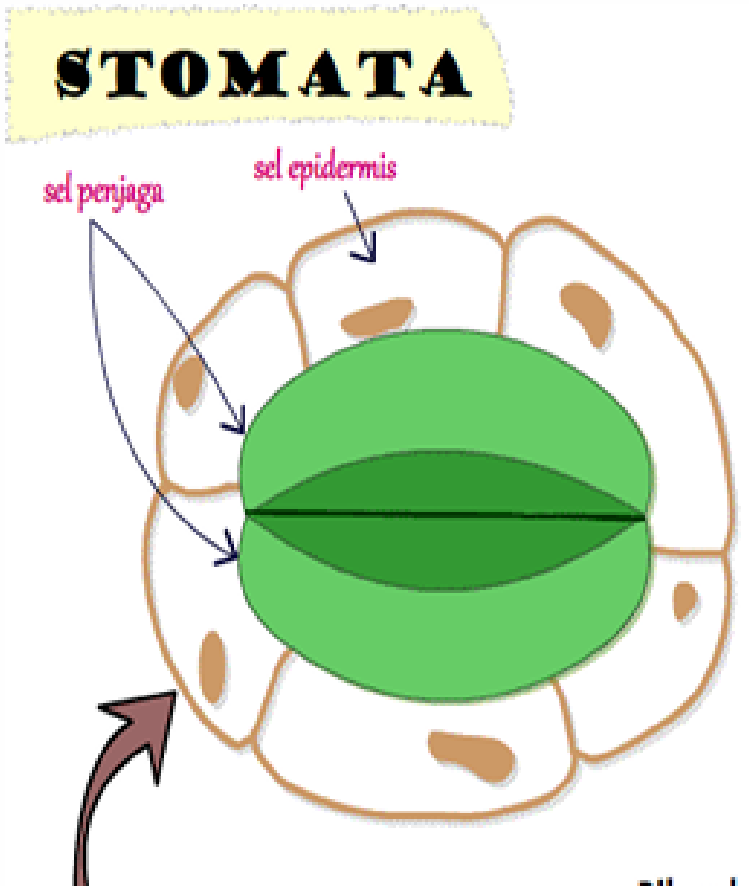
lesson 1 : plant survival

What do plants need to survive?

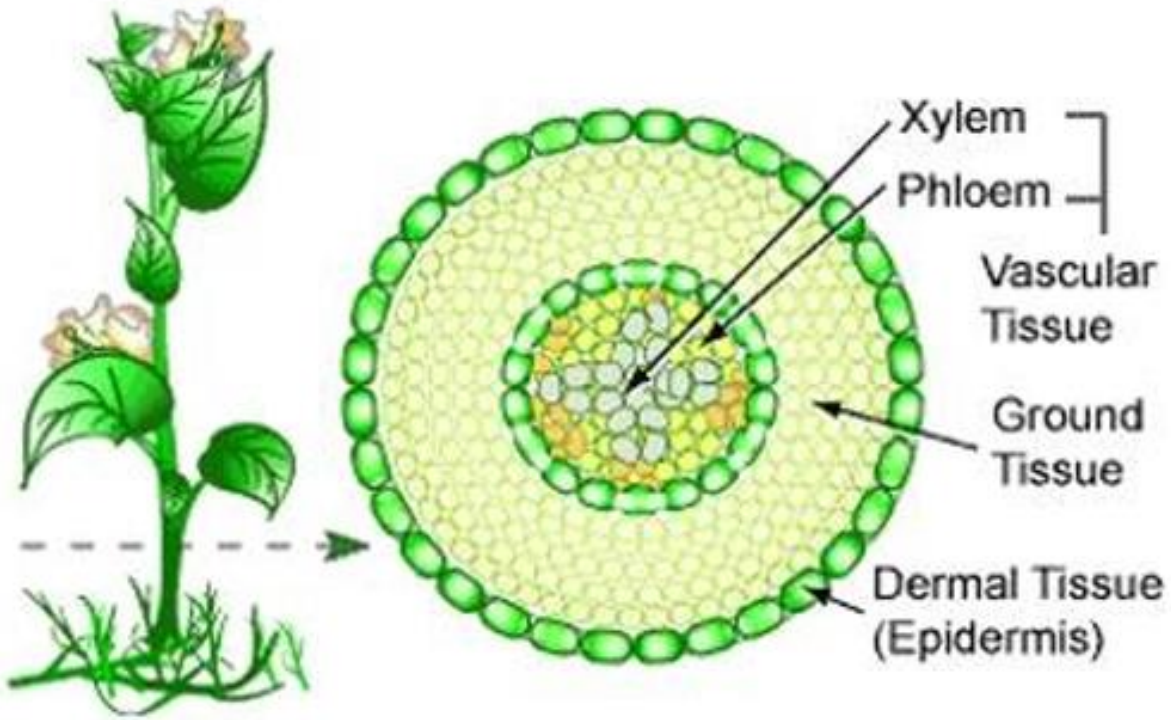
- The giant sequoia has the same needs as other plants: water, air, sunlight, space, and nutrients.
- Nutrients are substances that a living thing needs to stay healthy.
- Plants need energy to meet these needs.
- Energy is the ability to perform work or change something.
- Plants use structures such as leaves, stems, and roots to obtain energy.

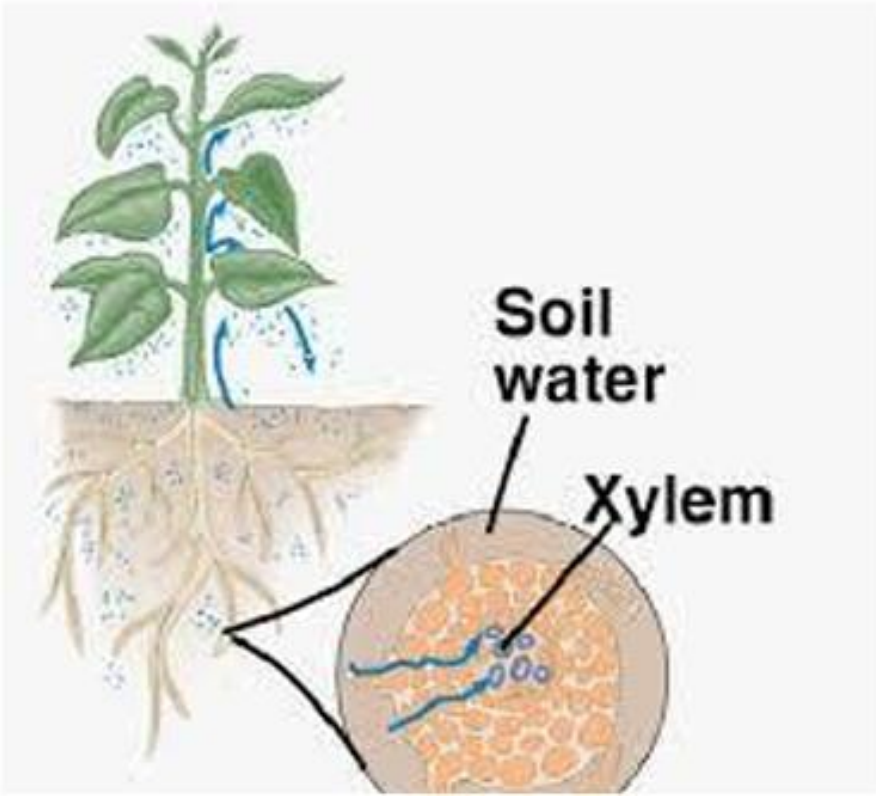
PLANT STRUCTURES

Plants need carbon dioxide from the air to make their food. Tiny openings on the underside of most leaves allow air to enter. These openings-called stomata- can close and prevent water from escaping. Other plant structures obtain the other materials that the plant needs.

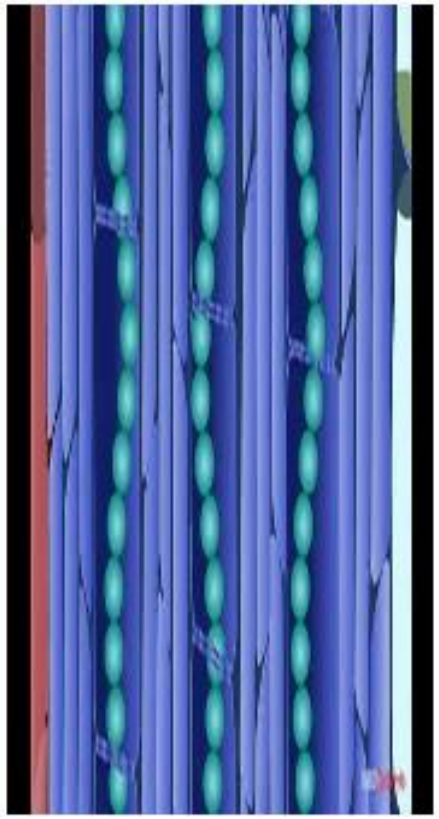


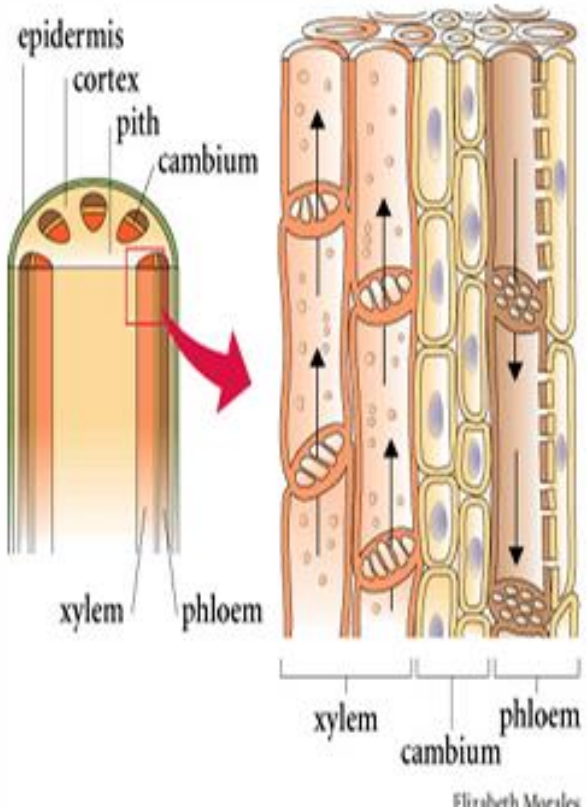
- **Water is absorbed by a plant's roots. It travels up the centre of the stem through specialized tissues called xylem.**

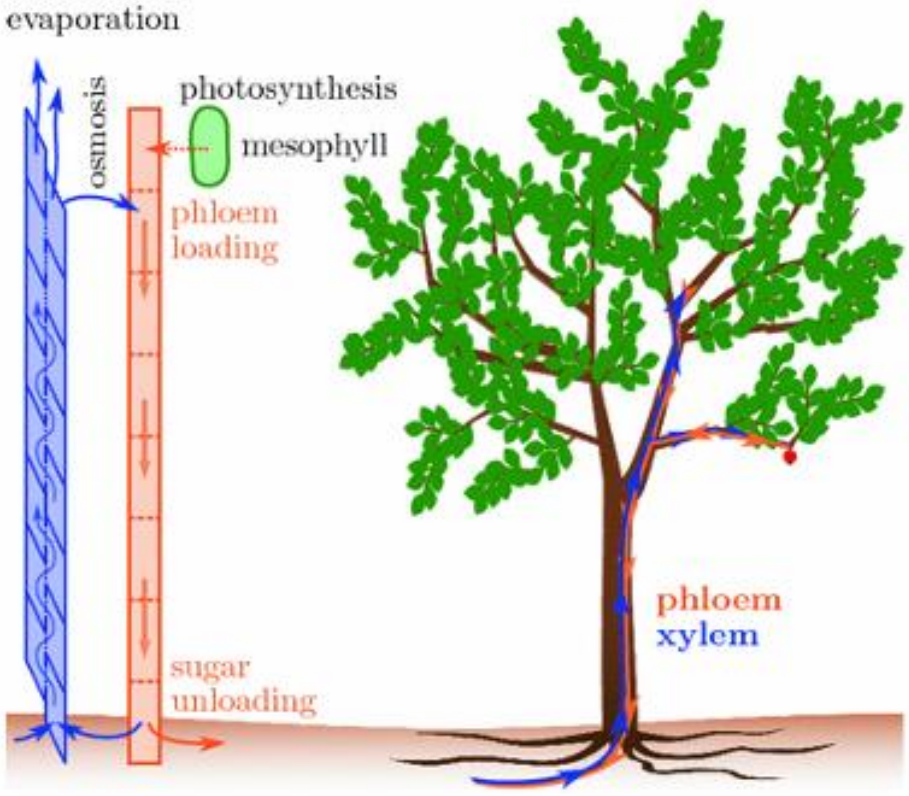




- **Phloem are tissues that transport sugars to all parts of the plant. It drives the movement of materials throughout a plant.**







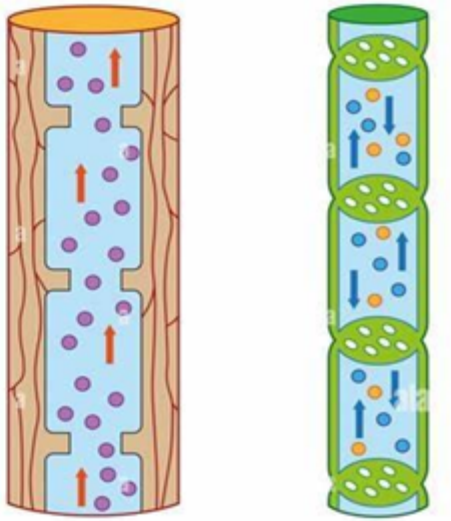
Xylem Vs Phloem

Difference between xylem and phlo

- **Xylem** moves the **water** in **one** direction (up)

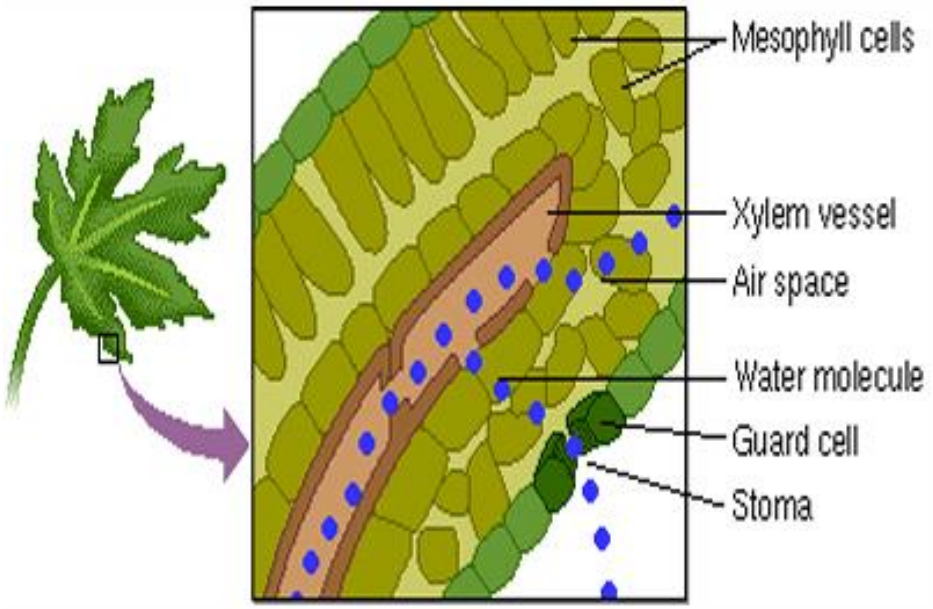
- **Phloem** moves the **sugar** in **all** directions.

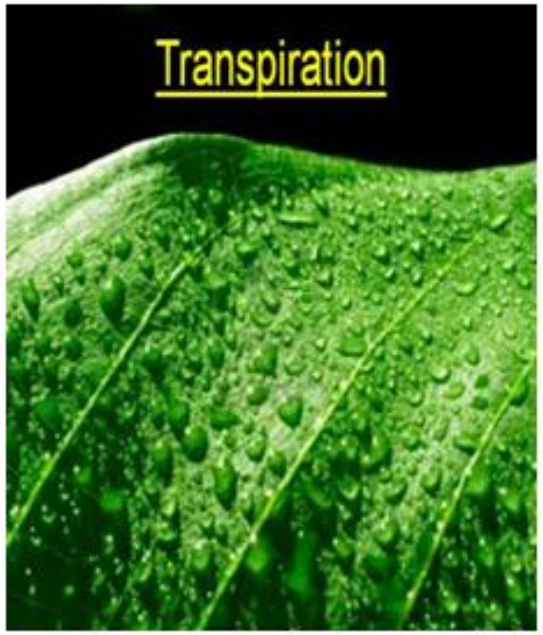
Xylem and Phloem

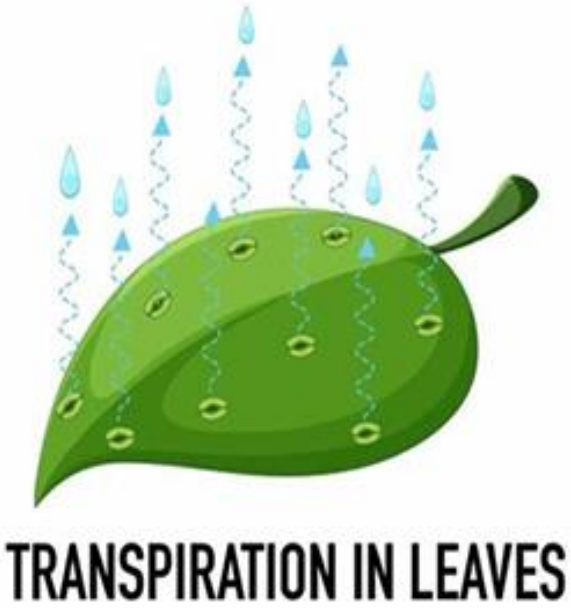


Xylem Phloem

- Transpiration is the evaporation of water from a plant's leaves. As water evaporates from the leaves, more water is carried from the bottom of the plant to the top. Water moves into the leaf, replacing the water that has evaporated



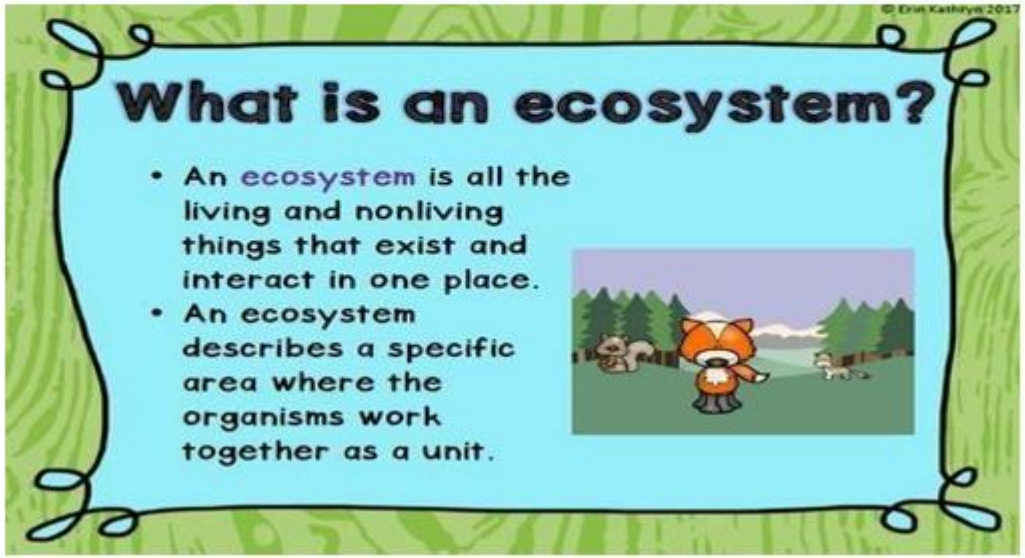


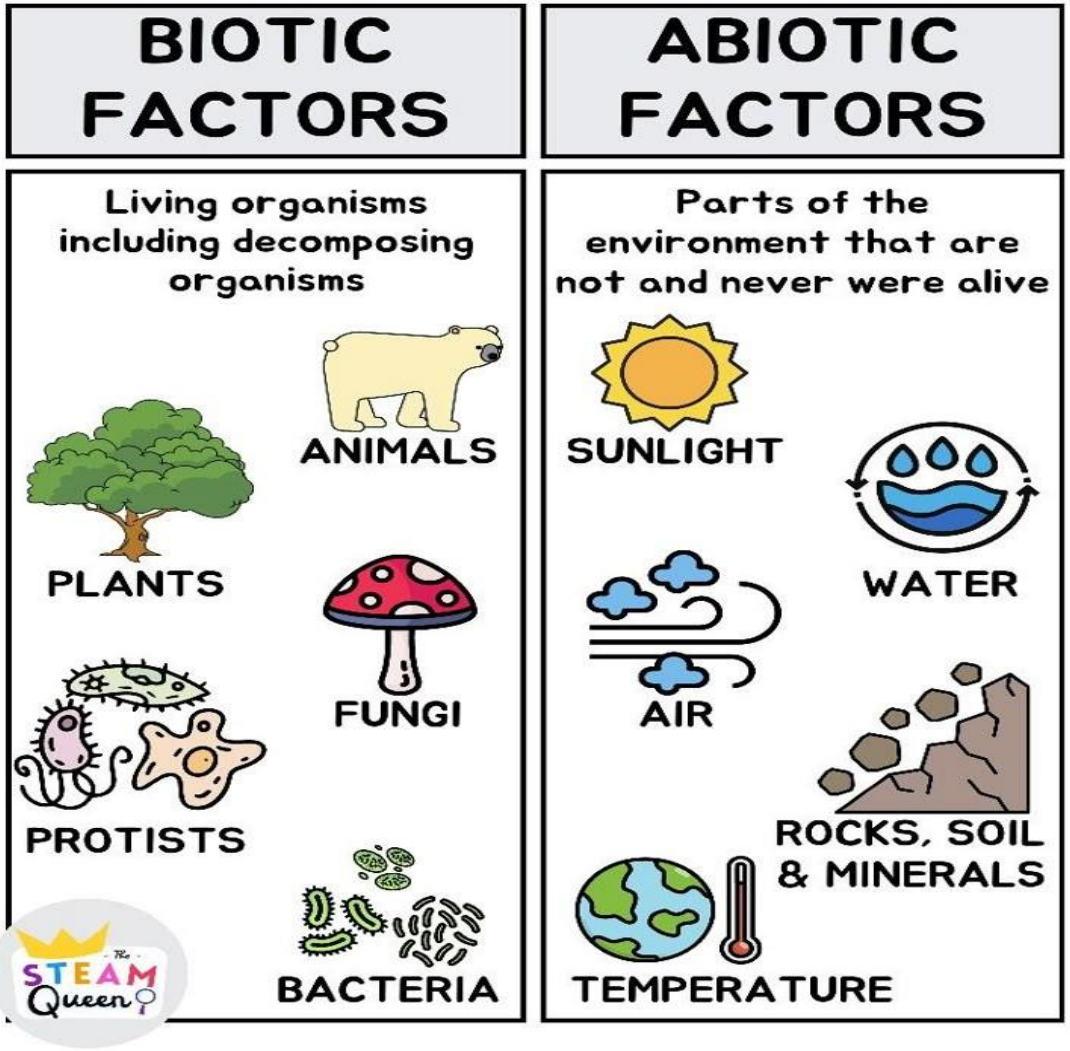


Lesson 2
Interactions of living things

Ecosystem

- Is made up of all living and nonliving things in an environment.

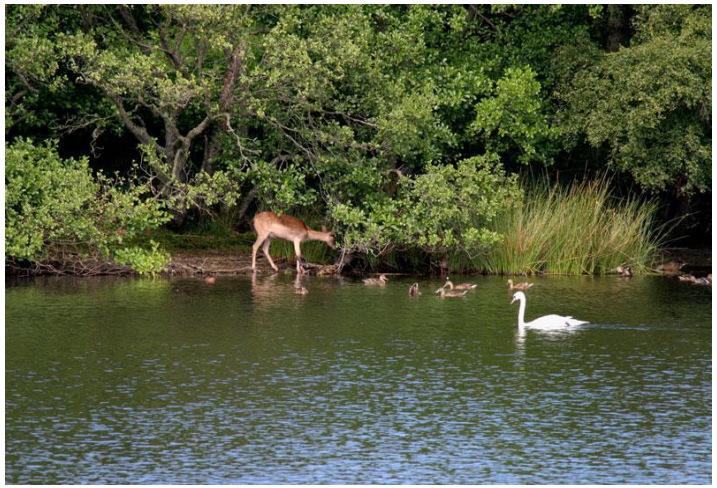




+201119653588

Miss Hoda Ahmed

- **Habitat :- a place where, plants and animals live.**



- **Niche :- Special role that an organism plays in the ecosystem.**

Invasive Species

- An organism that is introduced to a new ecosystem and causes harm.

Predator Vs Prey

- **Predator** : An animal that hunts other animals for food.
- **Prey** :- An animal that are eaten by other animals.

- Predators are important in an ecosystems because they help control the size of prey populations.

Lesson 3

Role of Decomposers

+201119653588

Miss Hoda Ahmed

Decomposers

- **Decomposers :-** Are organisms that turn the material into simpler substances. They are organisms that break down plant and animal matter.
- Recycled nutrients from dead organisms back to the environment.
- **Examples of decomposers are** :- **bacteria and fungi**
- **Bacteria** :- Are unicellular micro-organisms.
- **Fungi** :- as yeast fungus, mushrooms and bread mold fungus (multicellular)

- Decomposers are very important because they return nutrients to the soil (increase soil fertility).
- The role of decomposers in ecosystems is to keep the nutrients for the plants.

What factors can interfere with the role of decomposers ?

- If decomposers don't have resources, they need to break down matter, they can't do their job. Decomposers are living things, so they need the right amount of water, air, and shelter.

Moisture and decomposers

- How moisture affects decomposers :-
- (Are decomposers more active in damp or dry environment ?)

Dead matter breaks down faster when there is more moisture in the environment.

Moisture Definition :- The water vapor content of the atmosphere.

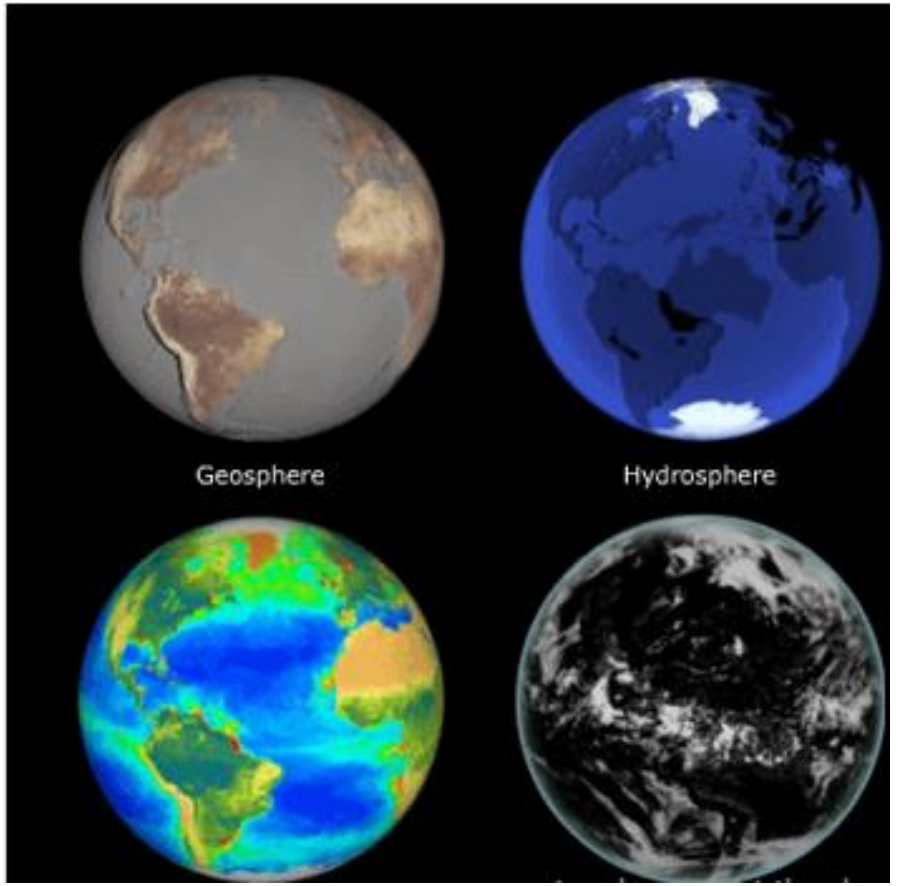

L1 EARTHS
MAJOR SYSTEMS
UNIT 2: ECOSYSTEMS
MODULE2: ENERGY IN ECOSYSTEMS

EARTH'S SYSTEMS

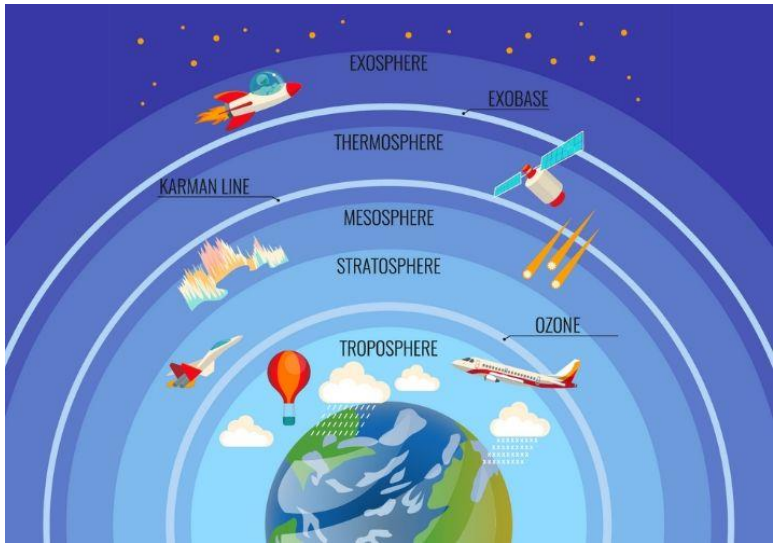
The parts that make up Earth can be organized into four main systems:

1. The atmosphere
2. The geosphere
3. The hydrosphere
4. The biosphere

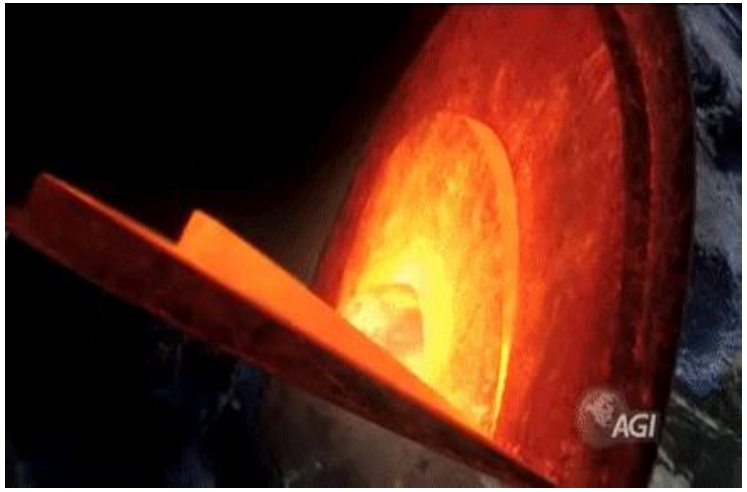
Systems are a collection of different components that all work together.



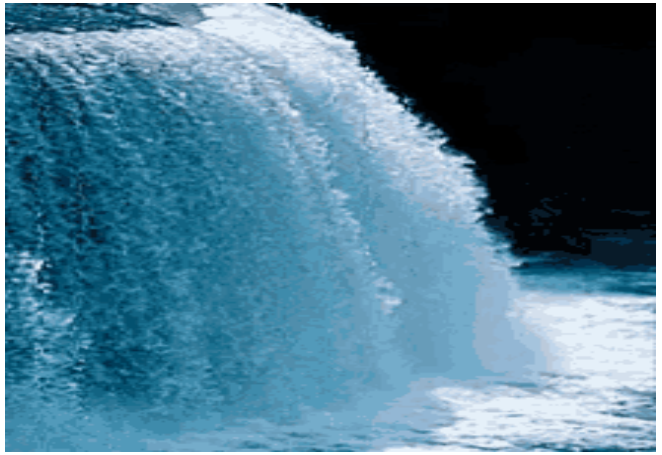
The atmosphere: is a layer of gases surrounding Earth. Made up mostly of nitrogen and oxygen, the atmosphere also contains water vapor, carbon dioxide, and other gases.



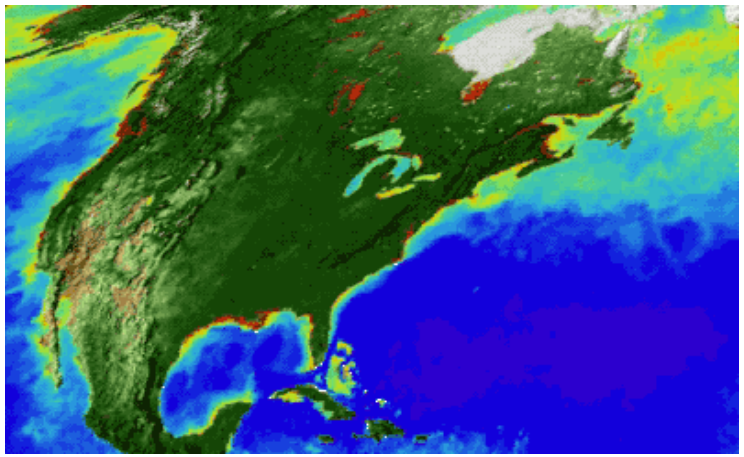
The geosphere includes the solid and molten rock inside Earth. It also includes the soil, rock pieces, and land features at Earth's surface. Hills, mountains, erupting volcanoes, and other landforms are all part of the geosphere.



All of Earth's liquid and solid water, including oceans, lakes. rivers, glaciers, and ice caps, makes up the hydrosphere. **The hydrosphere** covers more than 70 percent of Earth's surface. It exists in two forms: salt water and fresh water. Most of Earth's fresh water exists as ice. Most of Earth's salt water is in the ocean.



The biosphere is all of Earth's living things. Organisms that make up the biosphere are found from the lower atmosphere to the depths of the ocean floor. All living things are part of the biosphere



Lesson2:
CYCLES OF MATTER in Ecosystems

- **What is matter ?**

Matter is anything that has mass and volume (takes up space).

- **examples** include solid, liquid, gas.

- **Do you think that matter is conserved ?**

Yes

- **Cycles :-** Are sequences of events that repeat themselves.

Cycling of matter

1- Water Cycle

2- Nitrogen Cycle

3- Oxygen-Carbon Cycle

+201119653588
Miss Hoda Ahmed

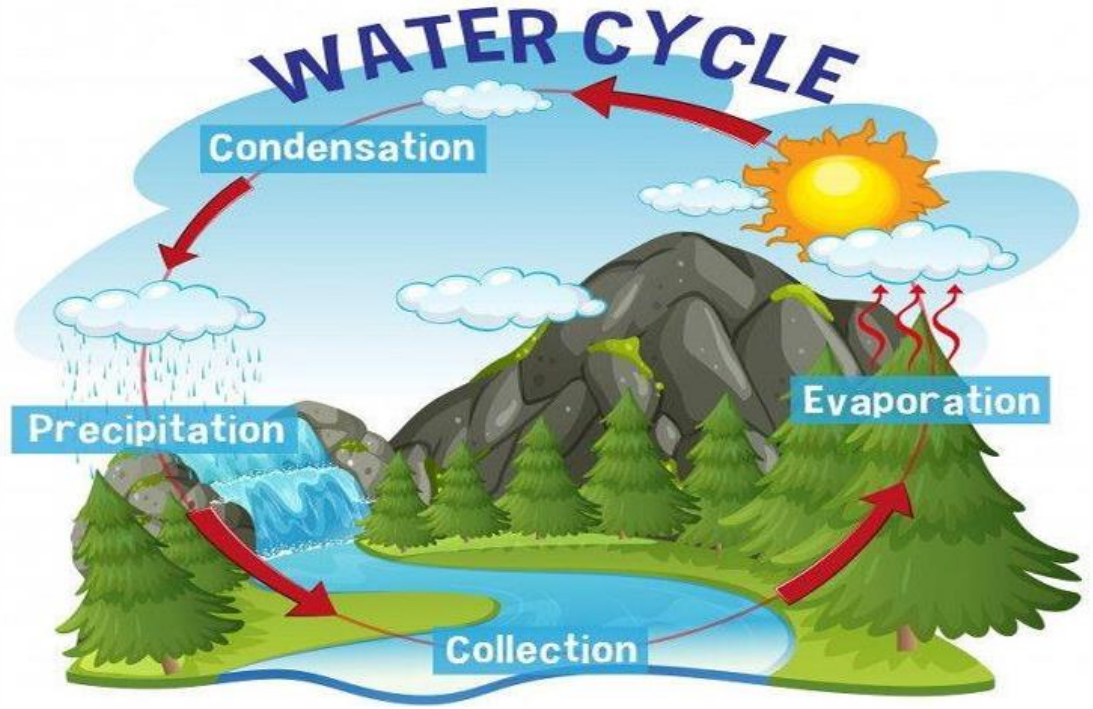
1- Water Cycle

Evaporation

Condensation

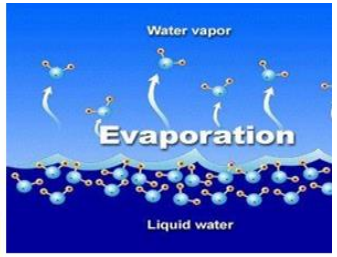
Precipitation

Runoff



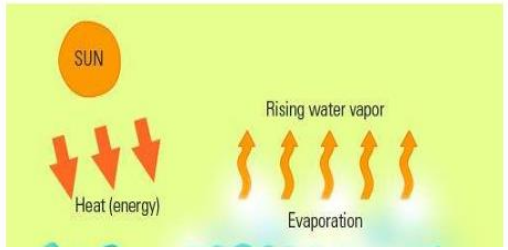
Water cycle : - Is the continuous movement of water between Earth's surface and air. Changing forms among the three states of water –
The sun is the energy source for the water cycle. the sun's energy causes water to evaporate.

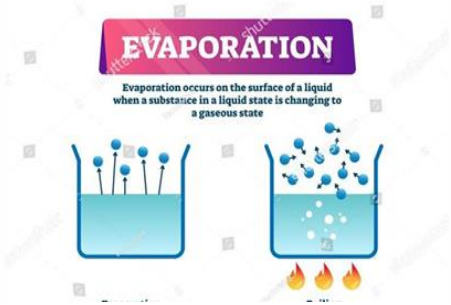
Evaporation



- The conversion of water from a liquid to a gas.

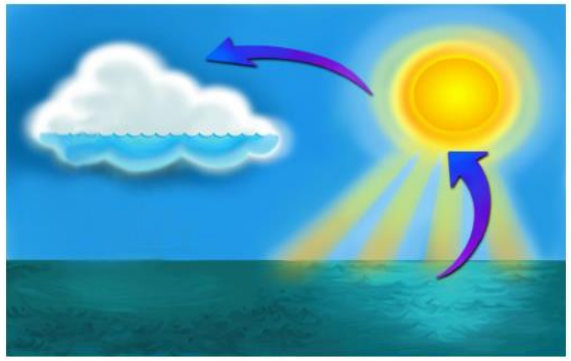
Solar energy drives evaporation of water from the ocean. The evaporated water changes from a liquid form into water vapor a gaseous form.





Condensation

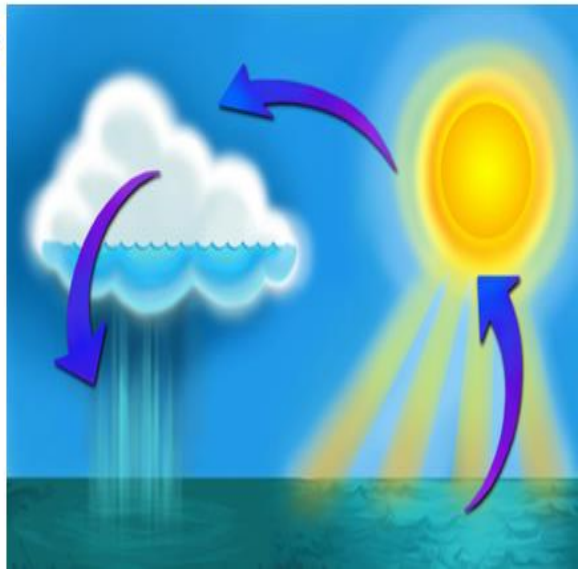
- The transformation of water vapor back into liquid water by cooling.
- Evaporated water is warmed and rises into the air where it eventually cools and condenses to form clouds.



Precipitation

- Rain, hail, or snow falling from the clouds due to the condensation of water

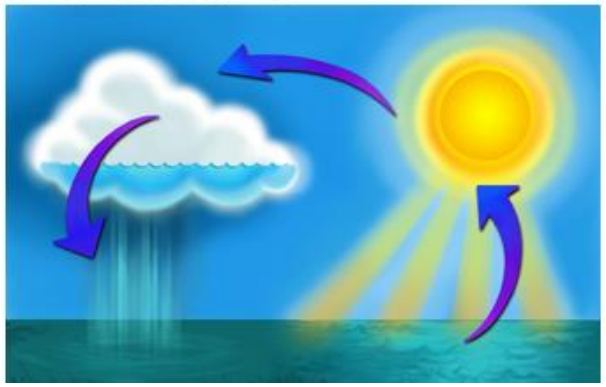
• When clouds become very heavy with condensed water, the water is released in the form of rain, hail, or snow.



Runoff

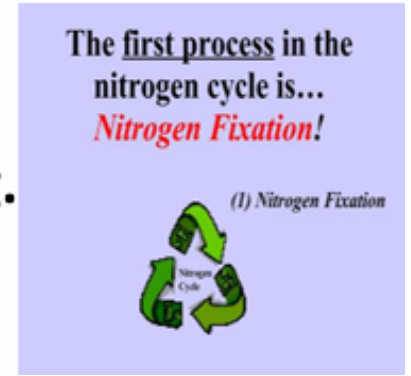
-When it rains water flows over the Earth surface as runoff.

- Runoff gathers in rivers, lakes,
- and oceans

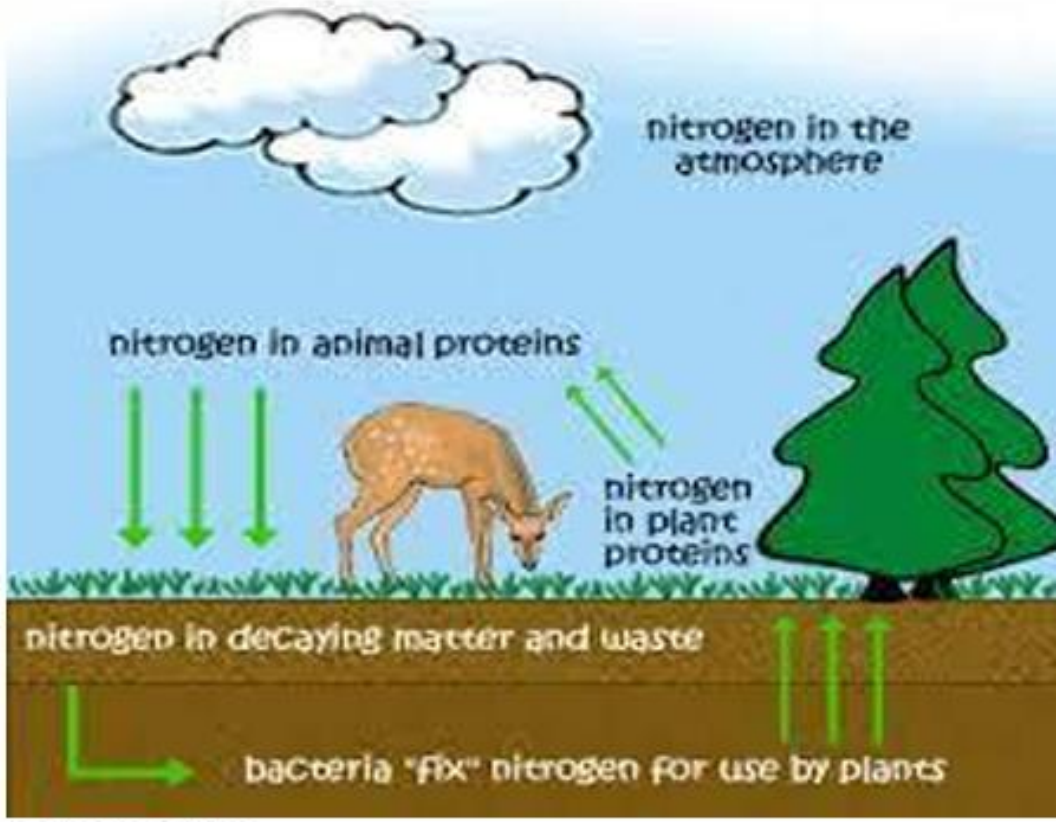


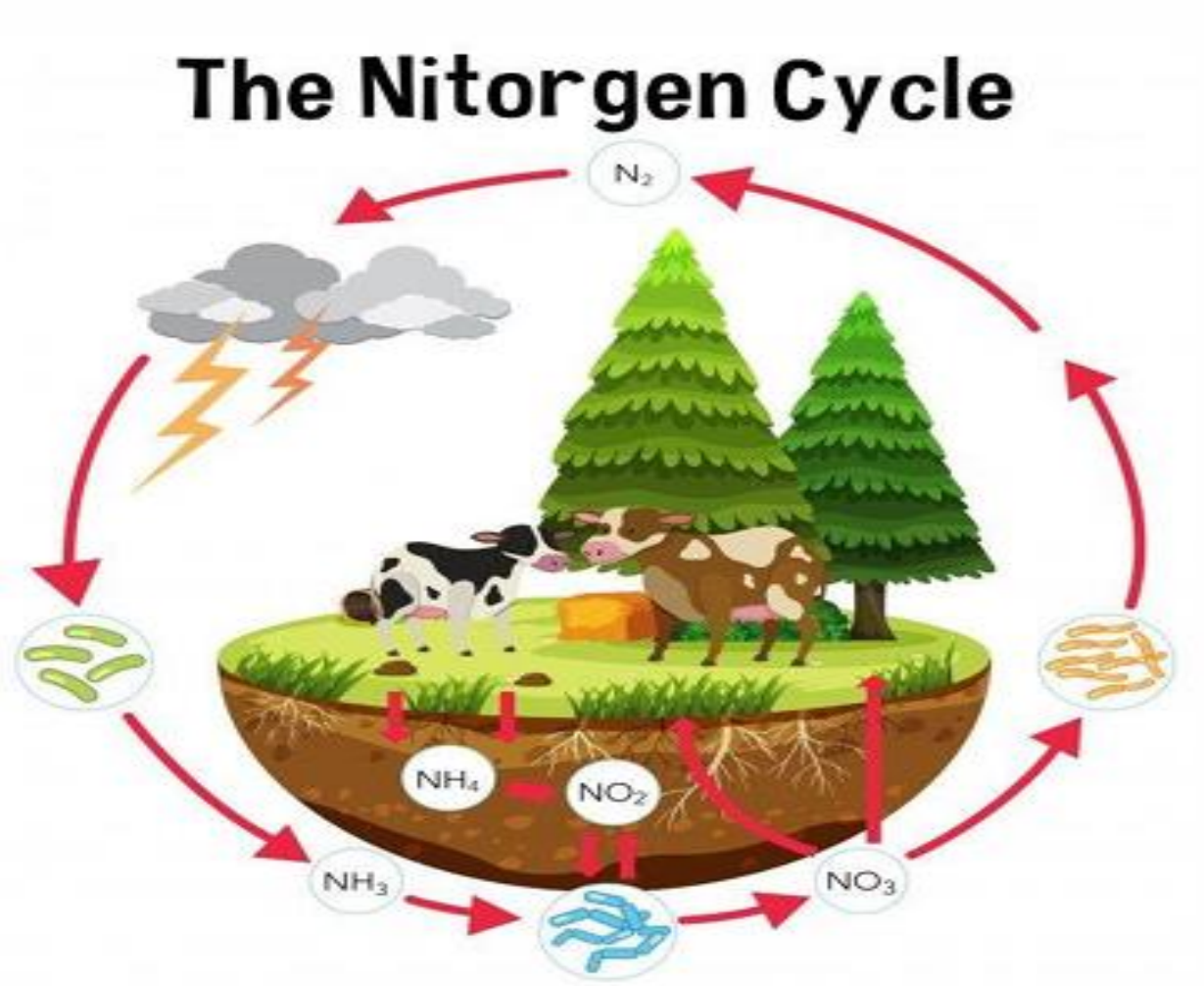
Nitrogen Cycle

- The nitrogen cycle is the continuous circulation of nitrogen from air to soil to organisms and back to air or soil.
- Air is made up of 78% percent Nitrogen, but few living things can use nitrogen gas.
- First, nitrogen must be fixed, or changed into a form that living things can use.
- Some bacteria that live on roots of plants can change nitrogen gas into a form plants can use.
- Nitrogen can come from fertilizers that are added to soil.
- Nitrogen can also be fixed by volcanic activity and lightning.



- As plants grow, they absorb this form of nitrogen to make proteins.
- When animals eat plants or other plant-eating animals, they take in the stored nitrogen.
- Nitrogen is eventually released into the soil through animal waste and decayed plants and animals.
- Decomposers and bacteria help return nitrogen into the atmosphere, and the cycle repeats.



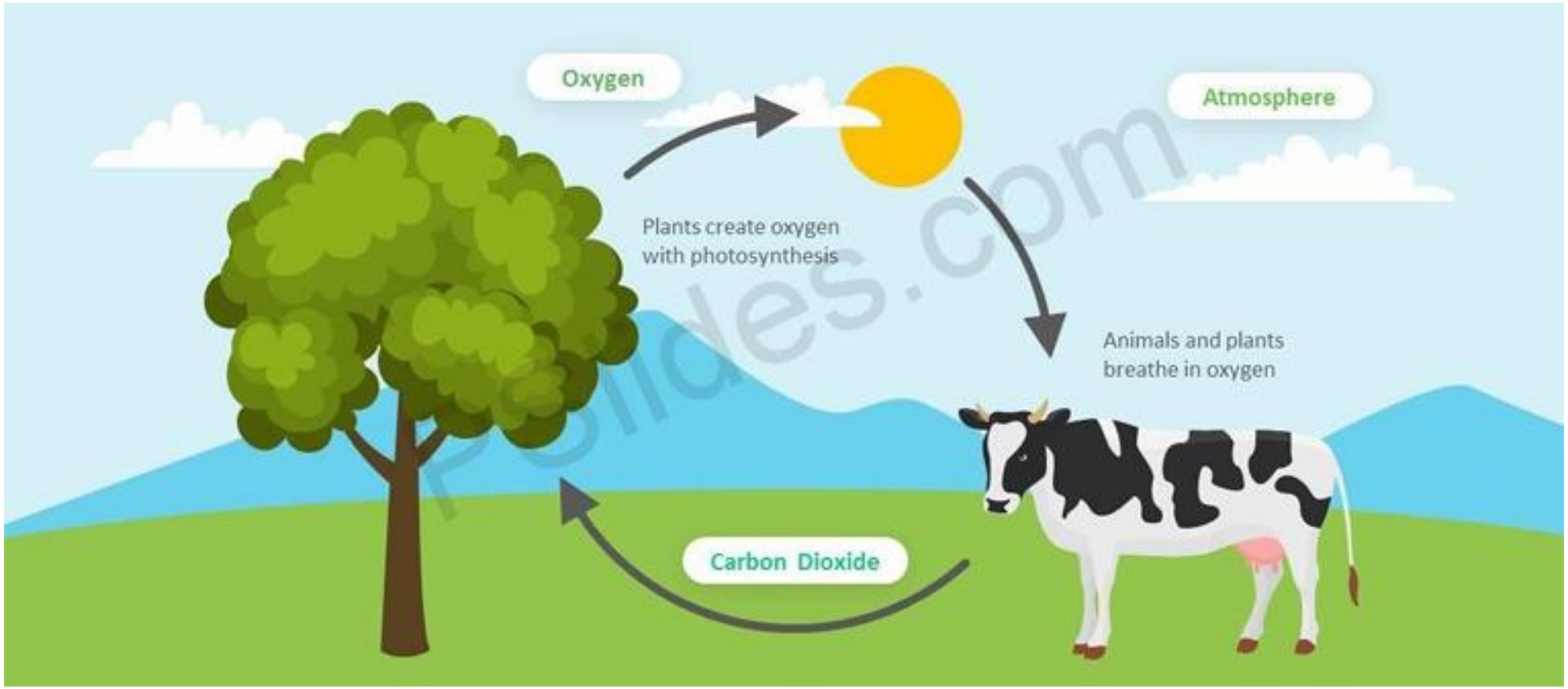


+201119653588

Miss Hoda Ahmed

Oxygen-Carbon Cycle

- Plants and animals are both part of the oxygen- carbon cycle.
- The Oxygen-Carbon Cycle :- Is the circulation of oxygen and carbon dioxide gas.
- Producers give off oxygen as well as some carbon dioxide.
- When consumers use energy, they release carbon dioxide as waste.
- Millions of years ago, Earth's atmosphere had no any breathable oxygen.
- Early producers, such as plants, used water , carbon dioxide and energy from the sun to form their own food.
- Over time the oxygen released by producers gradually built up in the atmosphere.
- Today, producers continue to cycle oxygen into the atmosphere.
- Carbon dioxide is a waste product produced by all living things, including plants when they use energy.


Oxygen
Atmosphere
Plants create oxygen
with photosynthesis
Animals and plants
breathe in oxygen
Carbon Dioxide

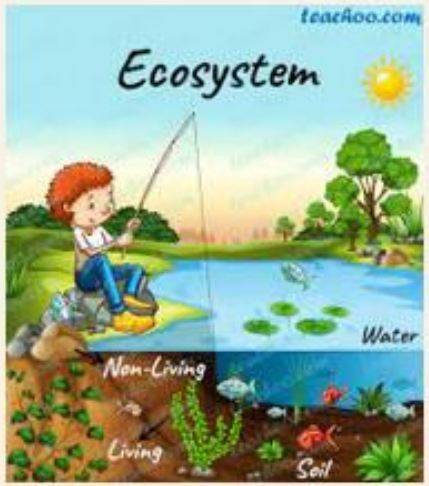
Lesson3: Energy Transfer in Ecosystem

What is Energy?

- The power or ability to make something work, move, or be active.

What is an Ecosystem?

- An ecosystem is made up of all the living and nonliving things in an environment.
- All these factors interact with each other.



What is a Producer?

- A producer is an organism that uses energy from the sun to make its own food.
- Producers include green land plants such as trees, grasses.
- Algae are the main producers in lakes and oceans.



What are Consumers?

- Consumers are organisms that can't make their own food are called consumers.
- Examples are animals.




Consumers are classified by the kind of food they eat:

Hebivores

Are animals that eat only plants

Carnivores

Are animals that eat other animals

Omnivores

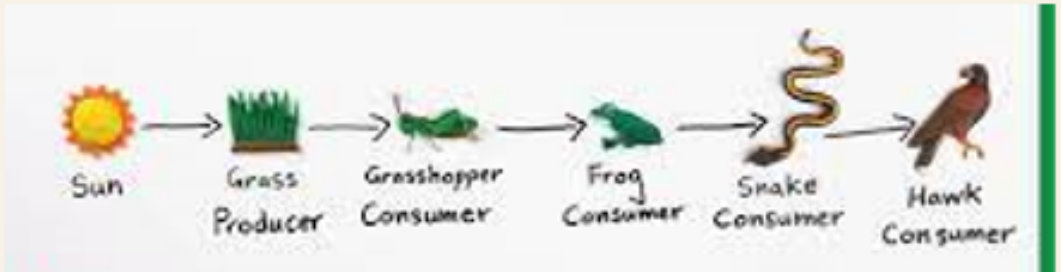
Are animals that eat both plants and animals

Decomposers

Organisms that break down dead or decay plant and animal materials.

Food Chains

- A food chain describes how energy and nutrients move through an ecosystem.
- Food chains model a series feeding relationships among organisms in an ecosystem.
- The energy flow in an ecosystem only goes in one direction.
- The Sun is the source of all energy in food chain.
- The energy is used by producers which are the base of all food chains.
- The energy moves from producers to consumers.



Food Web

- A food web consists of all the food chains in a single ecosystem.
- The arrow show the direction of energy flow from one organism to another.
- The food web shows the predators and prey in an ecosystem.
- Predator may feed upon more than one type of prey for energy .
- Prey may have more than one type of predator.
- This keeps the ecosystem balanced.