

EXERCISE SOLUTION...

Read the handout provided regarding the nitrogen cycle. Create a concept map for the nitrogen cycle using the terms below. Define any terms that you do not recognize.

TEXT - Water and Nitrogen Cycles.pdf

Atmospheric Nitrogen
 N_2

Nitrite
 NO_2

Nitrate
 NO_3

Ammonia
 NH_3

Plant
Protein

Animal
Protein

Linking words - May be used more than once:

bacterial action

absorbed by plants

break down of feces and urine

lightning

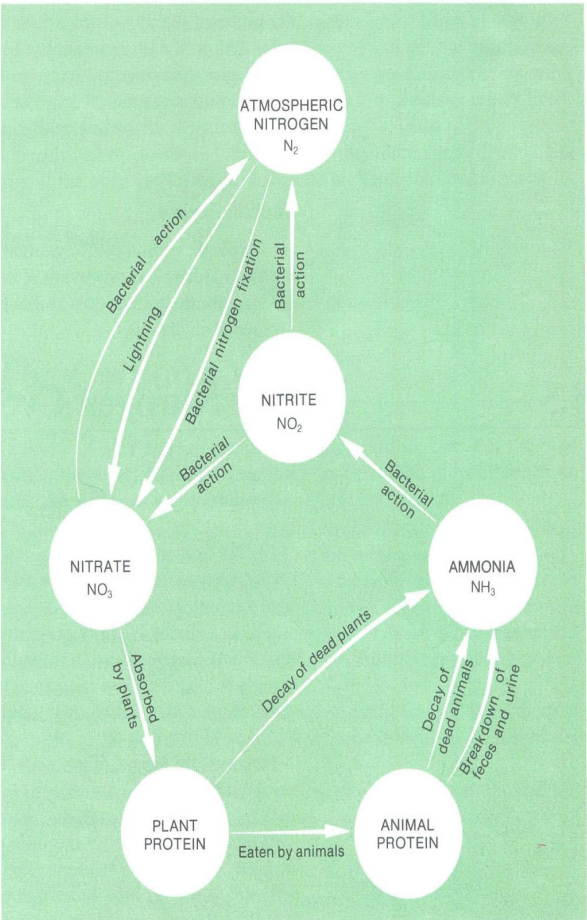
eaten by animals

bacterial nitrogen fixation

decay of dead animals

decay of dead plants

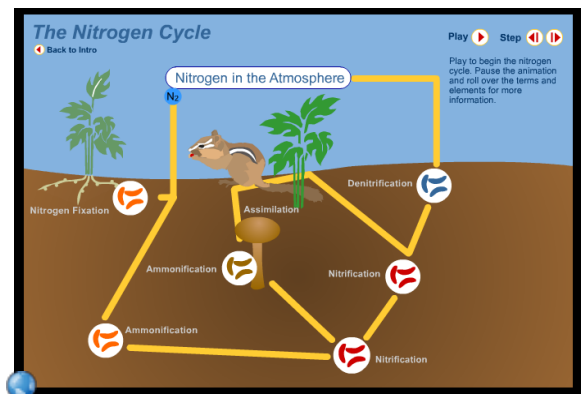
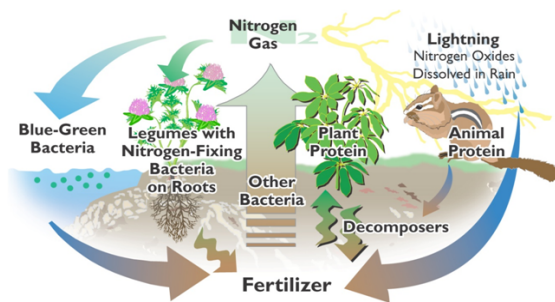
SOLUTION...



Nitrogen Cycle

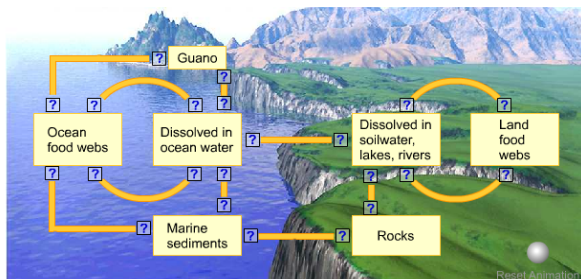
Nitrogen is an element essential to life. It is found in proteins, DNA (deoxyribonucleic acid), and in chlorophyll molecules.

Nitrogen Cycle



Phosphorus Cycle

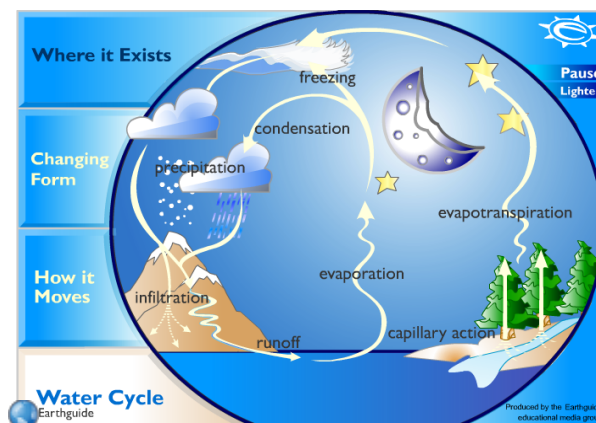
Many important molecules within cells contain phosphorous atoms. For example, ATP (adenosine triphosphate) is found in every living cell and plays a key role in energy storage and supply.



Complete this diagram by clicking on one end of each orange line to make it into an arrow that shows the direction of phosphorus flow. Mouse over the middle of a line to identify the process represented by that arrow.

Phosphorus normally occurs in water and soil in inorganic compounds. Phosphates (PO_4) are a common form. These compounds are absorbed by plants and used to make organic compounds such as ATP. When animals eat plants, phosphorus is passed on to them. When dead plants, dead animals, and fecal matter decay, organic forms of phosphorus are released into the water or soil. Bacteria decompose these organic forms into inorganic forms. Then, the cycle begins again.

Water Cycle or Hydrologic Cycle



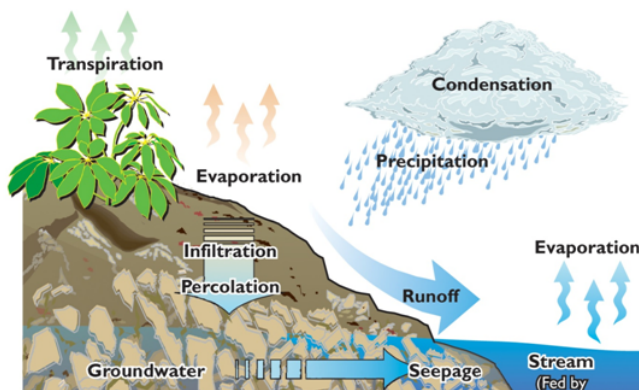
READ THE FOLLOWING ON THE WATER CYCLE.

TEXT - Water and Nitrogen Cycles.pdf

BE ABLE TO LABEL THE GIVEN DIAGRAM
DEFINE EACH OF THE FOLLOWING...

1. **transpiration** - loss of water through the pores in the leaves of plants.
2. **evaporation** - water vaporizes into the air.
3. **condensation** - water forms into a liquid form.
4. **precipitation** - collects in clouds and falls to the ground as rain/snow.
5. **surface runoff** - water that travels on the ground to a stream, pond or other body of water.
6. **percolation/infiltration** - water soaks into the ground.
7. **ground water** - water found within bedrock.
8. **capillarity** - water movement from the soil up to the roots of a plant.

Water Cycle



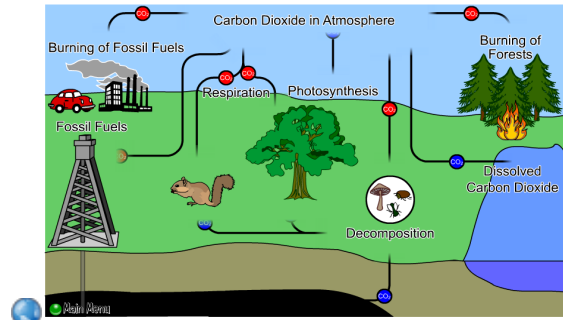
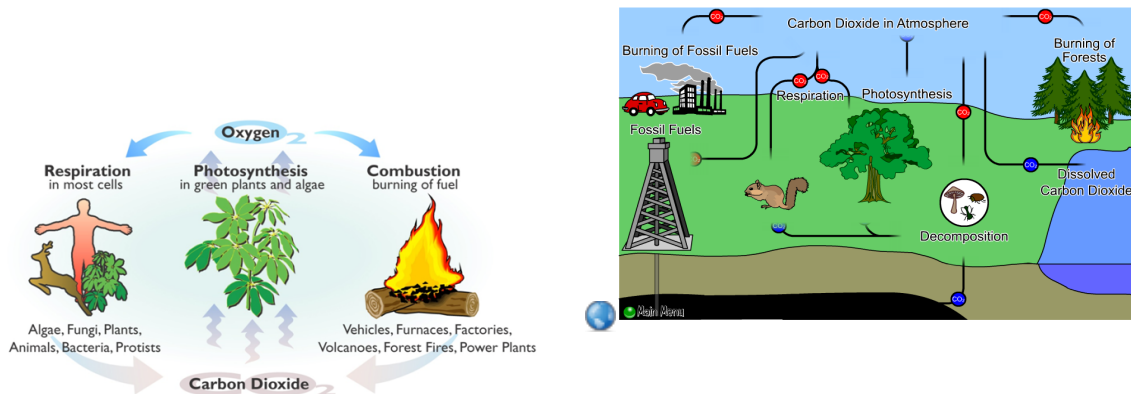
Did you know?

- A fixed amount of water recirculates around the Earth.
- Water moves in certain directions from place-to-place (reservoir-to-reservoir) by only certain processes and pathways.
- Some processes of transfer are rapid while others are much slower.
- A conceptual "reservoir" of water is not quite the same thing as a reservoir in which water is stored.
- When land-based glacial ice melts and runs off into the sea, sea level rises.
- When land-based glacial ice forms, sea level drops.
- When floating icebergs melt into the sea, sea level doesn't change.
- Glacial ice is made up of freshwater that had previously fallen as snow.
- Evaporation of seawater requires an input of energy; condensation of clouds releases energy.

Carbon Cycle

Carbon is needed by all living things and cycles through ecosystems.

Carbon-Oxygen Cycle



- Some organic matter does not decompose easily. Instead, it builds up in the earth's crust. Oil and coal were formed from the build-up of plant matter millions of years ago.
- At one time the carbon cycle was almost a perfect cycle. Carbon was returned to the atmosphere as quickly as it was removed. The increased burning of fossil fuels is adding carbon to the atmosphere faster than producers can remove it.

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Species Interactions...



The image shows a video player interface. The video content is a close-up of a caterpillar with a yellow and black patterned body, resting on a large green leaf. The video player includes a progress bar at 0:01 / 4:44, a volume icon, and a play button. Below the video, the title "Body Invaders" is displayed, along with the National Geographic logo and the text "National Geographic · 4,067 videos". To the right, the view count "1,937,436" is shown. Below the view count, there are icons for likes (7,268) and dislikes (188). On the left side of the video player, there is a "Subscribe" button with a red play icon and the number "2,436,757" next to it.

Check out the student projects/videos on the website!!!

HW: Eco-Points???

Attachments

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