

Matter in Ecosystems

An ecosystem needs more than energy to function. It also needs matter. Matter is used by organisms in ecosystems for life processes. Most ecosystems need over 20 elements. Just the plants in most ecosystems need 16 elements. These essential elements are called **nutrients**.

NOTES - Nutrients and Cycles.pdf

Re-order the descriptions on the right to line up with the terms on the left.

non-mineral nutrients	magnesium - one of the atoms in a chlorophyll molecule
mineral nutrients	needed in relatively large amounts for plant growth (found in commercial fertilizers) -nitrogen, phosphorus and potassium
macronutrients	iron - needed to make hemoglobin molecules in red-blooded animals
primary macronutrients	nutrients which enter an ecosystem from bedrock
secondary macronutrients	nutrients which enter an ecosystem in the form of water and carbon dioxide - oxygen, carbon, hydrogen (building blocks of life)
micronutrient	required in greater amounts than micronutrients

Correct Matches

non-mineral nutrients → nutrients which enter an ecosystem in the form of water and carbon dioxide
- oxygen, carbon, hydrogen
(building blocks of life)

mineral nutrients → nutrients which enter an ecosystem from bedrock (ground)

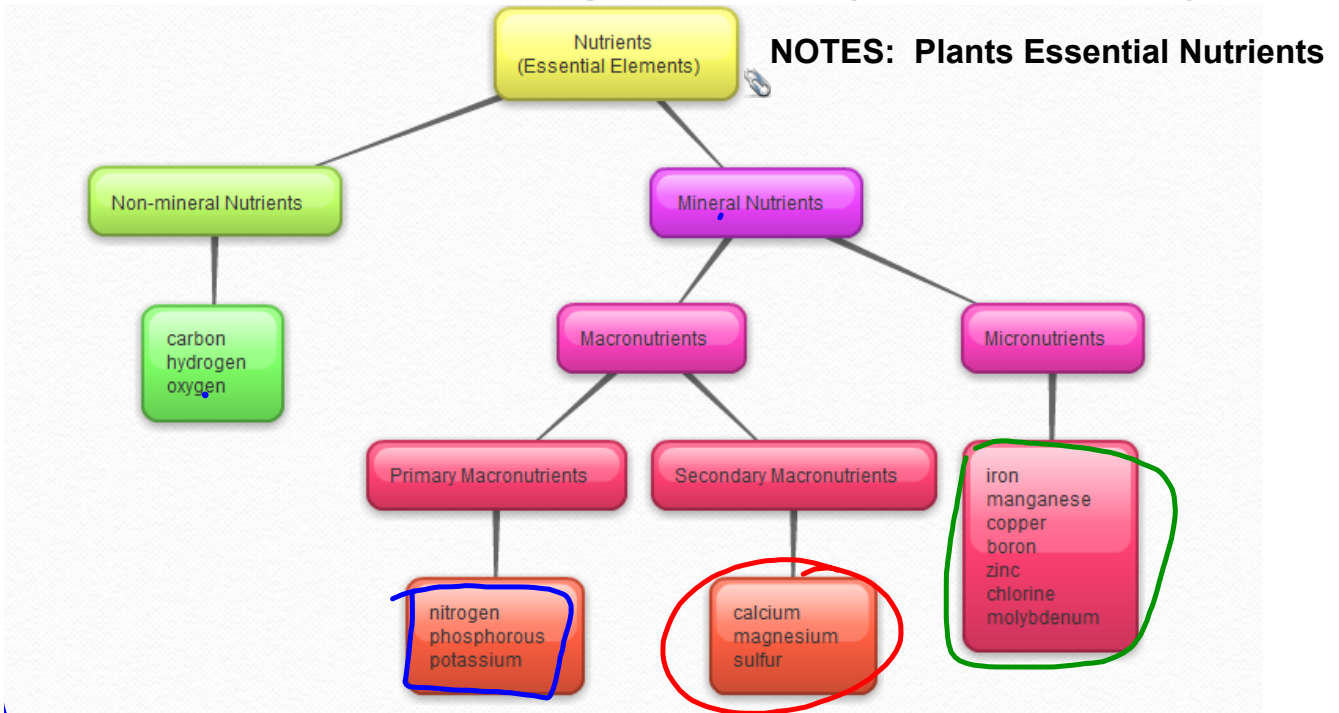
macronutrients → required in greater amounts than micronutrients
(big)

primary macronutrients → needed in relatively large amounts for plant growth (found in commercial fertilizers)
-nitrogen, phosphorus and potassium
(1st)

secondary macronutrients → magnesium - one of the atoms in a chlorophyll molecule
(2nd)

micronutrient → iron - needed to make hemoglobin molecules in red-blooded animals
(small)

- 16 elements which most plants need (excludes nickel)...



Essential and Beneficial Elements in Higher Plants

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Lr	Rf	Db	Sg	Bh	Hs	Mt									
		La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb		
		Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No		

 Essential Mineral Element
 Beneficial Mineral Element
 Essential Nonmineral Element

Remember: Energy flows through an ecosystem in one direction.

Nutrient Cycles

Nutrients are recycled through ecosystems...

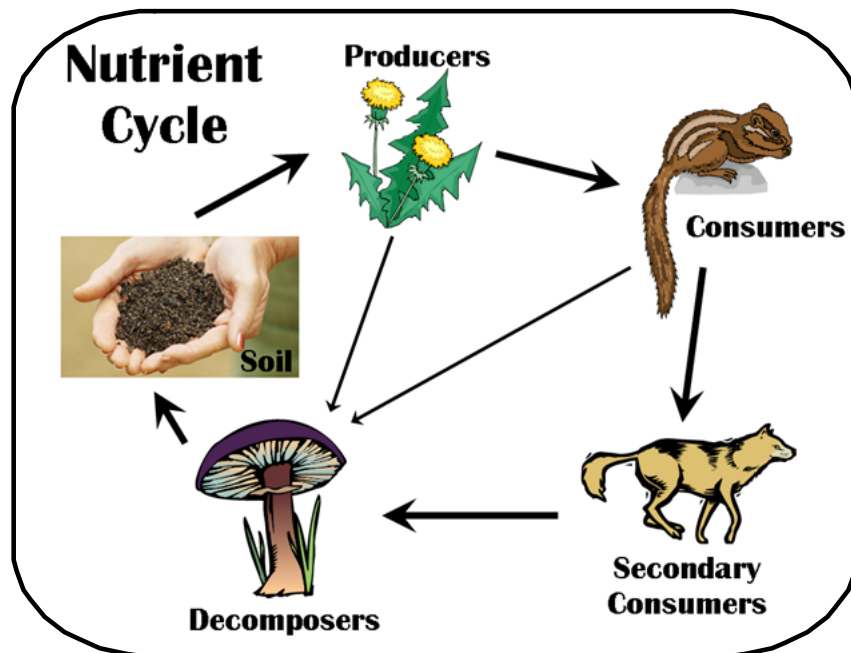
Producers get their nutrients from the soil, water and air.

Herbivores get nutrients when they eat producers.

Carnivores get nutrients when they eat herbivores.

Decomposers break down animal wastes and dead organisms.

The actions of decomposers release nutrients back into the soil, water and air so producers can use them again.



(Water and air not shown in this diagram.)

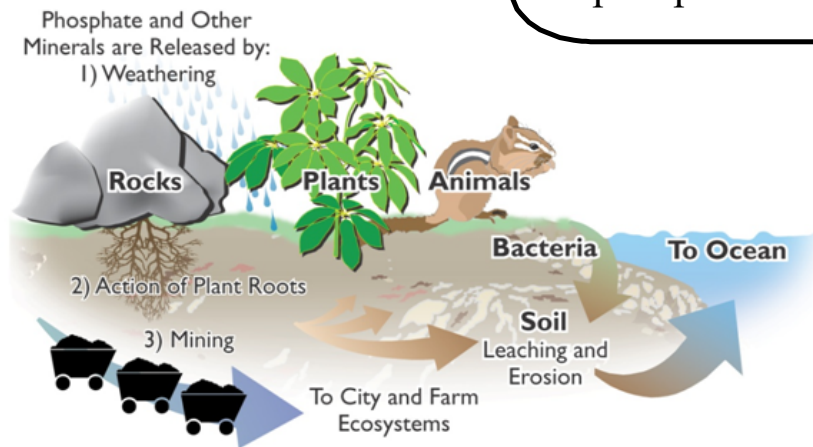
Mineral Cycle

[Notes - Cycles.pdf](#)

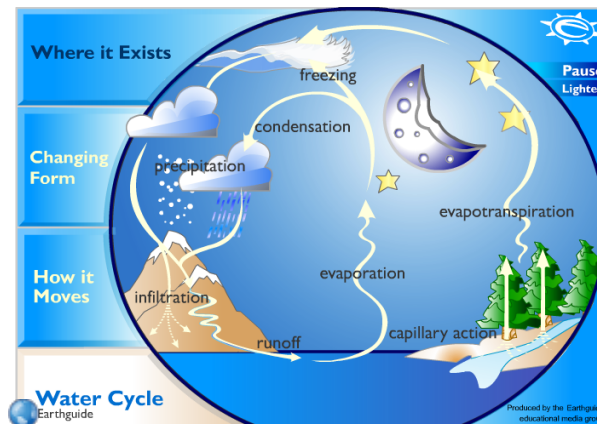
Cycles to be studied:

- 1. water cycle
- 2. carbon cycle
- 3. nitrogen cycle
- 4. phosphorus cycle

Terms
about



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.



Attachments

NOTES - Nutrients and Cycles.pdf

Essential Nutrients for Plants.pdf

Notes - Cycles.pdf

TEXT - Water and Nitrogen Cycles.pdf