

Key

Intro to Environmental Science 120

Review – Unit #2

cell
tissue
organ
organ system
- nervous
- integumentary
- respiratory
- digestive
- excretory
- skeletal
- muscular
- circulatory
- endocrine
- reproductive
- lymphatic/immune
ecology
ecologist
organism
species
population
community
ecosystem
biome
biosphere
biotic factor
abiotic factor
habitat
niche
sunlight
photosynthesis
reactant
product
chemosynthesis
autotroph
heterotroph
- herbivore
- carnivore
- omnivore
- detritivore
- decomposer
- scavenger

energy
food chain
food web
trophic level
owl pellet
ecological pyramids
- energy pyramid
- biomass pyramid
- biomass
- pyramid of numbers
species interactions
- direct/indirect
- predation
- predator
- prey
- competition
- parasitism
- parasite
- host
- mutualism
- commensalism
adaptation
symbiosis
co-evolution

nutrient
mineral nutrient
non-mineral nutrient
macronutrient
- primary
- secondary
micronutrient
water/hydrologic cycle
- surface runoff
- precipitation
- condensation
- percolation/infiltration
- capillarity
- evaporation
- transpiration
- ground water
carbon cycle
- carbon dioxide
- oxygen
- respiration
- photosynthesis
- combustion
phosphorus cycle
- inorganic compounds
- phosphates
- plants
- animals
- decaying/fecal matter
nitrogen cycle
- atmospheric nitrogen
- nitrates
- nitrites
- ammonia
- plant protein
- animal protein
- lightning
- bacterial action
- nitrogen fixation
- absorption by plants
- eaten by animals
- decay of dead material
- break down of feces and urine

environmental
problems disrupting
natural cycles
- radioactive
contamination
- pollution of
oceans
- depletion of fish
stocks
- use of fossil fuels
- draining of
underground
aquifers
- clearing of forests
- use of fertilizers and
pesticides
species at risk
- extinct
- extirpated
- endangered
- threatened
- special concern
- data deficient
- not at risk

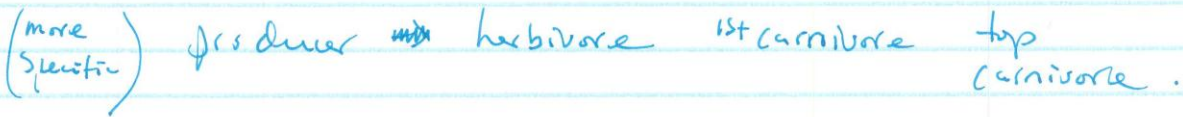
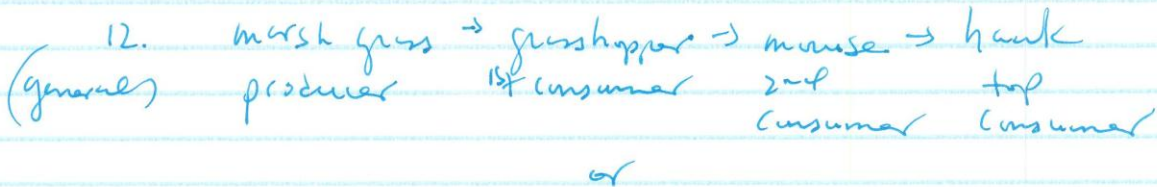
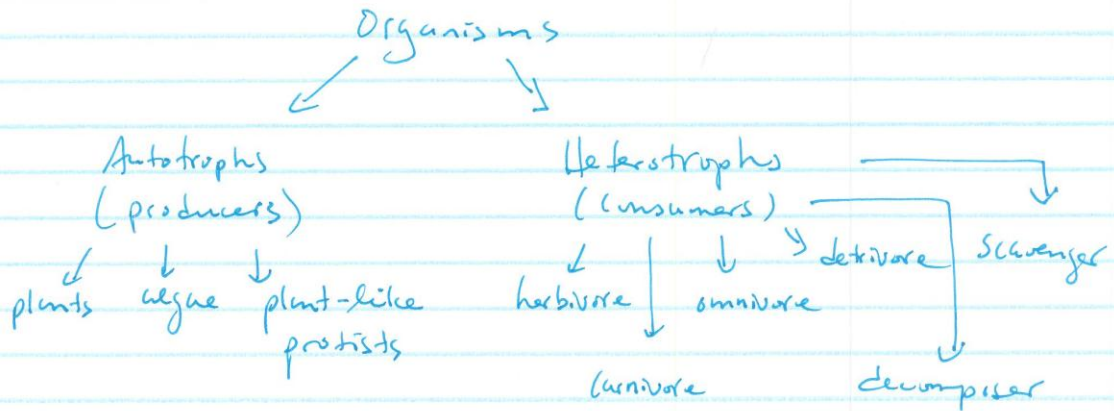
1. Be able to define each term on the previous page.
2. What are the levels of organization in a multicellular organism?
3. State the functions of the eleven organ systems in a human.
4. What are the levels of organization studied by ecologists?
5. Be prepared to provide information regarding the biome covered by your travel brochure.
6. Be able to provide two biotic factors and two abiotic factors.
7. Choose an organism and describe its niche in its ecosystem.
8. What is the main energy source for life on Earth?
9. How does energy move through an ecosystem?
10. Write a balanced chemical equation for photosynthesis.
11. Draw a concept map for the types of organisms discussed in class.
12. Study the food chain below. Identify the trophic level occupied by each organism.

marsh grass -> grasshopper -> mouse -> hawk

13. Review the background material on owl pellets provided with the owl dissection handouts.
14. a) Name three types of ecological pyramids.
b) What types of pyramids can be inverted?
15. Name five types of species interactions. Be able to give an example of each and/or identify the type existing between two organisms given background info.
16. a) Be able to draw a concept map for the types of nutrients discussed in class.
b) How do nutrients move through an ecosystem?
c) Be able to label a diagram of the water (hydrologic) cycle.
d) Be able to state the processes involved in the carbon cycle.
e) Be able to draw a concept map for the nitrogen cycle.
17. List seven environmental problems, caused by humans, which disrupt natural cycles.
18. There are 7 levels of risk for species. What are they?

1. Defining terms → see notes.
2. There are four levels of organization:
 1. cell
 2. tissue
 3. organ
 4. organ system.
3. Functions of organ systems → see notes
4. There are seven levels of organization studied by ecologists:
 1. organism
 2. species
 3. population
 4. community
 5. ecosystem
 6. biome
 7. biosphere
5. Time Travel Procedure → see handout
6. biotic factors abiotic factors
 animals light
 plants temperature
7. Niche - unique role
8. The sun is the main ~~source~~ source of energy.
9. Energy flows through an ecosystem
10. $6\text{CO}_2 + 6\text{H}_2\text{O} \xrightarrow{\text{light}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$

11.



13. Owl pellets ⇒ see handouts.

14-a) pyramid of numbers, energy pyramid, biomass pyramid

b) pyramid of numbers + biomass pyramid.

15. ① Competition → individuals or populations attempt to use the same limited resource (can be within or between species)

ex: fox and coyote

② predation → organism feeds on another organism

ex: coyote and deer

③ parasitism → organism lives on another organism

ex: sea-lice and salmon

④ mutualism → close relationship between two species where each benefit

ex: bee and flower

⑤ commensalism → one species benefits and other neither helped/harmed ex: shark remora

16 a) see notes

b) energy flows through an ecosystem in one direction.
nutrients cycle through an ecosystem.

c)

d)

e)

} → see handout

17. ① radioactive contamination

② pollution of the ocean

③ depletion of fish stocks

④ use of fossil fuels

⑤ draining of underground aquifers

⑥ clearing of forests

⑦ use of fertilizers/pesticides

18. * Note: Should say 1 levels of risk

① extinct → no longer exists anywhere

② extirpated → no longer exists in one place but is found somewhere else.

③ endangered → facing imminent extirpation or extinction

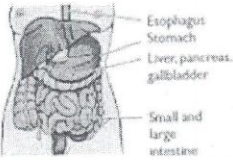
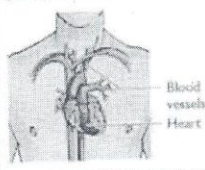
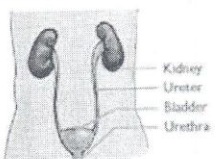
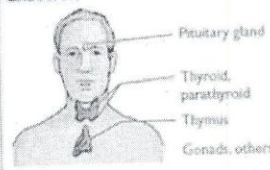
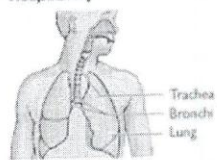
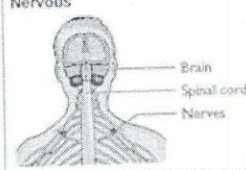
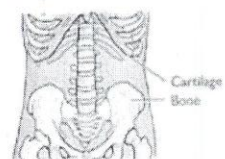
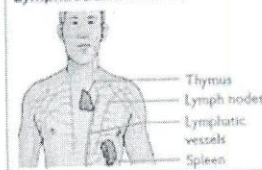
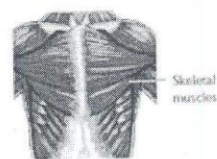
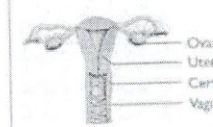

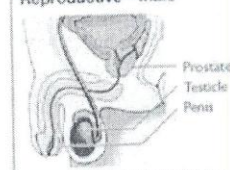
④ threatened → likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

⑤ special concern → may become threatened or endangered because of a combination of biological characteristics and identified threats.

⑥ data deficient → applies when there is not enough available information to determine if the species is at risk or not.

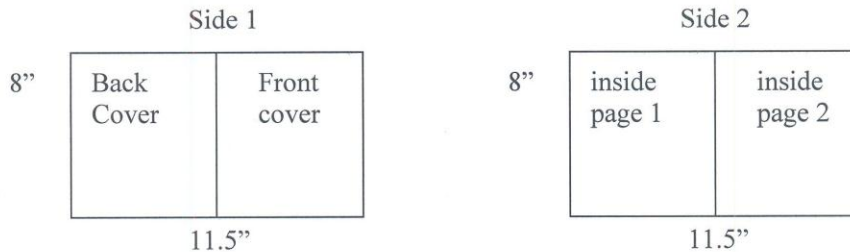
⑦ not at risk → a species that is not at risk of extinction.

TABLE 5.1 Organs and Functions of the Human Organ Systems

Organ System	Function	Organ System	Function
Digestive  <p>Esophagus Stomach Liver, pancreas, gallbladder Small and large intestine</p>	Ingests and breaks down food so that it can be absorbed by the body Chapter 7	Cardiovascular  <p>Blood vessels Heart</p>	Enables the transport of nutrients, gases, hormones, and wastes to and from cells of the body Chapter 9
Urinary  <p>Kidney Ureter Bladder Urethra</p>	Eliminates liquid wastes; regulates water balance Chapter 11	Endocrine  <p>Pituitary gland Thyroid, parathyroid Thymus Gonads, others</p>	Secretes hormones into bloodstream for regulation of body activities Chapter 16
Respiratory  <p>Trachea Bronchi Lung</p>	Enables gas exchange, supplying blood with oxygen and removing carbon dioxide Chapter 10	Nervous  <p>Brain Spinal cord Nerves</p>	Senses environment; communicates with and activates other parts of the body Chapters 14 and 15
Skeletal  <p>Cartilage Bone</p>	Provides mechanical support for the body; stores minerals; produces red blood cells Chapter 6	Lymphatic and Immune  <p>Thymus Lymph nodes Lymphatic vessels Spleen</p>	Protects against infections Chapter 12
Muscular  <p>Skeletal muscles</p>	Enables movement, posture, and balance via contraction and extension of muscles Chapter 6	Reproductive—Female  <p>Ovary Uterus Cervix Vagina</p>	Produces eggs and supports the development of offspring Chapter 18
Integumentary  <p>Hair Nails Skin</p>	Protects body from environment, injury, and infection; stores fat Chapter 6	Reproductive—Male  <p>Prostate Testicle Penis</p>	Produces and delivers sperm and associated fluids Chapter 18

Introduction to Environmental Science 120
Biome Travel Brochure

You are going to create a 1 page, 2 sided travel brochure to a biome of your choice. Your project will be **word processed** with **color pictures** and information on your biome. You will follow the following format:



Side One of your sheet of paper will have the front and back covers of your brochure. The left half of your paper will be the back cover and the right half will be your front cover. The following content must be included:

Back Cover

- /5 5 neat and interesting facts about your biome, not mentioned elsewhere in your brochure
- /3 3 neat and interesting pictures related to the 5 facts above
- /4 4 URLs of sites used to obtain information

Front Cover

- /2 the large, boldfaced name of your biome described using alliteration (**Big Brown Bull**)
- /2 a map of the world, with your biome shaded in
- /2 a catchy slogan as to why we should visit your biome

Side Two of your sheet of paper will have the inside pages of your brochure with most of your information. The following content must be included:

Inside Page 1

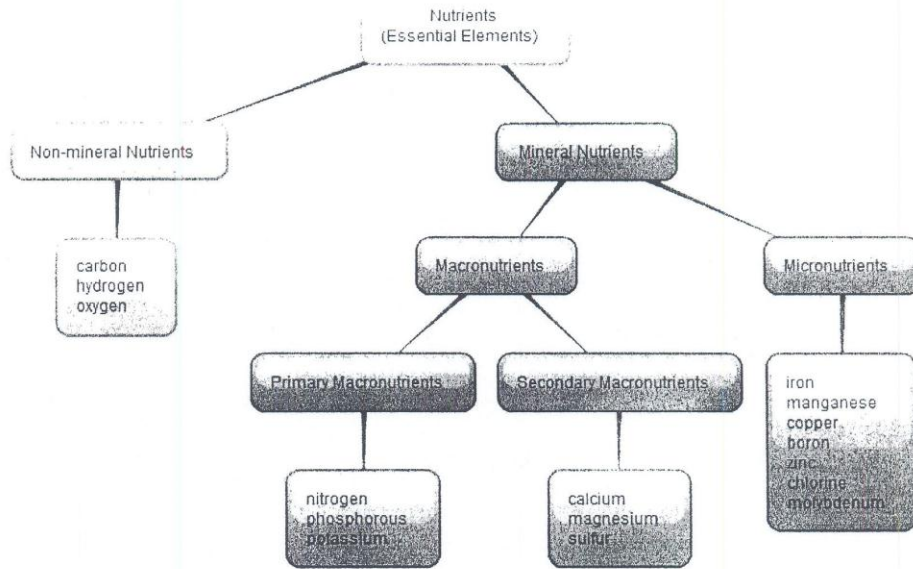
- /2 average daily temperature of your biome
- /2 chart or graph of seasonal temperatures of your biome (with seasons and numbers)
- /2 average daily precipitation of your biome
- /2 chart or graph of seasonal precipitation of your biome (with seasons and numbers)
- /4 attire guide as how visitors should dress while visiting your biome & why
- /2 at least 2 activities that visitors will participate in while visiting your biome

Inside Page 2

- /4 fauna: 2 animals commonly found in your biome with a picture of each animal and at least 2 special adaptations each has for living in that biome
- /4 flora: 2 plants commonly found in your biome with a picture of each plant and at least 2 special adaptations each has for living in that biome

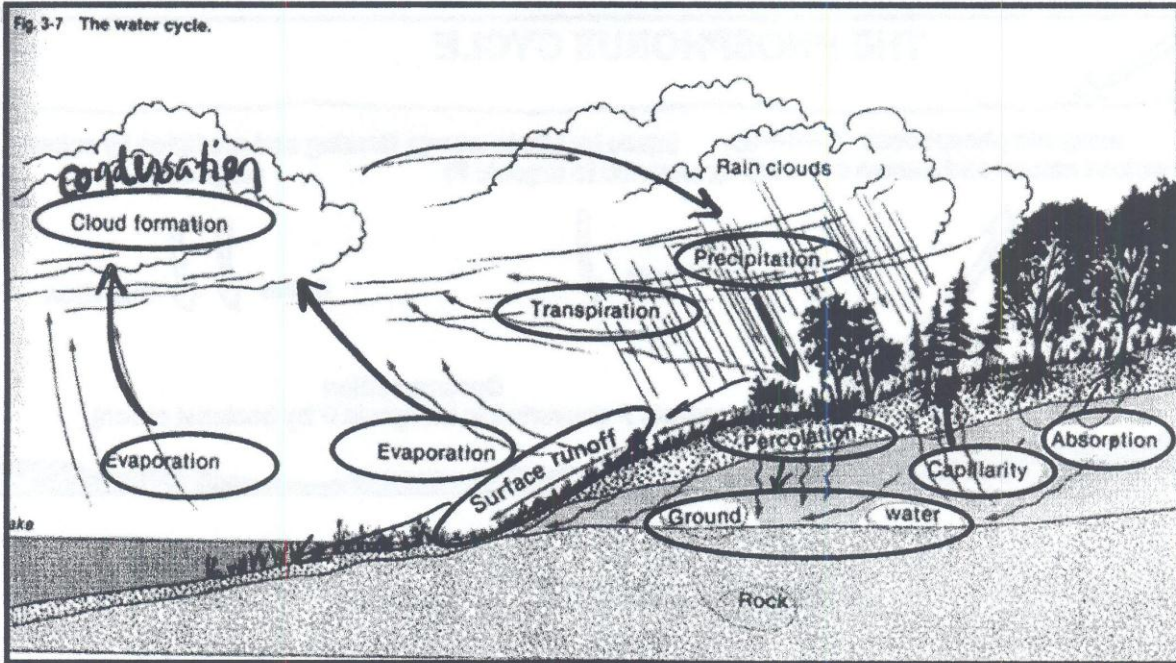
This project is worth 40 points. Brochures should be neat!

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

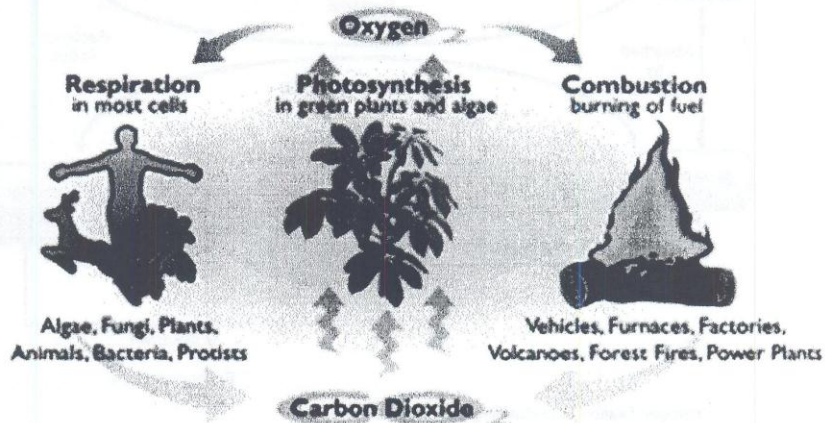


Essential and Beneficial Elements in Higher Plants																						
H																		He				
Li	Be	<input type="checkbox"/> Essential Mineral Element <input type="checkbox"/> Beneficial Mineral Element <input type="checkbox"/> Essential Nonmineral Element															B	C	N	O	F	Ne
Na	Mg																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							

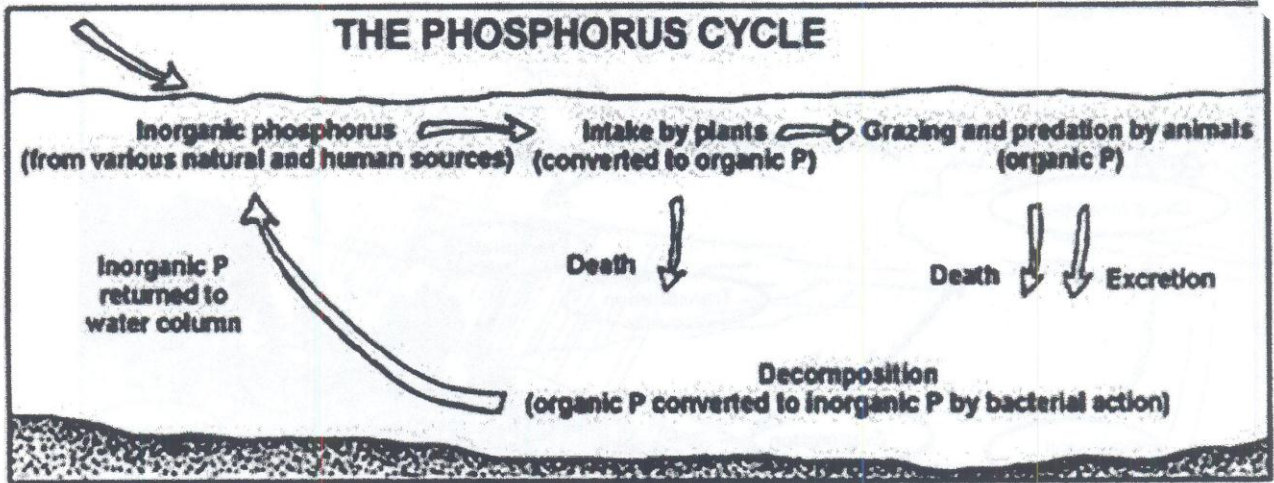
The Hydrologic (Water) Cycle



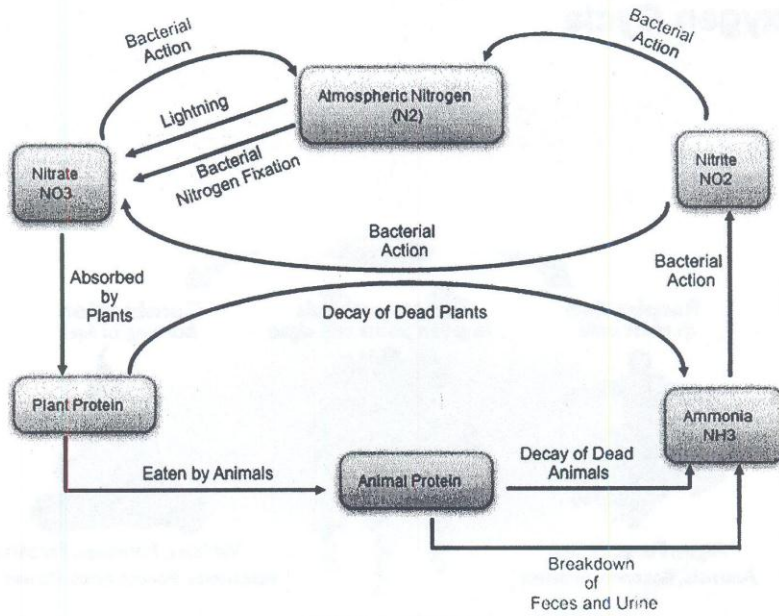
Carbon-Oxygen Cycle



The Phosphorus Cycle



The Nitrogen Cycle



*nitrogen fixation - the changing of nitrogen to nitrates