

Unit 9 Topic Reviews

TOPIC 1: Ecology Basics (Vocab, Succession, Biomes)

Part I: Vocabulary

1. Define *ecology*: the _____ of interactions between _____ and the environment (includes both _____ and _____ factors).
2. Put the following in order from most broad to most specific: biome; organism; community; biosphere; population; ecosystem
 - a. _____
3. Using the list above, which levels contain only living/biotic factors? _____
4. Define:
 - a. Biotic: _____
 - b. Abiotic: _____
5. An organism's niche includes more than just its habitat. Explain what this means- what else is included? Give an example: _____
 - a. An organism has both a fundamental niche and a realized niche. Which of these includes what an organism *actually* does/uses/eats/lives? _____
 - b. An organism can be classified as either a generalist or a specialist. What is a raccoon classified as? _____ Why? _____

Part II: Succession

6. Succession is defined as a series of changes in an _____ in which populations of organisms gradually _____ existing ones.
7. What type of succession occurs in an area that has not had an existing community? _____
 - a. The first organisms to inhabit this area are called: _____ species and examples include _____
 - i. These organisms are _____ and reproduce/grow _____
8. What type of succession occurs in an area that has had a community before, but it has been partially damaged? _____
 - a. What could cause this destruction? _____
9. Succession eventually slows and a stable community has been established. What is this community called? _____

Part III: Biomes – match each to its description (responsible for aquatic biomes, as well)

Tundra	a. biome that contains mostly grass like vegetation with scattered trees, experiences seasonal changes in weather, and receives average amounts of rainfall (lions, zebras)
Tropical Rainforest	b. located south of the arctic circle, this biome has short summers and long/cold/dry winters
Temperate Forest	c. this biome lacks trees and is characterized by grasses/herbs with animals that feed on this vegetation (bison)
Boreal Forest	d. coldest biome, a layer of permafrost under the top layer of soil, & low precipitation
Desert	e. located beneath the boreal forest, this biome has well-defined seasons (our biome)
Savannah	f. a biome characterized by extremely dry conditions, hot days/cool nights
Temperate Grassland	g. biome characterized by high amounts of precipitation & a temperature that doesn't vary more than about 5 degrees all year

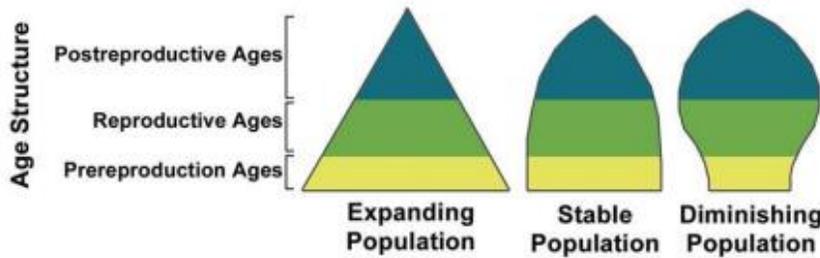
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TOPIC 2: Population Ecology (logistic/exponential, limiting factors, human pop. growth)

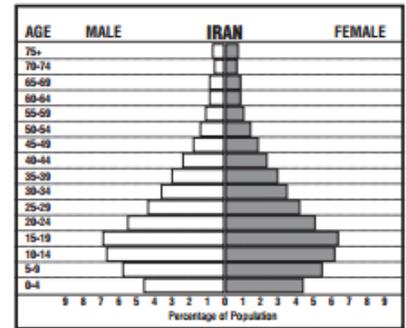
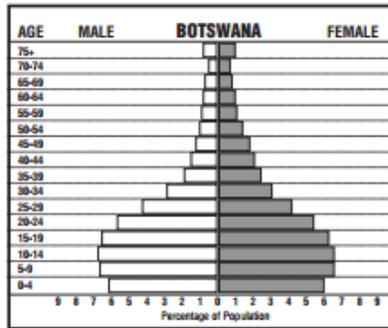
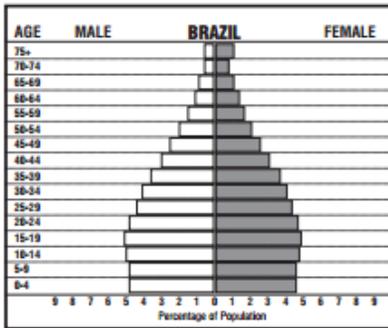
1. Limiting factors are: _____
2. Limiting factors (do/do not) play a role in exponential growth. For this reason, growth is described as being _____.
3. A ___-curve is used to represent exponential growth. Sketch a graph illustrating this growth curve. Next to it, sketch and label a logistic growth curve.

4. A ___-curve is used to represent logistic growth, where limiting factors (do/do not) play a role.
5. Define density-dependent factors and provide one example: _____
6. Define density-independent factors and provide one example: _____
7. Provide useful measurements for calculating/measuring human population: _____
8. How is immigration different from emigration? _____
9. What does an age structure pyramid show us? _____
10. Compare the provided age structure pyramids for the following nations:

Theoretical Population Comparison



← You can use this to help you with your comparisons!



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TOPIC 3: Community Ecology (Symbiotic Relationships)

1. Define symbiosis: _____

2. For each of the following, explain why the symbols provided are accurate for each type of symbiotic relationship:
 - a. Competition (-, -): _____

 - b. Predation (+, -): _____

 - c. Parasitism (+, -): _____

 - d. Mutualism (+, +): _____

 - e. Commensalism (+, 0): _____

3. Identify the type of symbiotic relationship being described:
 - a. A lichen is a combination of fungus and algae that lives on the sides of trees, rocks, and other materials. The fungus provides the algae with water and minerals and the algae uses the water and minerals to make food for both organisms. _____
 - b. A cuckoo bird may lay its eggs in a warbler’s nest. The cuckoo’s young will kick out the warbler’s young and will be raised by the warbler. _____
 - c. Yucca flowers are pollinated by yucca moths. The moths lay their eggs in the flowers and the eggs hatch. The larvae eat some of the seeds, and spread them around. _____
 - d. Mistletoe takes water and nutrients from the spruce tree. This is good for the mistletoe but bad for the tree. _____
 - e. Remora fish attach themselves to a shark’s body. They then travel with the shark and eat scraps from the shark’s meals. _____

TOPIC 4: Nutrient Cycles and Food Webs

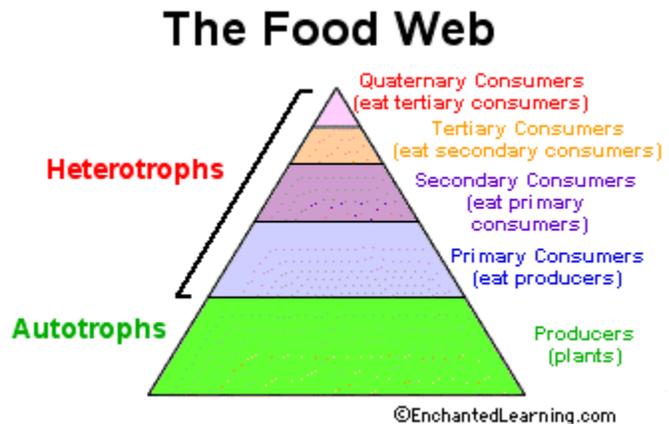
1. Explain the “rule of 10’s:” _____

2. What is the ultimate source of all energy on earth? _____
3. Organisms that are able to produce their own food are called what?

4. Organisms that need to eat to obtain their nutrients are:

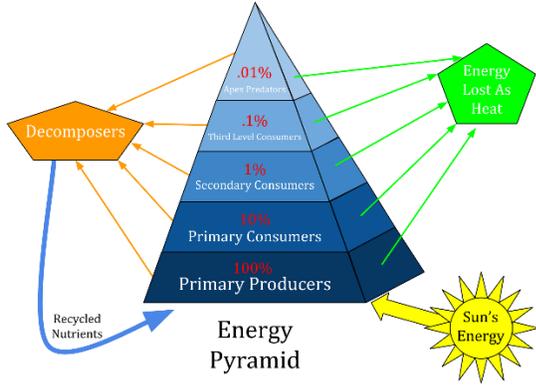
5. Why is a food web better than a food chain for understanding relationships in an ecosystem?

6. The first organism in a food chain is always what? _____



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- 7. What is a decomposer and where does it belong in a food chain/web? _____
- 8. What do herbivores, omnivores, and carnivores eat? _____
- 9. In a biomass pyramid, which level contains the most biomass? _____
 - a. What is biomass? _____
- 10. Remember, energy moves in one direction and cannot be recycled. Nutrients can (and are) recycled.



(this was not a question, just something to know)

- 11. Refer to your water cycle information. Define *transpiration, evaporation, and condensation*:

- 12. Refer to the carbon cycle information. What two processes complement each other and are involved in cycling of carbon? _____ and _____.
 - a. Provide ways that carbon can be released into the atmosphere: _____
- 13. Study images/vocabulary associated with the phosphorus and nitrogen cycles! ☺
 - a. What is nitrogen fixation and who/what does it? _____