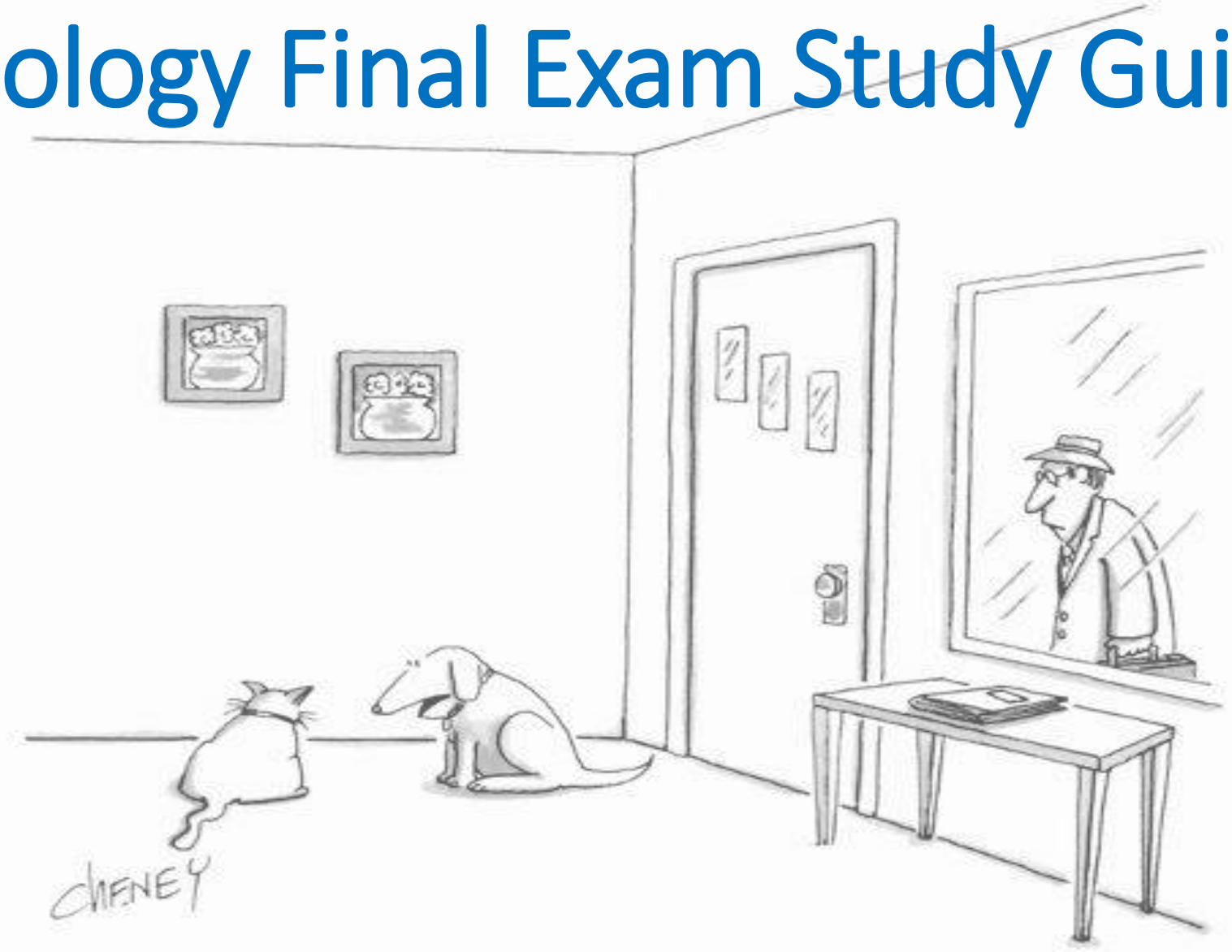
Ecology Final Exam Study Guide



"He's my best friend and he works hard all day. Couldn't you at least wag your tail?"

1. Define biotic and abiotic. Differentiate between biotic and living vs abiotic and nonliving.

Biotic: living or from living things

Abiotic: never alive, man-made, earth-made

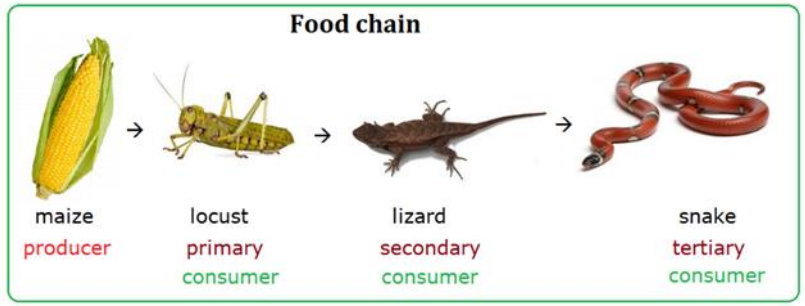
2. Define Niche. How does an organism's niche affect the ecosystem of which it is a part?

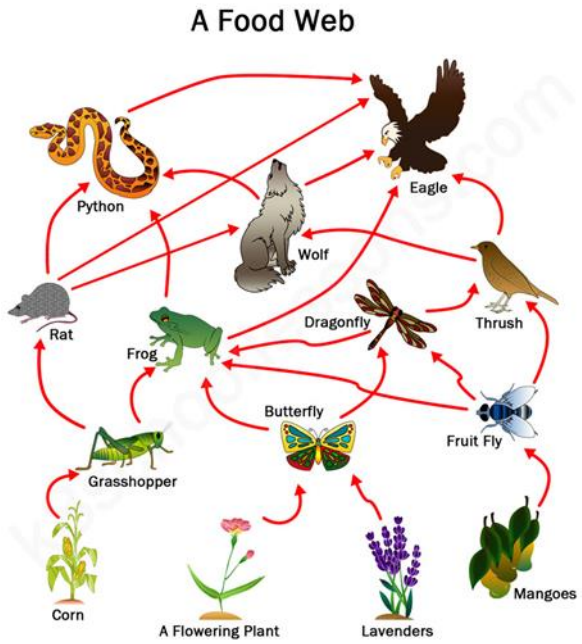
Niche: role organisms play in their environment
An organism's niche affects both the biotic and abiotic factors in its environment. It affects all organisms in the community food chain of which it is a part.

3. Define all of the following:

a. Consumer: organism that eats for energy
b. Producer: organism that makes its own energy via photosynthesis
c. Predator: animal that hunts and kills other animals for food
d. Prey: animal that is hunted, killed and eaten by a predator
e. Decomposer: organism that breaks down dead organisms in the environment (both plants and animals)
f. Scavenger: animal that eats dead animals
g. Carnivore: animal that eats other animals for energy
h. Herbivore: animal that eats plants for energy
i. Omnivore: animal that eats both plants and animals for energy

4. What is the difference between a food web and a food chain? Draw a food chain and include all of the following terms: producer, primary consumer, secondary consumer, and tertiary consumer.



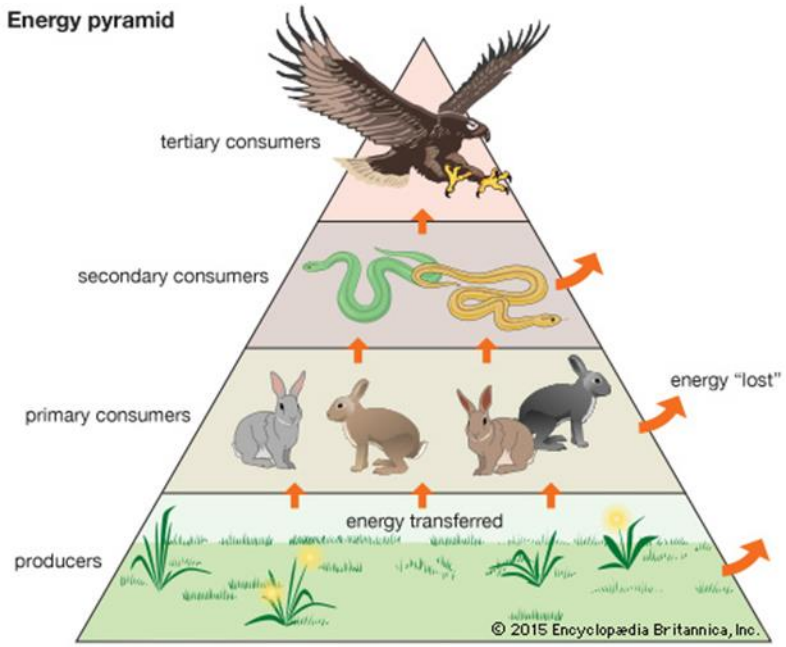


5. How much of the sun's energy is captured by producers? How much energy is then passed between each trophic level of the food chain/energy pyramid?

1% of the sun's energy is captured by producers.

Then 10% is passed between each trophic level of the food chain/energy pyramid.

6. Draw and label an energy pyramid. Include the names of each trophic level and how much energy is passed between each level.



10% passed at each trophic level

7. What are limiting factors? List 3 ways they affect populations. Then list 4 examples of common limiting factors in ecosystems.

Limiting factors are things in the environment that control population size.

Examples: predator-prey relationships, water, food, shelter, disease, human activities

8. Define biological accumulation. What percentage of toxins and poisons are passed between each trophic level of a food chain?

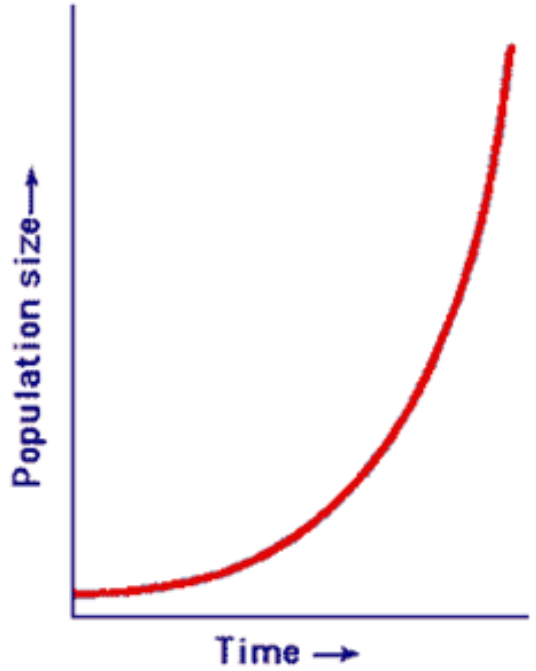
Biological accumulation is the ecological law that states that 100% of toxins in an ecosystems are passed at each trophic level, and consequently the tertiary consumers get the most toxins when the food chain is poisoned.

9. What is carrying capacity? How do limiting factors affect carrying capacity?

Carrying capacity is the maximum number of organisms (of a particular species) that an ecosystem can support. Limiting factors determine the carrying capacity of a particular ecosystem.

10. Draw the following graphs. Label the Y-axis # of Organisms and the X-axis # of Generations for each one.

- A. Exponential Growth Graph:



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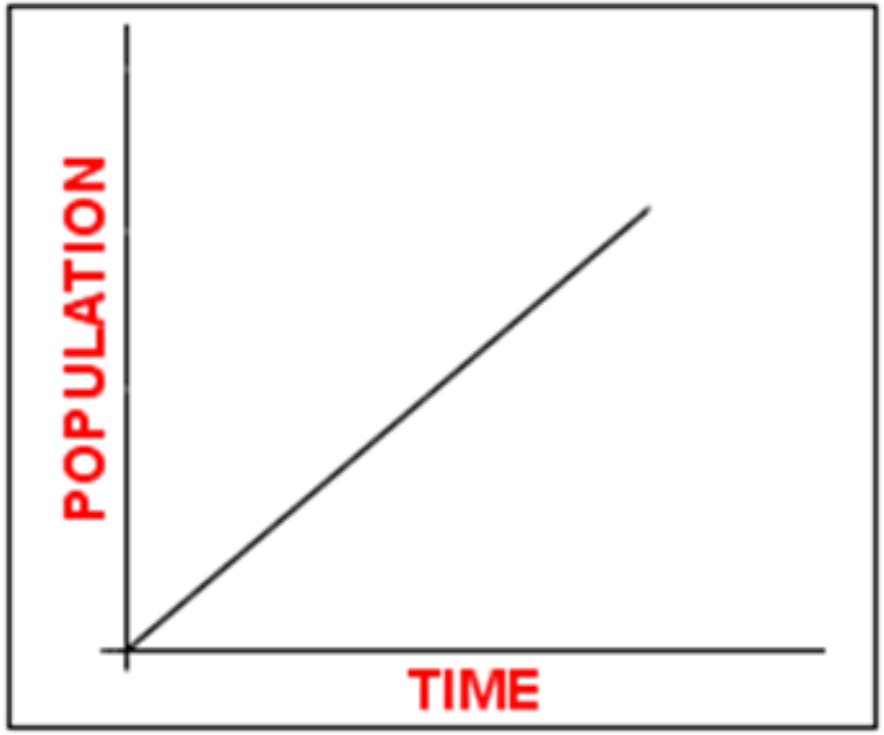
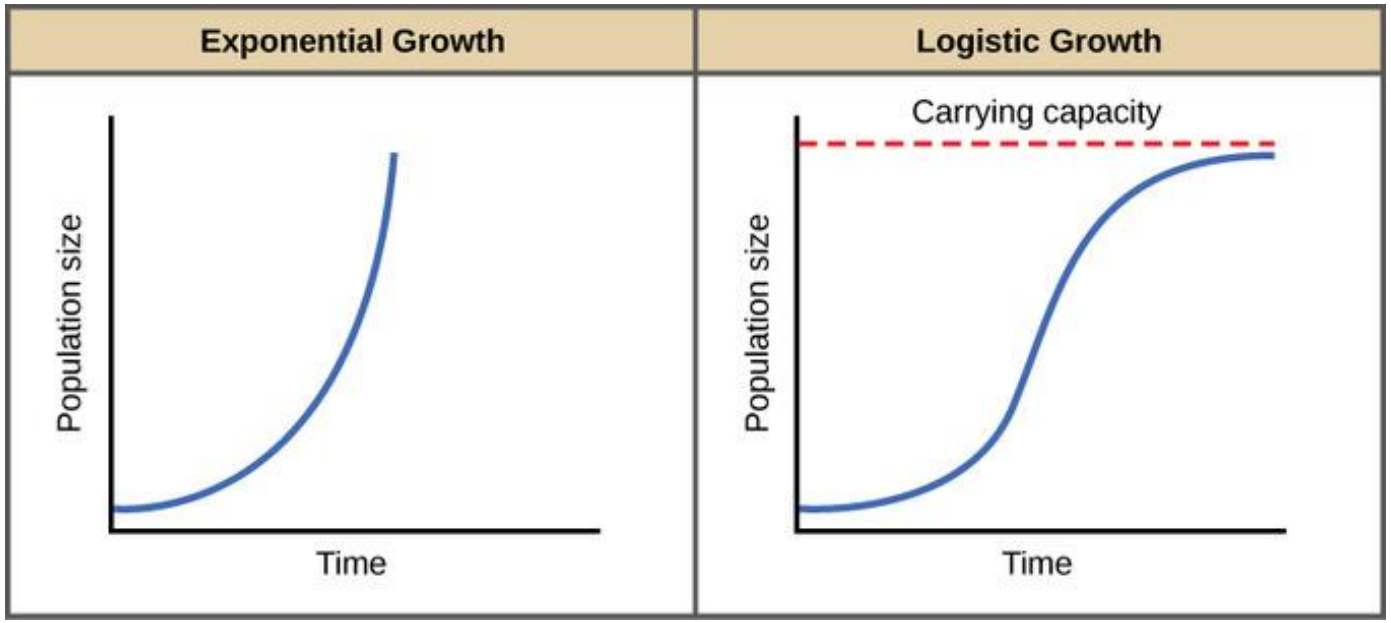
- B. Linear Growth Graph:



10. Draw the following graphs. Label the Y-axis # of Organisms and the X-axis # of Generations for each one.

- C. Exponential Growth to Carrying Capacity LOGISTIC GROWTH: (draw in the line for carrying capacity)



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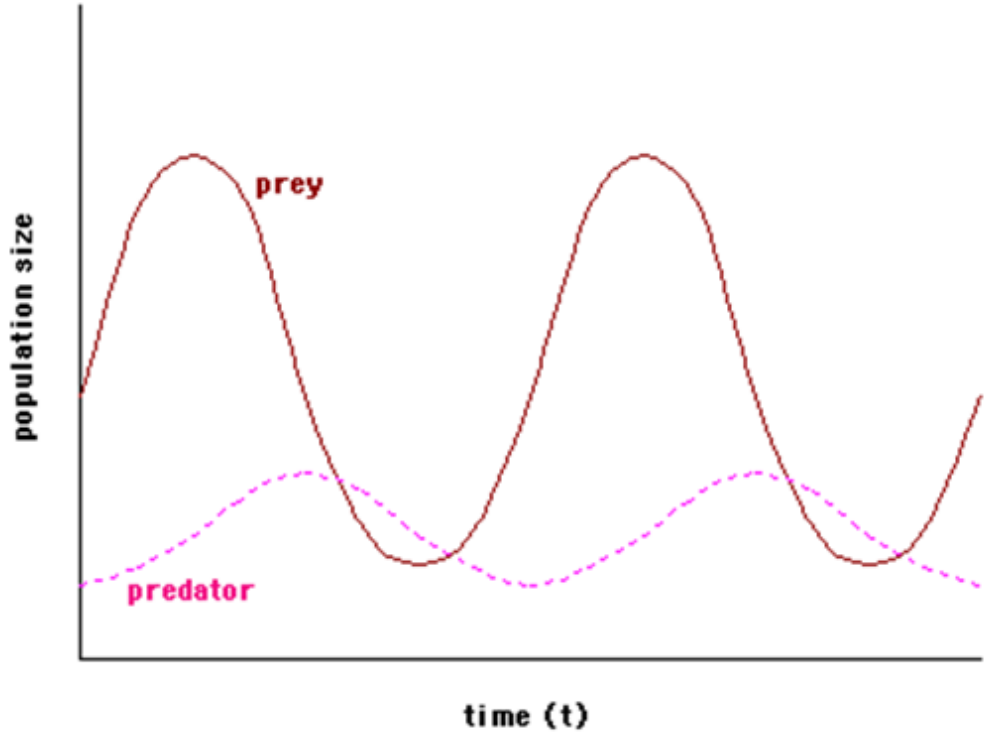
- D. Predator-Prey Graph



11. Define non-native aka invasive species, and list 3 examples of the impact they can have on the places they invade.

Non-native species are organisms that invade a new region, disrupting the ecosystem and competing with native species. 3 examples of impacts include: spread disease, compete with native species causing extinction, destroy habitats, cost a lot of money in damage

12. What is deforestation, and what are 3 impacts of it?

Cutting down large areas of forest for human use. Impacts: habitat loss, species extinctions, increase of disease, accelerate climate change, flooding and erosion increase.

13. What is the primary reason humans clear (cut down) large areas of forest?

AGRICULTURE: farm land: crops and livestock

14. What is overgrazing, and what are 3 consequences of it?

Overgrazing is when livestock is allowed to graze in an area for too long causing destruction to the ecosystem. Consequences: desertification, soil erosion of top soil, habitat destruction

15. What is the purpose of a man-made dam? Why do we build them?

Purpose of a dam: control flooding, hydroelectric power (electricity by water), irrigation, drinking water, money, transport

16. What can dams do the freshwater biomes we build them in? List 3 impacts:

Impacts: water quality (sediment build-up), species extinction, changes the water flow, fish migration disruption, water temperature, river transport of nutrients is disrupted

17. What is a person's carbon footprint, and how is it related to global warming aka climate change?

Carbon Footprint: the amount of carbon CO_2 a single person releases into the environment. The more CO_2 in the atmosphere, the more heat gets trapped, causing warmer global temperatures.