

Module 4 Study Guide

4.01:

1) Sort the following terms, from smallest to largest: ecosystem, community, biome, habitat, biosphere, species, population. Construct a short definition for each:

Smallest: a)
b)
c)
d)
e)
f)

Largest: g)

2) What is the difference between biotic and abiotic factors? Include an example of each.

3) Create your own example of a food chain in the space below. Identify the producer, primary consumer and secondary consumer in your food chain. Label the consumers as herbivores, carnivores, or omnivores.

4) Where does the energy in ecosystems come from?

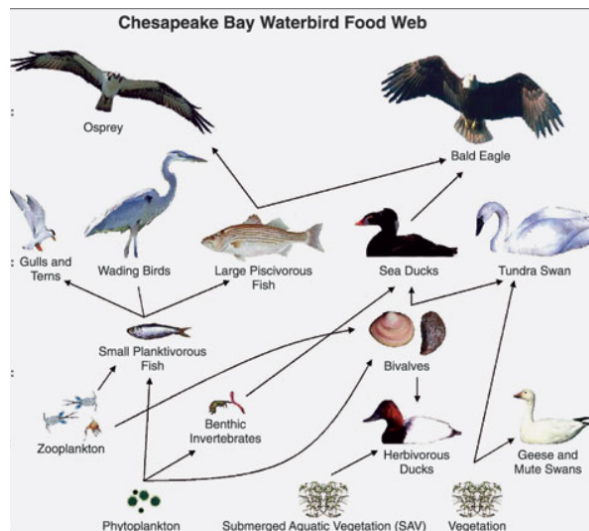
5) In an energy pyramid, what percent of the energy gets passed on from one trophic level to the next?

6) How is a food web different from a food chain?

7) What do the arrows in a food web represent?

8) Analyze the food web below.

- Identify one food chain in this food web.
- Which organism(s) are autotrophic? Which organism(s) are heterotrophs?
- What might happen to this ecosystem if the bald eagle disappeared?
- What would be some consequences if phytoplankton disappeared?
- What percent of the energy in phytoplankton is available for the benthic vertebrates?
- What percent of energy in phytoplankton is available for the sea ducks?
- What percent of the energy in phytoplankton is available for the bald eagle?



4.02:

- 9) What factors define a biome?
- 10) How does latitude influence climate?
- 11) How does altitude affect temperature?
- 12) How does altitude affect humidity?
- 13) Describe the biotic and abiotic features of each biome below:

Tropical rainforest

Biotic:

Abiotic:

Tundra

Biotic:

Abiotic:

Temperate grassland

Biotic:

Abiotic:

Temperate deciduous forest

Biotic:

Abiotic:

Desert

Biotic:

Abiotic:

- 14) Explain how each of the factors below affect aquatic ecosystems:

Salinity:

Temperature:

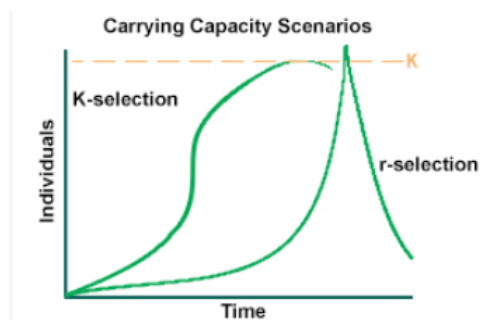
Dissolved oxygen:

Sunlight:

- 15) What are estuaries? How are these ecosystems different from freshwater and coastal ecosystems?

4.03:

- 16) What factors influence population size?
- 17) Explain the relationship between limiting factors and carrying capacity.
- 18) Explain this graph of carrying capacity. What happens in each scenario?



- 19) How are primary and secondary succession different from one another? Provide an example of each.

20) Match each type of symbiotic relationship to the correct explanation below:

- | | |
|-----------------|---|
| 1) Mutualism | a) Two organisms fight for resources. One benefits, one is harmed |
| 2) Commensalism | b) One organism benefits from getting food from another (which is harmed) |
| 3) Parasitism | c) Both organism benefit from each other |
| 4) Competition | d) One organism benefits, and the other neither benefits nor is harmed |

21) What are invasive species? How do they impact ecosystems?

4.04:

22) Describe the effects of each of the human impacts on the environment below:

- a) deforestation:
- b) desertification:
- c) urbanization:

23) How has human activity contributed to global warming?

24) What are the effects of global climate change on the environment, human health, and population?

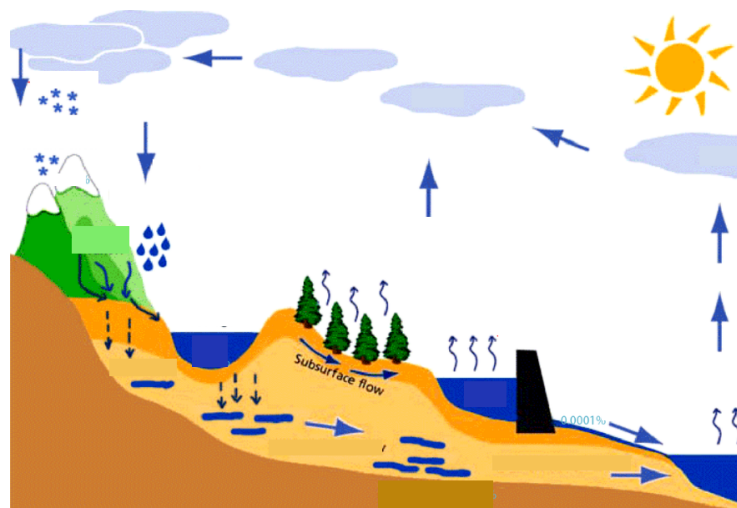
- a) Environmental effects:
- b) Human health effects:
- c) Population effects:

25) Describe some ways that human activities impact the water supply.

26) What is sustainability? Describe one way we can practice sustainability.

4.05:

27) Using the diagram below, identify the processes in the hydrologic cycle:



28) Using the diagram below, identify the significant processes in the carbon cycle:



29) Summarize the nitrogen cycle.

30) Identify examples of renewable and nonrenewable resources.

31) What are some ways that humans can have a positive impact on the environment?