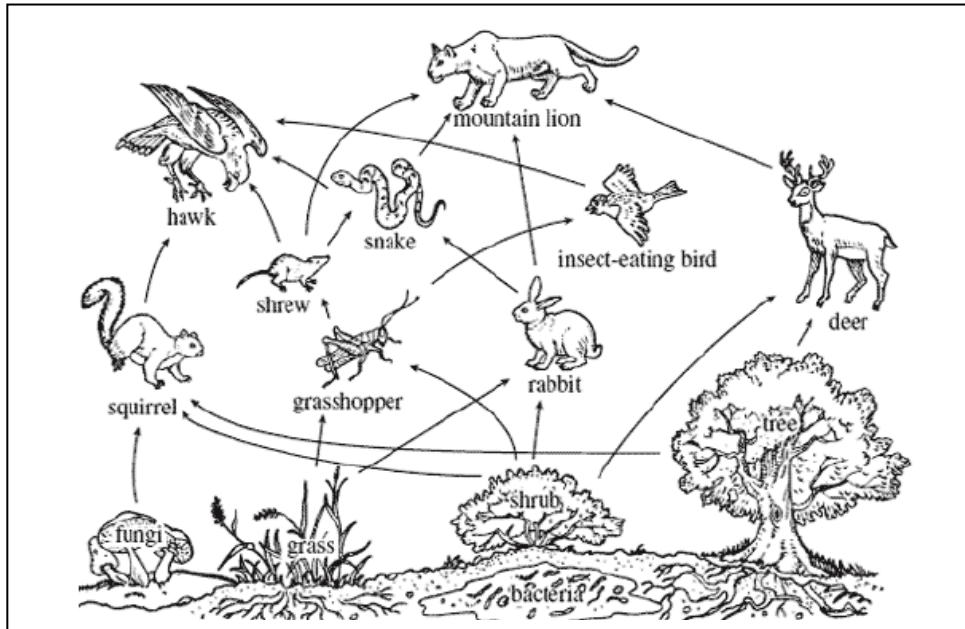


Ecology Unit Exam Review Guide **ANSWERS**

1. How is a niche related to a habitat? How are they different?
A niche describes a living thing's role or job in their habitat and includes everything about the organism like where they live and what it is like there; their habitat is only the physical area where they live.
2. List and explain the different ways we can show how energy cycles in an ecosystem.
Energy pyramid: shows how the energy is passed using a diagram that shows that there is more energy and there are more organisms at the bottom than at the top
Food Chain: a line of who eats whom, energy is passed from one thing to the next
Food web: shows how all the food chains in an area are connected or related
3. What is a biome?
A biome is a region with a specific climate and which supports specific kinds of living things.
4. In which biome do we live?
Temperate deciduous forest
5. What is a major characteristic of that biome? (What happens to the trees?)
Trees lose their leaves in this biome when the seasons change to fall/winter.
6. What is biodiversity? Why is it important?
Biodiversity is the number and kinds of living things in an ecosystem. Biodiversity is important because ecosystems with greater biodiversity are usually healthier and can survive better if something dies out or if conditions change a little. Biodiversity is important for biomes to be stable.
7. Which biome has the most biodiversity? Why is that important for that biome?
Tropical rainforest; it is one of the most stable biomes and can survive changes in conditions.
8. Compare and contrast biotic and abiotic factors. Use a Venn diagram or sentences.
Abiotic: nonliving factors such as sunlight, rain, temperature, rocks, soil, etc.
Biotic: living factors such as different plants, animals, bacteria, fungi, etc.
9. What abiotic factors are key in determining the type of biome that exists in an area?
Rainfall and temperature
10. What types of things can be limiting factors?
Limiting factors are resources an organism needs that are in limited supply. They are things like food, water, space, etc.
11. When do limiting factors have the greatest impact on an ecosystem? Why?
When populations are larger and are at or near the carrying capacity, the limiting factors become more important in keeping the population at a level the ecosystem can sustain.

Critical Thinking Diagram: Use the information in the diagram to complete the questions that follow.



12. Identify a food chain that consists of only one producer, an herbivore and a carnivore.

Grass, grasshopper, insect-eating bird

13. Identify a food chain that consists of a producer, an herbivore, a carnivore and an omnivore.

See above; add an omnivore-none are pictured

14. Identify 3 herbivores.

Squirrel, grasshopper, rabbit, deer

15. Identify 3 carnivores.

Shrew, snake, hawk, mountain lion, insect-eating bird

16. Identify 2 decomposers.

Bacteria, fungi

17. What do the arrows indicate about the flow of energy through the community?

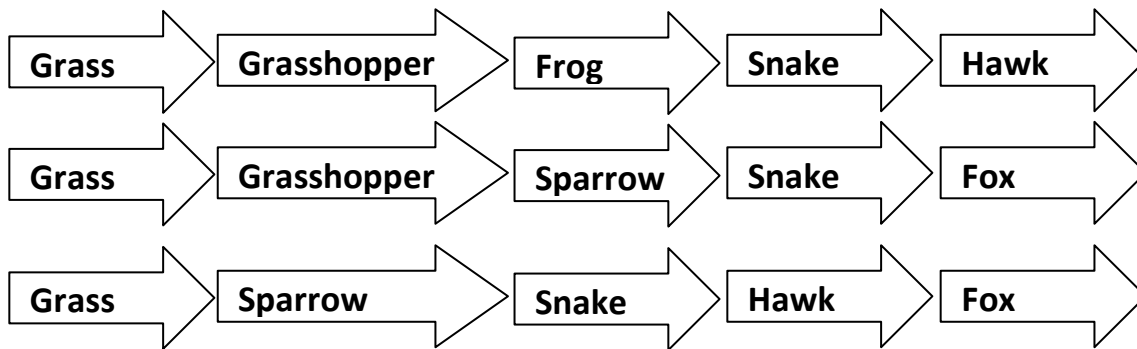
Arrows show the path of where the energy goes; the amount of energy passed gets lower with each arrow

18. What is the ultimate source of energy for the food web pictured above?

sun

Interpreting Diagrams: Diagrams are a useful and efficient way to communicate information. Two types of diagrams used by ecologists to show movement of matter (food) and energy through ecosystems are the food chain and the food web. You can think of both kinds of diagrams as flow charts that show the movement of food and energy throughout the trophic levels: producer, primary consumer, secondary consumer and tertiary consumer. The diagrams differ in the amounts of information they show. For example, a food chain shows only one energy transfer path for a community. A food web shows several energy pathways by linking several different food chains together.

Answer the questions about the food chains shown below.

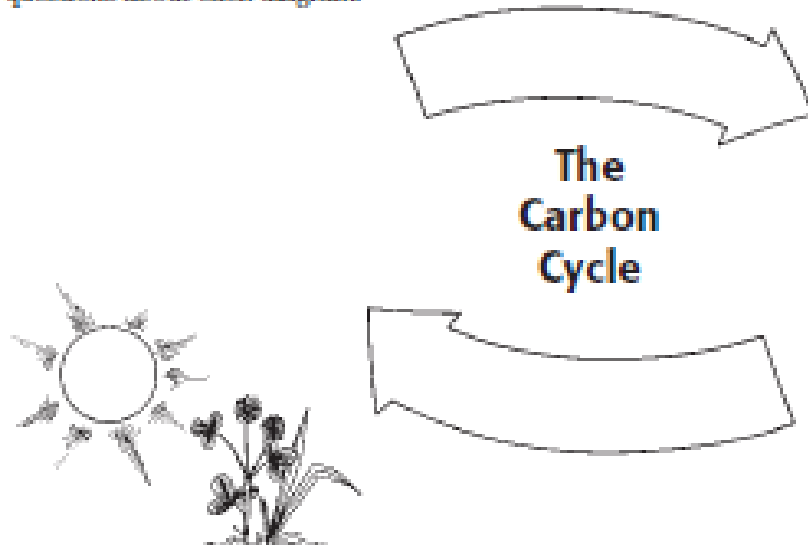


19. In the food chains above, what organism is the producer?
grass
20. Which organism is an herbivore?
Grasshopper, sparrow
21. Which organism is an omnivore?
sparrow
22. Which organisms are carnivores?
Frog, snake, hawk, fox
23. If these 3 food chains exist in the same ecosystem, what observations can you make about the food web of that ecosystem?
All organisms are interconnected in some way.
24. Draw an example of the food web that might exist in the place where these 3 food chains exist. Don't forget to put the original energy source and add some decomposers.

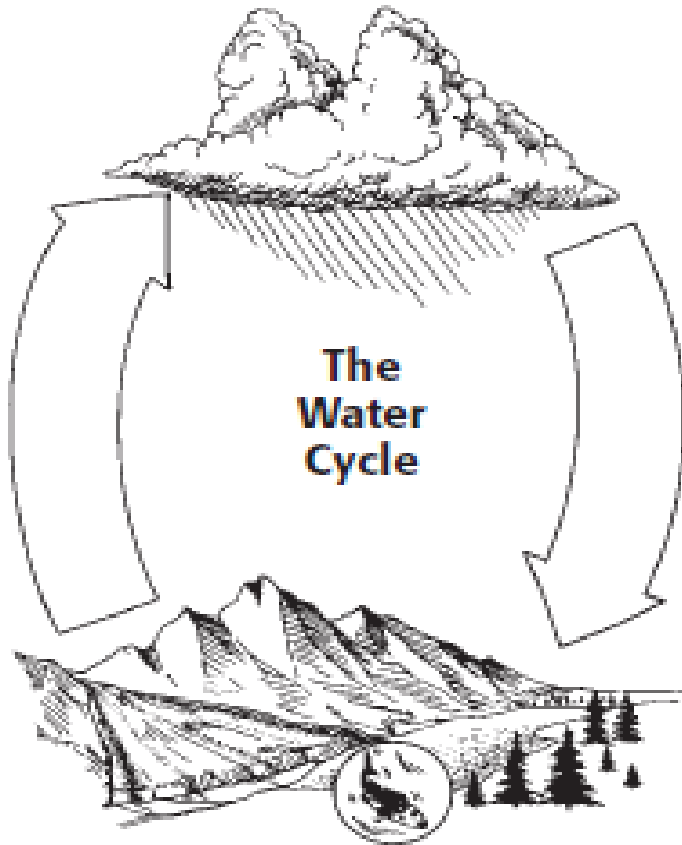
What Goes Around ...

Complete this worksheet after you finish reading the section "The Cycles of Matter."

Diagrams of the carbon cycle and water cycle are shown below and on the next page. The opposing processes in both cycles are shown as arrows. Answer the questions about each diagram.



25. In the carbon cycle, sugar molecules are broken down to release energy during respiration.
26. Carbon dioxide from the air is used to make sugars during photosynthesis.
27. Which of the following undergo respiration?
- | | |
|-------------|------------|
| a. Reptiles | c. Rocks |
| b. Plants | d. Mammals |
28. Which of the following undergo photosynthesis?
- | | |
|-------------|------------|
| a. Reptiles | c. Rocks |
| b. Plants | d. Mammals |



29. Water falls to the land and oceans during precipitation.

30. Water returns to the atmosphere during evaporation.

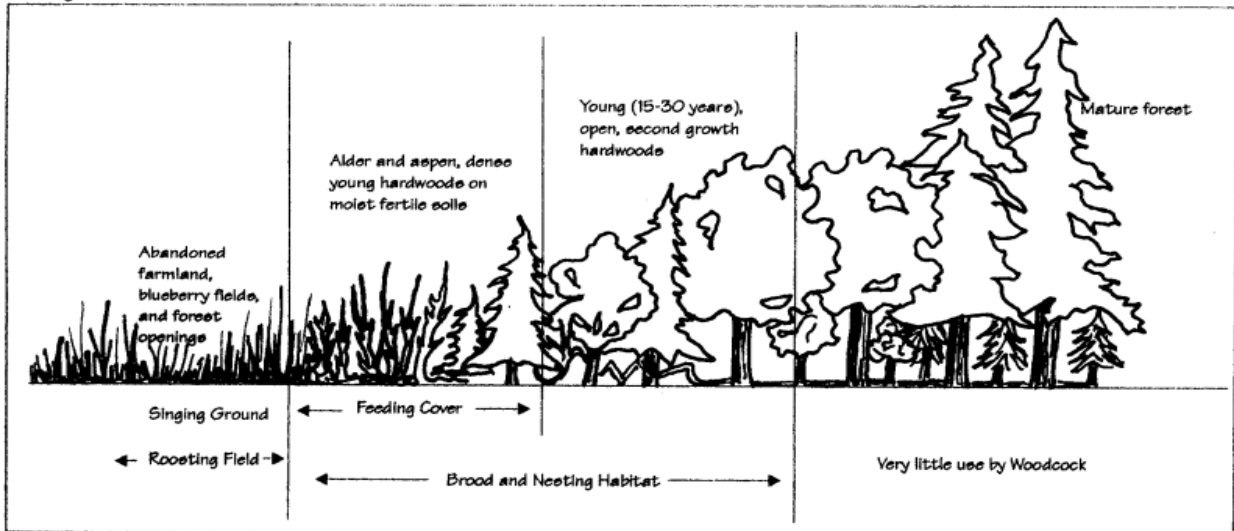
31. Which of the following are forms of precipitation?

- a. Rain
- b. Waterfalls
- c. Snow
- d. Hail

32. Most of Earth's precipitation falls

- a. Into lakes
- b. Into oceans
- c. Onto land
- d. On organisms

Stages of forest succession



33. What is succession?

Growth or regrowth of a community over time; especially after an environmental disaster like a fire, flood, etc.

34. What is a pioneer community?

The first group of populations that begin to live in an area after a disaster like a flood, fire, etc

35. In the diagram above, label the pioneer community.

Very left side

36. What is a climax community?

The mature growth that occurs several steps into succession of an area

37. In the diagram above, label the climax community.

The very right side of the picture

Part 2: On the last page of your packet, complete the pyramid using the following directions:

1. In the triangle labeled 1, name the ultimate energy source for any ecosystem. Also, for this energy pyramid, the energy available from that source is 2,000 joules. Please note that on this triangle.
2. In the pyramid that is labeled 2, please place the following organisms in their correct position in the energy flow:

Plankton, killer whale, cod, krill, leopard seal

3. In the pyramid that is labeled 3, using the energy available from the ultimate source, list how much energy is available in each level.
4. In the pyramid that is labeled 4, create your own energy pyramid using organisms that are terrestrial (live on land, not in the water.)
5. In the box that is labeled 5, define the term energy pyramid and explain its importance in an ecosystem.

*What is the Pyramid of Energy?
3D Model*

