

## Remote Learning Packet

*NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.*

**April 20 - 24, 2020**

**Course:** 9 Biology

**Teacher(s):** Mr. Malpiedi michael.malpiedi@greatheartsirving.org

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### **Weekly Plan:**

Monday, April 20 - Levels of organization, ecological niche

Read pp. 356-362, "The Niche" on p. 365. Notes and vocab.

Diagram the levels of organization for an organism of your choosing. In a paragraph, describe that organism's niche.

Tuesday, April 21 - Gross vs. net primary productivity, different classifications of consumers, energy transfer between trophic levels

Read pp. 366-367. Notes and vocab. Consider conditions that would affect GPP and NPP.

Create a food plan/day in the life of two of the four types of consumers.

Wednesday, April 22 - Energy flow, trophic levels, intro to cycles

Read pp. 368-369. Notes and vocab.

Cycle compare and contrast worksheet

Thursday, April 23 - Carbon + Nitrogen Cycles details and review

Complete C+N cycles using notes; blank cycles will be on the quest

Friday, April 24 - Quest!

Quest - Taxonomy, Selection, Energy Flow, Trophic Levels, C + N Cycle

### **Statement of Academic Honesty**

I affirm that the work completed from the packet  
is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my  
child completed this work independently.

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Student Signature

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Parent Signature

### Monday, April 20 (25-31 minutes)

1. Read pp. 359-362 and the section called “The Niche” on p. 365. Annotate key ideas in your notes as you read. (10-12 minutes)
2. and be sure to include all 5 vocabulary words with their definitions. (7-9 minutes)
3. Then, diagram the levels of organization for an organism of your choosing. You may use the worksheet attached, or form a diagram on your own. In a paragraph, describe that organism’s niche. (8-10 minutes)

### Tuesday, April 21 (28-34 minutes)

1. Read pp. 366-367. (8-10 minutes)
2. *After you’ve read the whole thing.* Write down the vocabulary and their definitions in your notes. These will be checked for completion. (12-14 minutes)  
Give extra attention to the key ideas:
  - gross vs. net primary productivity,
  - different classifications of consumers
  - energy transfer between trophic levels
3. Create a food plan/day in the life for each of two of the four types of consumers. Use your imagination, and make your descriptions as “appealing” as possible. What would a detritivore look forward to for dinner? (8-10 minutes)

### Wednesday, April 22 (24-33 minutes)

1. Read pp. 368-369. Annotate key ideas in your notes, paying close attention to the vocabulary. (6-8 minutes)
2. Complete question #2 and #5 on p. 369. You can write these after your notes, but be prepared to turn them in. (6-8 minutes)
3. \*Optional - Enjoy these etymologies (3 minutes):  
**Trophic**- "of or pertaining to nutrition, food, or nourishment," 1856, from Greek *trophikos*, from *trophe* "nourishment, food."  
**Trophy**- 1510s, "a spoil or prize of war," from Middle French *trophée* (15c.) from Latin *trophaeum* "a sign of victory, monument," originally *tropaeum*, from Greek *tropaion* "monument of an enemy's defeat."  
**Trough**- Old English *trog* "wooden vessel, tray, hollow vessel, canoe," from Proto-Germanic *\*trugaz*, from PIE *\*dru-ko-*, from root \*deru- "be firm, solid, steadfast," with specialized senses "wood, tree" and derivatives referring to objects made of wood.
4. Attend to the attached worksheet “Comparing Cycles of Life” (12-14 minutes).

### Thursday, April 23 (20-30 minutes)

1. Carefully complete the blank Carbon and Nitrogen Cycle diagrams attached to this packet. Use p. 372 and 372 for guidance. These blanks will be on your quest tomorrow! (20-30 minutes)

## **Friday, April 24**

Quest - Taxonomy, Selection, Carbon Cycle, Nitrogen Cycle - MM + Blank cycles  
(key topics: knowing the taxonomy hierarchy, etymologies types of selection, blank cycles)

Assessments are learning tools, just like flashcards and notetaking. Do not complete this assessment as a routine “get-it-done” thing. Let it help you learn! Challenge yourself to complete as much as possible without assistance.

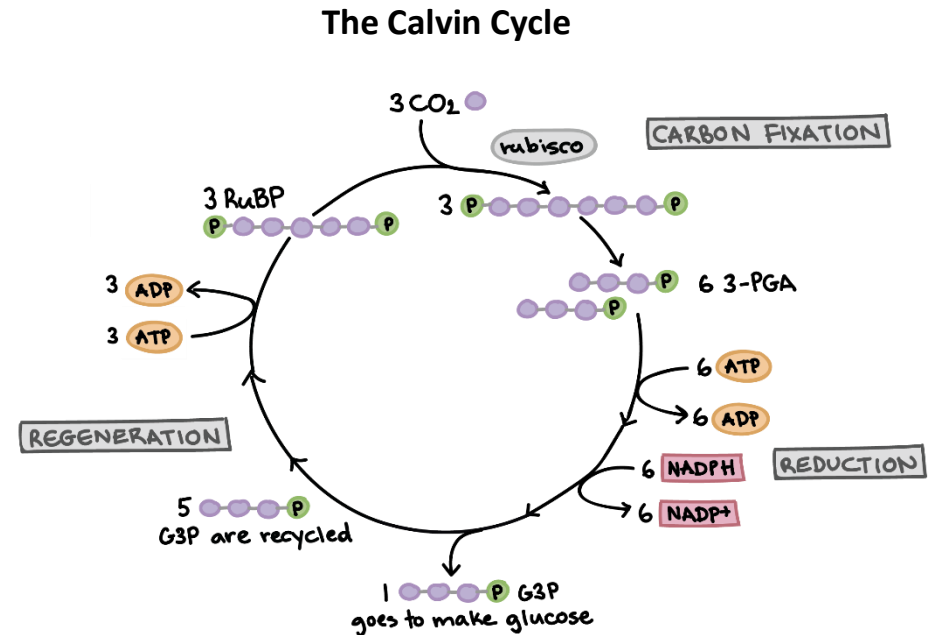
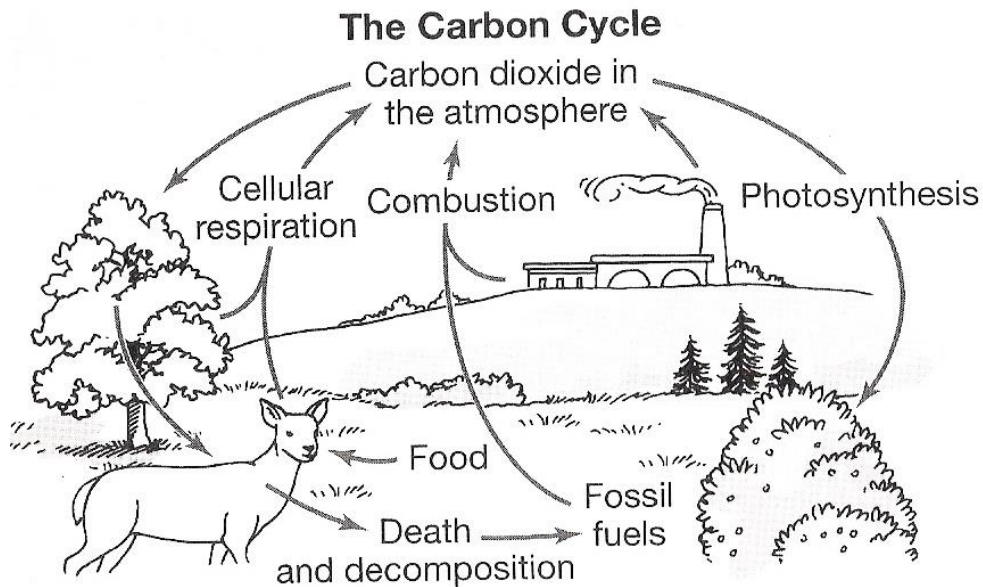
This quest is open note. Try! Then use your notes. Then refer to your book last, if you need to. Let this quest help you activate the knowledge and understanding you’ve worked so hard to cultivate so far.

**Ecological Levels of Organization**

**Directions:** Fill in the following chart with sketches of each ecological level of organization related to an organism of your choosing. You may use the figure on p. 361 as a reference but you may not choose any of the organisms featured in the figure.

BIOSPHERE
ECOSYSTEM
COMMUNITY
POPULATION
ORGANISM

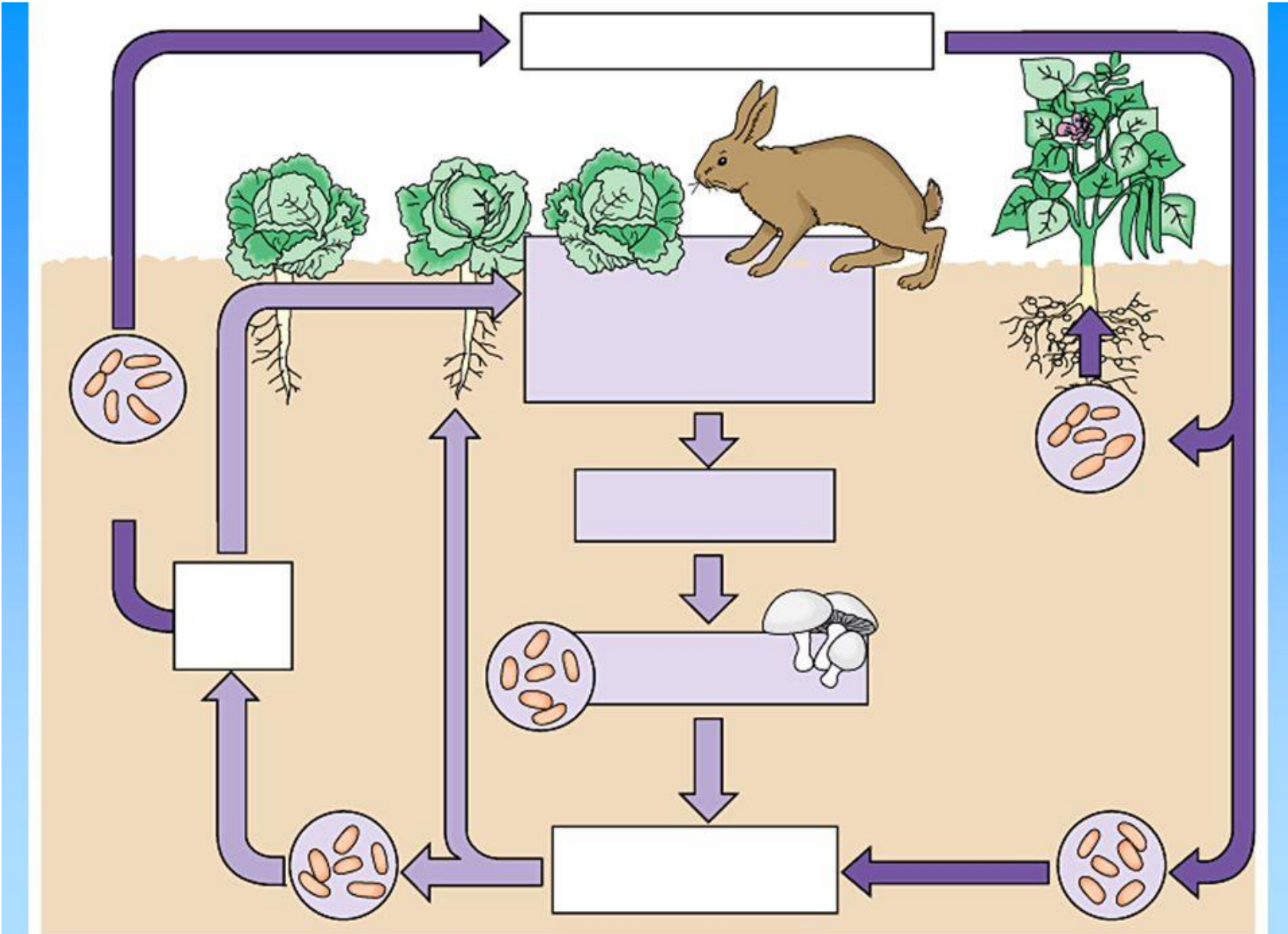
In a paragraph, describe the niche of the organism you chose. Is the organism a generalist or specialist?



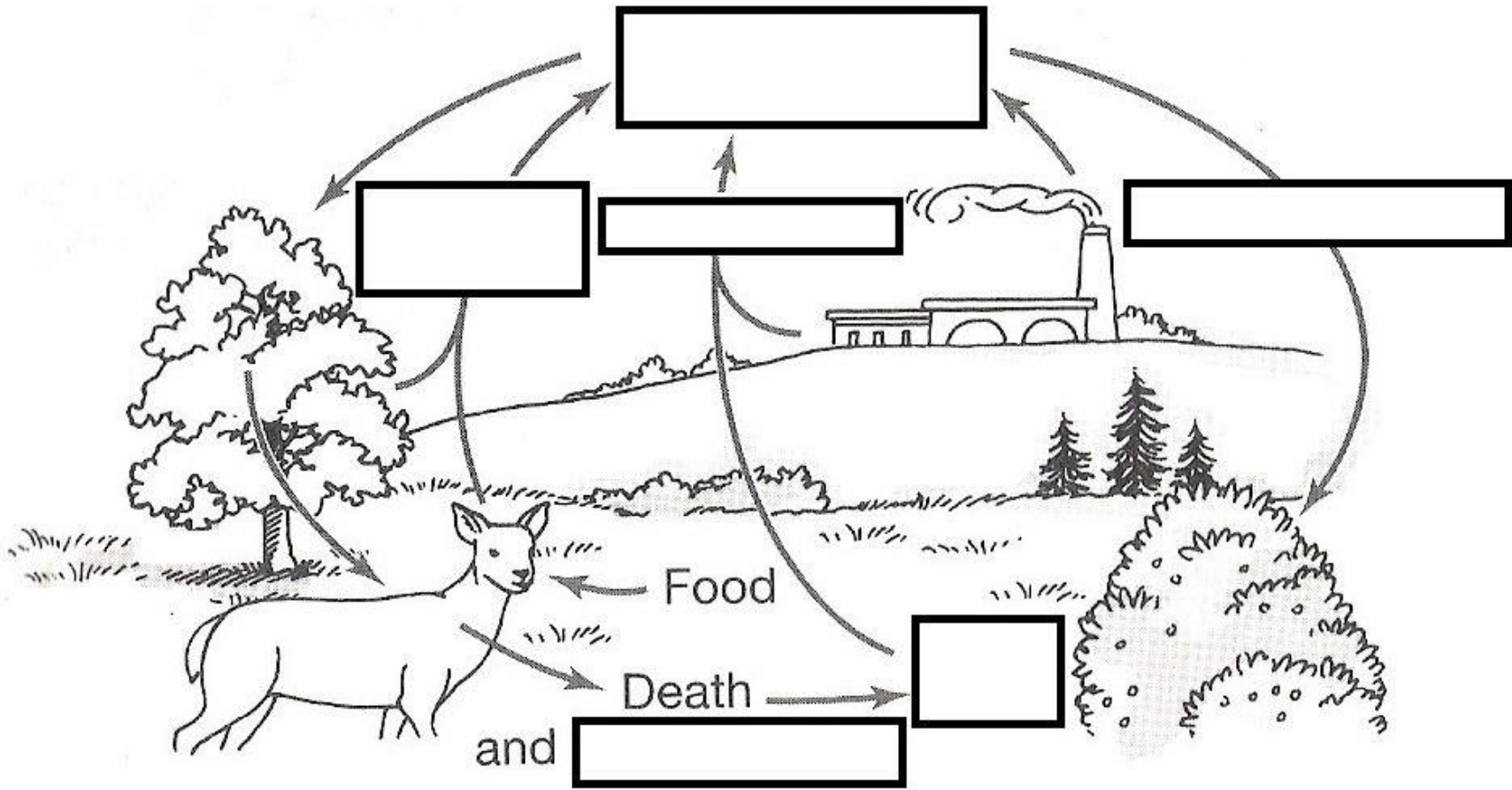
Consider the diagrams above. You are welcome to review the Calvin Cycle in your notes from Chapter 7. Answer the following questions in complete sentences in a form worthy of turning in.

1. Why do we call both processes “cycles?”
2. What allows each process to continue through time?
3. Write the final cause of each cycle. How are the final causes of the Carbon Cycle and the Calvin Cycle similar? How are they different? 3-4 sentences, please!

Modeling the \_\_\_\_\_ Cycle



Modeling the \_\_\_\_\_ Cycle



Chapter 16-18 Quest

Vocabulary

Write the letter that corresponds to each term's definition, as listed in the chart on the right.

- |                              |   |
|------------------------------|---|
| ___1. Population genetics    | A. The process of genes moving from one population to another.  |
| ___2. Gene pool              | B. Population change due to individuals with either extreme variation of a trait having greater fitness.  |
| ___3. Gene flow              | C. The study of evolution across populations from a genetic perspective                                   |
| ___4. Reproductive isolation | D. When non-geographical barriers prevent successful breeding between population groups in the same area. |
| ___5. Disruptive selection   | E. The science of classifying organisms based on internal and external structure and appearance.          |
| ___6. Morphology             | F. The total genetic information available in a population.   |
| ___7. Binomial nomenclature  | A. The science of classifying organism; a system for classifying organisms.                               |
| ___8. Taxonomy               | B. A kingdom of eukaryotes whose members have various, unique traits.                                     |
| ___9. Bacteria               | C. The kingdom whose name means "true bacteria", distinct from Archaea.                                   |
| ___10. Protista              | D. The "two-name" system of naming an organism by genus and species.                                      |
| ___11. Animalia              | E. The domain containing small, single-celled prokaryotic organisms like <i>E. coli</i> .                 |
| ___12. Eubacteria            | F. The kingdom of eukaryotic, multicellular, heterotrophic organisms capable of locomotion and sensing.   |



- \_\_\_ 13. Ecosystem
- \_\_\_ 14. Community
- \_\_\_ 15. Population
- \_\_\_ 16. Biotic factor
- \_\_\_ 17. Abiotic factor
- \_\_\_ 18. Niche
- A. The specific role, or way of life, of a species within its environment.
- B. All the members of a species that live in one place at one time.
- C. All the organisms and the non-living environment found in a particular place.
- D. A non-living component of an environment.
- E. All of the living things that affect a particular organism.
- F. All the interacting organisms in a particular area.

### Multiple Choice

- \_\_\_ 19. A species of beetle, through many generations, changes its typical morphology from one of small wing size to large wing size to better its ability to fly. Which type of natural selection is this statement describing?
- Disruptive
  - Stabilizing
  - Directional
  - Advantageous
- \_\_\_ 20. Saint Bernards and Chihuahuas cannot mate because they differ so much in size. Thus, they are reproductively isolated to some extent. This is an example of what type of isolation?
- Artificial
  - Prezygotic
  - Postzygotic
  - Geographic
- \_\_\_ 21. Genotype : allele :: phenotype :
- Gene pool
  - Population
  - Trait
  - Mutation

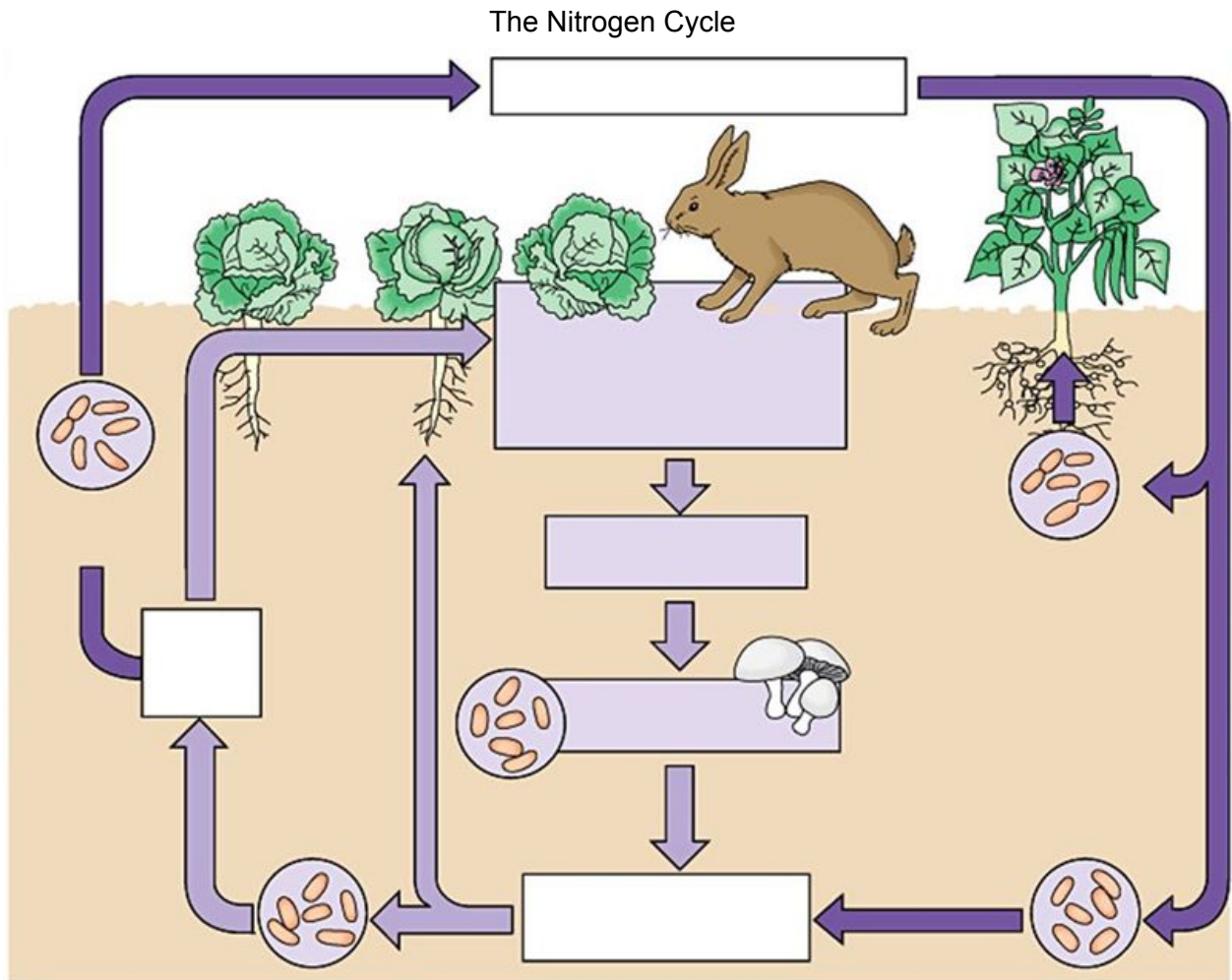
- \_\_\_22. On his voyages with the *HMS Beagle*, Darwin observed the emu in Australia, the ostrich in Africa, and the rhea in South America. All are flightless birds with large bodies, legs, and necks. What is the term that describes these three separate species evolving to have similar traits?
- Divergent evolution
  - Convergent evolution
  - Driven evolution
  - Coevolution
- \_\_\_23. To which level of classification does a group of closely related species of organisms belong?
- Class
  - Order
  - Genus
  - Kingdom
- \_\_\_24. The antelope is a grazing, hoofed mammal that lives off wild grasses and is often preyed upon by other, larger mammals. What type of consumer is an antelope?
- Carnivore
  - Detrivore
  - Herbivore
  - Omnivore
- \_\_\_25. \_\_\_ primary productivity - respiration of producers = \_\_\_ primary productivity
- Net, gross
  - Gross, net
  - Gross, biomass
  - Biomass, gross
- \_\_\_26. How do most producers produce energy?
- Eating other organisms
  - Anaerobic respiration
  - Photosynthesis
  - Breaking down waste and decaying matter

27. List the five assumptions that must be met for Hardy-Weinberg equilibrium to be possible:

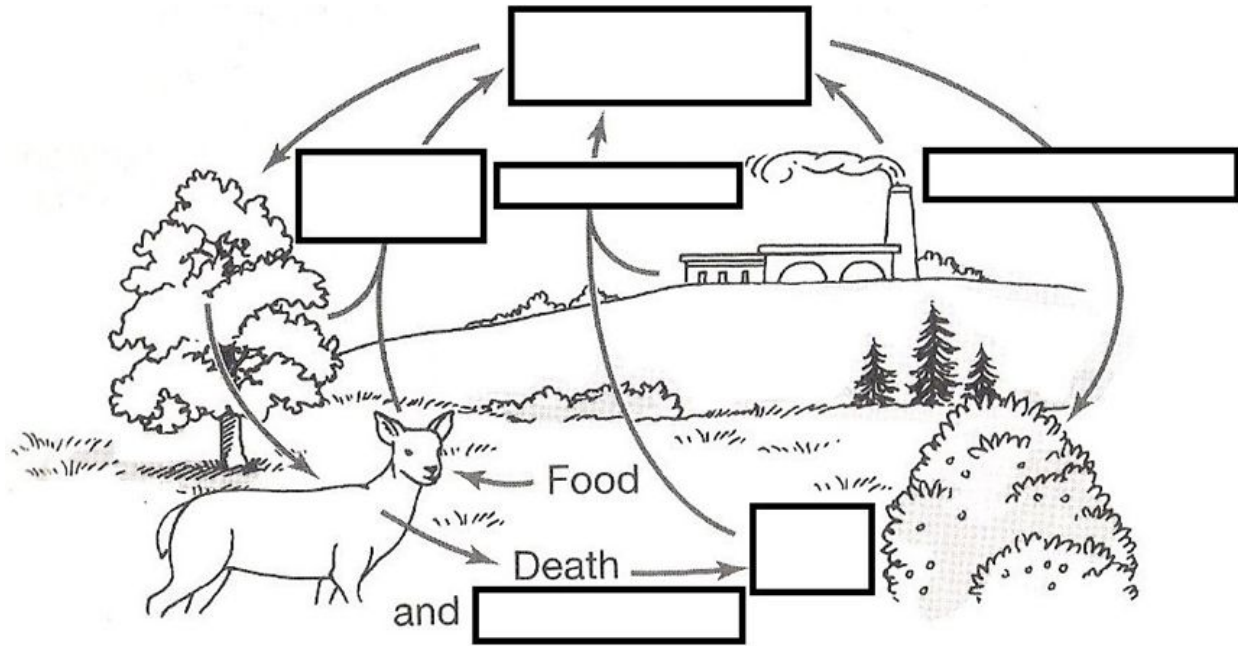
- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

**Diagrams**

Complete the diagrams. Try to do so from memory.



### The Carbon Cycle



#### Short Answer

28. Why can the biological species concept *not* be used to identify fossil organisms? 3 sentences.

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29. How is the transfer of energy different from the transfer of nutrients in an ecosystem? 5 sentences.

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30. About how much energy is transferred from each trophic level to the next? Why is it this way? What possible factors could change the amount of energy transfer? 5 sentences.

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