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Name _____

Date _____

3-2-1 Bellringer

3 Things I Noticed:

2 Things I Think:

I think _____ because I
observe _____.

1 Thing I Wonder:

Name _____

Date _____

3-2-1 Bellringer

3 Things I Noticed:

2 Things I Think:

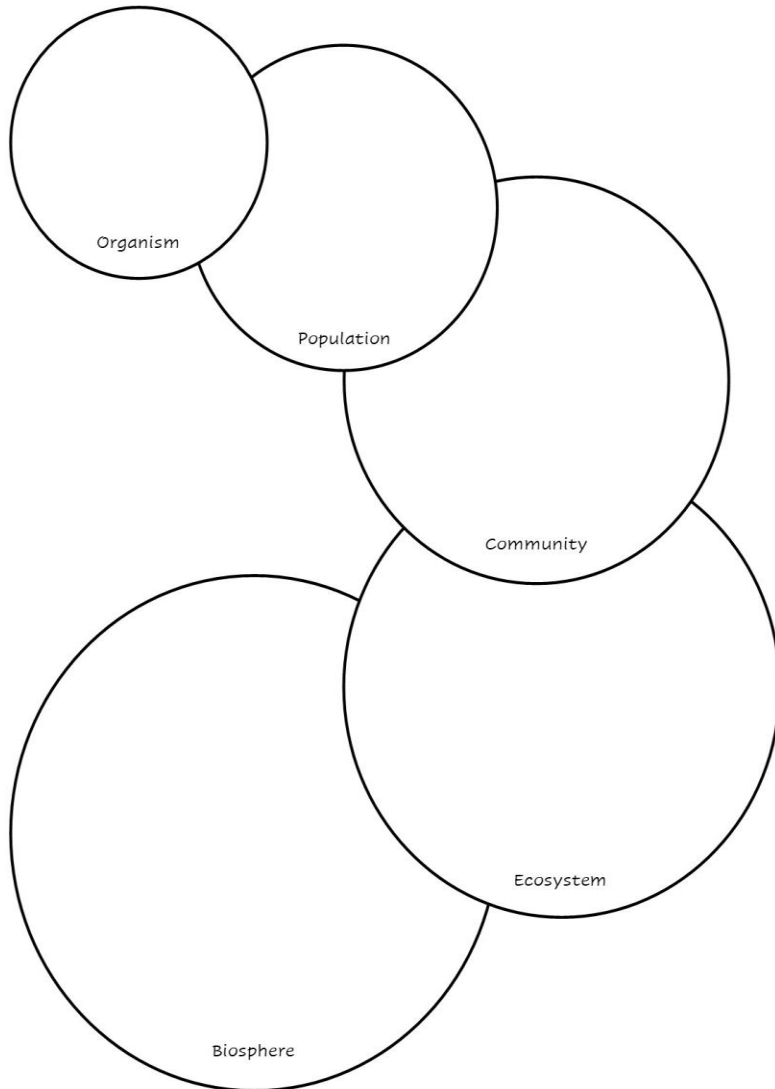
I think _____ because I
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1 Thing I Wonder:

Name _____ Date _____

Levels of Organization

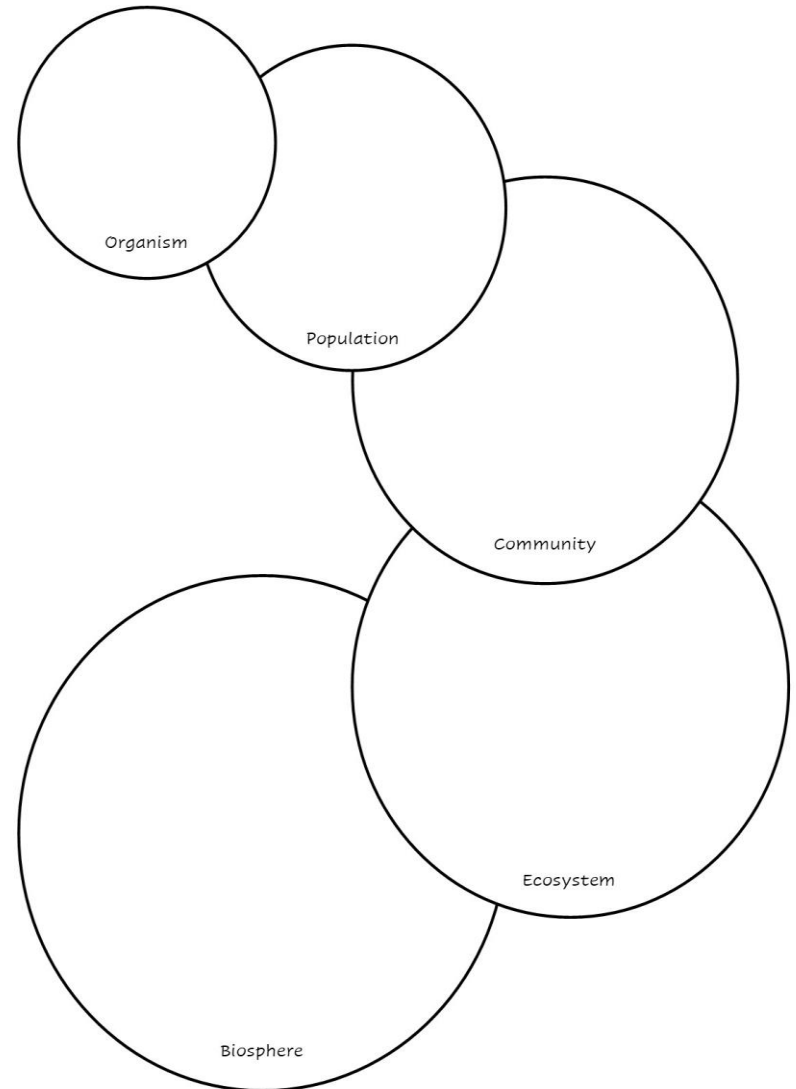
Sketch & label your favorite animal. Then sketch a population, community, ecosystem, and biosphere for your animal.



Name _____ Date _____

Levels of Organization

Sketch & label your favorite animal. Then sketch a population, community, ecosystem, and biosphere for your animal.



Name _____ Date _____

Factors in an Ecosystem

Ecosystems	
Biotic Factors	Abiotic Factors
Definition:	Definition:
Examples:	Examples:
Sketch:	Sketch:

Sketch an ecosystem and include 4 biotic and 2 abiotic factors. Circle and label each factor.

Explain how your ecosystem would change if one of the factors you drew was removed. _____

Name _____ Date _____

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Name _____ Date _____

Ecological Relationships

Next to each description, write the type of relationship in the blank.

_____ Orangutans will find ant colonies and use their thick fur to trap ants. They then eat the ants tangled in their fur.

_____ A pearlfish lives inside the intestines of a sea cucumber, which is a nice safe place to live. It will come out at night to eat. The sea cucumber doesn't get anything from the pearlfish.

_____ Honey guide birds will help direct honey badgers to beehives. The honey badger will destroy the hive to get to the honey. After it is done, the honey guide bird will get some of the leftover honey, but the bees are no longer a concern.

_____ There is a type of fungus that will take over the nervous system of insects and cause them to climb up high before killing the host insect as the fungus uses it for food and to spread more spores.

_____ Prairie dogs dig holes in the prairies to use as shelter. Snakes, burrowing owls, and other small animals will also use these holes for shelter.

Using the last example, explain a prairie dogs' habitat vs its niche.

Black footed ferrets will eat prairie dogs. The prairie dog is the _____ and the ferret is the _____.

Ticks will feed on the blood of other animals, such as deer. The tick is the _____ and the deer is the _____.

Name _____ Date _____

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Competition

Population growth of single-celled paramecium in isolation

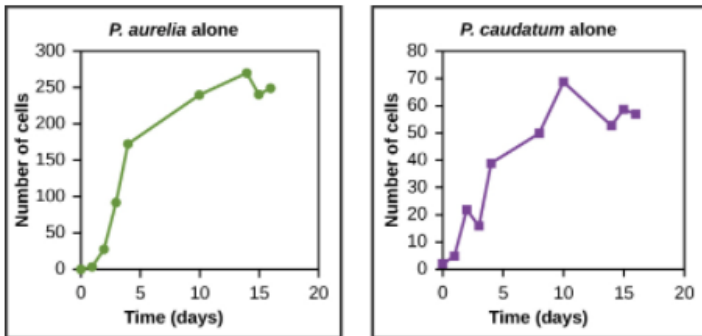


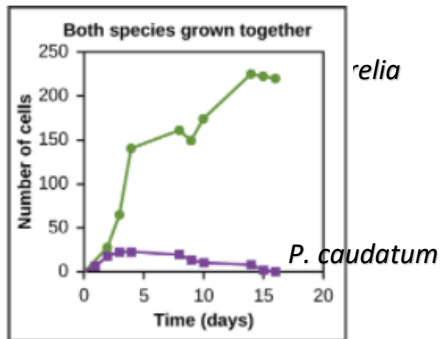
Image modified from "Community ecology: Figure 7," by OpenStax College, Concepts of Biology, CC BY 4.0.

Which 2 species are shown in the graphs? _____

What trend do you see in both graphs? _____

What difference do you notice about the size of each population? _____

Why do you think both populations start to decrease slightly after a certain number of days? _____



How does the population growth change when they are grown together? _____

The prefix inter- means between and intra- means within. Which graph shows interspecific competition? _____ Which shows intraspecific competition? _____

Name _____ Date _____

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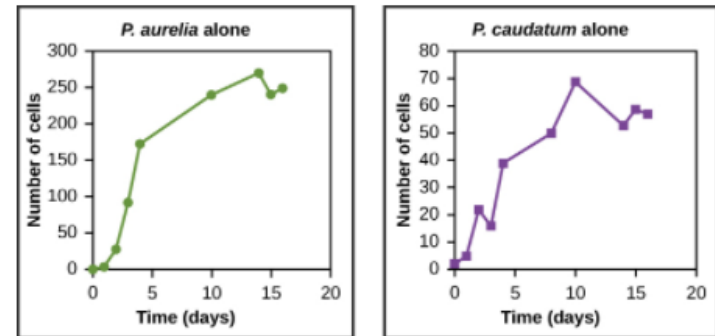


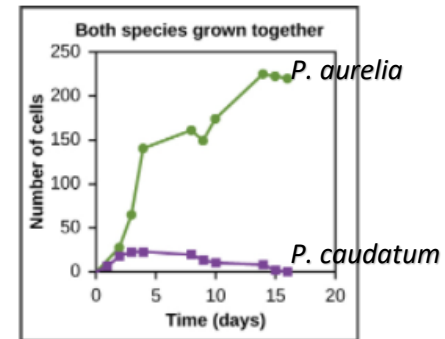
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Ecosystems Vocabulary-Match the following words to the correct definitions.

- | | | |
|------------------|----------------|--------------------|
| A. Adaptation | B. Symbiosis | C. Commensalism |
| D. Predation | E. Community | F. Population |
| G. Biotic Factor | H. Competition | J. Biosphere |
| K. Organism | L. Ecosystem | M. Abiotic Factor |
| N. Mutualism | O. Parasitism | P. Limiting factor |
| Q. Habitat | R. Niche | |

_____ close relationship of 2 organisms in the same area.

_____ one organism consumes another for energy.

_____ the role that an organism plays in its environment

_____ all of the organisms living in an area.

_____ all factors in an area that are living or were once living.

_____ all of the life supporting areas on Earth

_____ any trait that helps an organism survive and reproduce.

_____ all of the organisms of the same species living in an area.

_____ when 2 organisms need to use the same resource in an area

_____ where an organism lives

_____ a single individual

_____ one organism is benefited, but the other is unaffected.

_____ anything in an ecosystem that could limit population growth

_____ an area that includes the living and nonliving things in the area

_____ things in an area that are not living

_____ when different species help each other

_____ when one organism lives off another and harms the host

Name _____ Date _____

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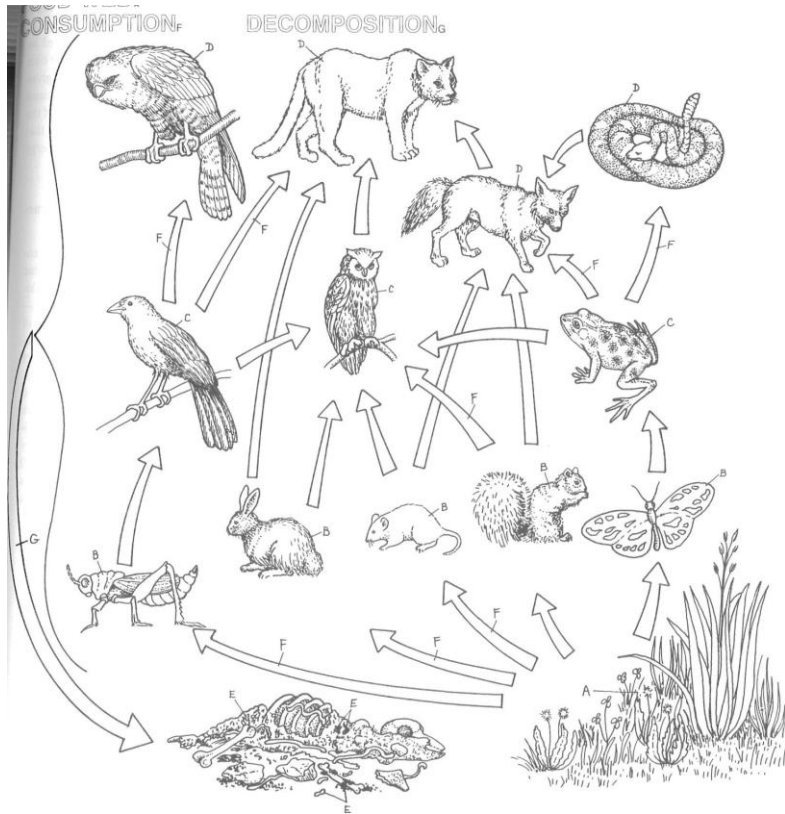
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Name _____ Date _____

Food Webs



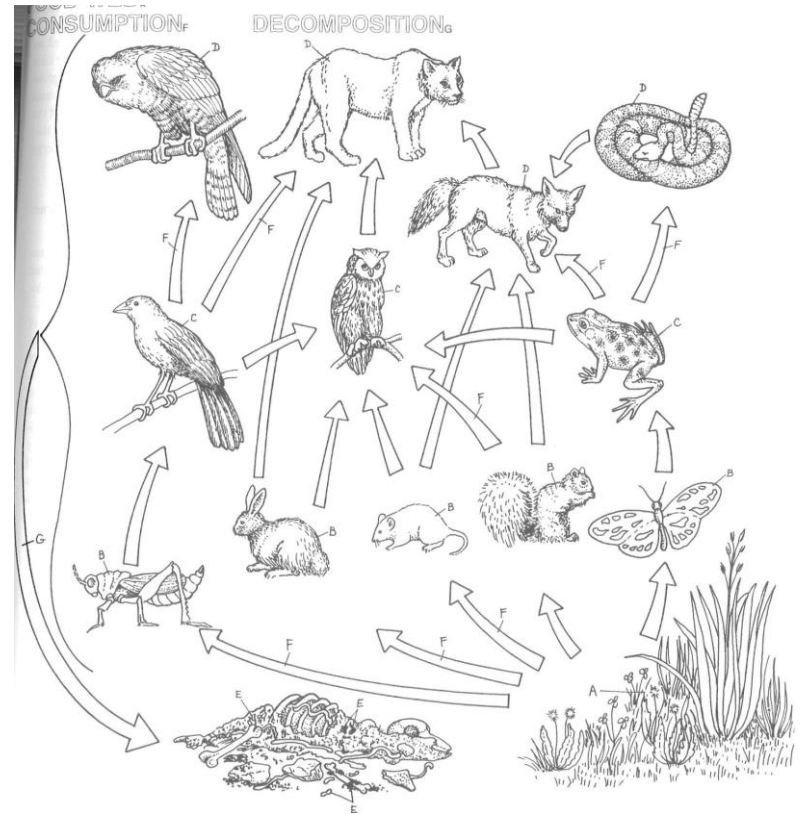
1. Which letter represents producers? _____
2. Which letter represents primary consumers? _____
3. Give an example of an organism that is a secondary and tertiary consumer.

4. Which organism will get less energy than the frog? _____ How do you know? _____
5. Which letter represents decomposers? _____
6. Which letter would represent the feeding level with the fewest individuals?

7. Which letter represents the feeding level that would have the highest concentration of toxic chemicals in an ecosystem? _____

Name _____ Date _____

Food Webs



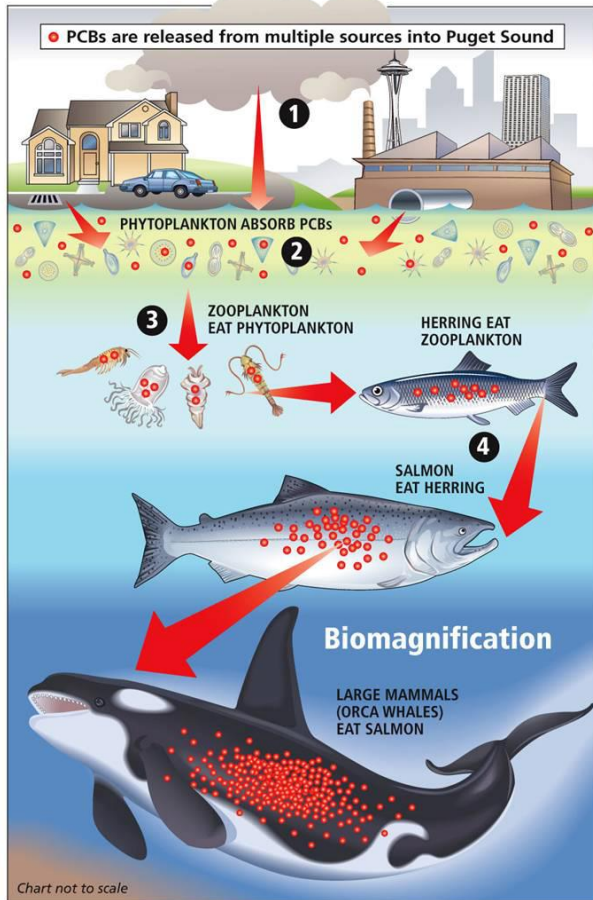
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Biomagnification



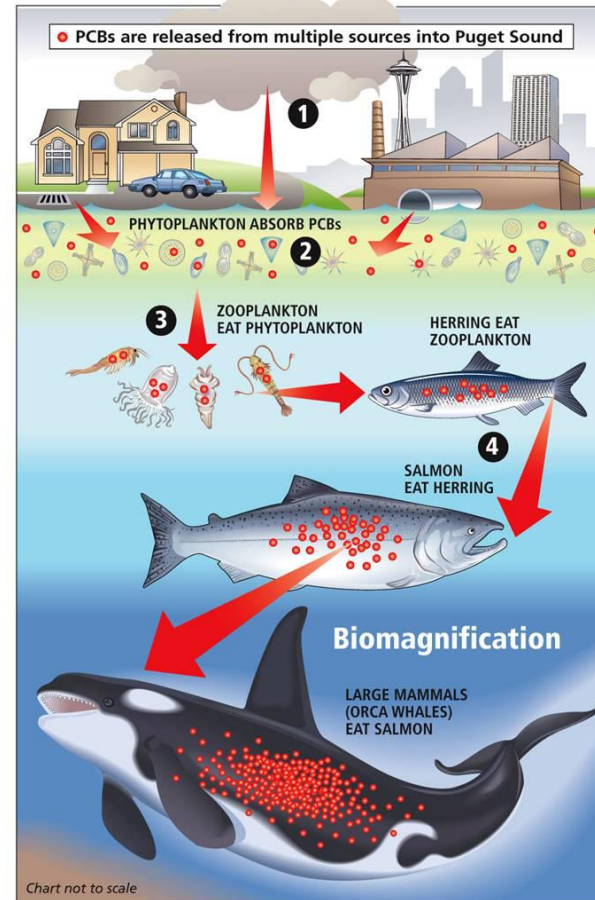
[This Photo](#) by Unknown Author is licensed under [CC BY-NC-ND](#)

- Which organisms in this diagram are producers? _____
- Which organisms in this diagram are primary consumers? _____
- Which organism is the top carnivore? _____
- What do the dots represent? _____
- What happens to the concentration of the dots as you move up the food chain? _____

Look up the term biomagnification and write the definition _____

Name _____ Date _____

Biomagnification



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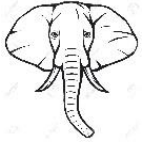
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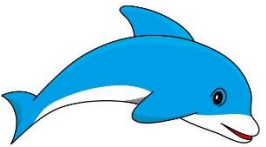
Name _____ Date _____

Adaptations

Explain how the adaptation listed helps the organism survive. Then, come up with a second adaptation for survival the organism has.



(Ears) _____



(Fins) _____



(Needle-like leaves) _____



(Feathers) _____

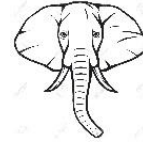


(Cones open after fire) _____

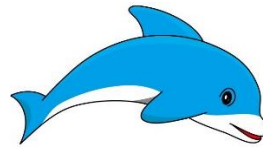
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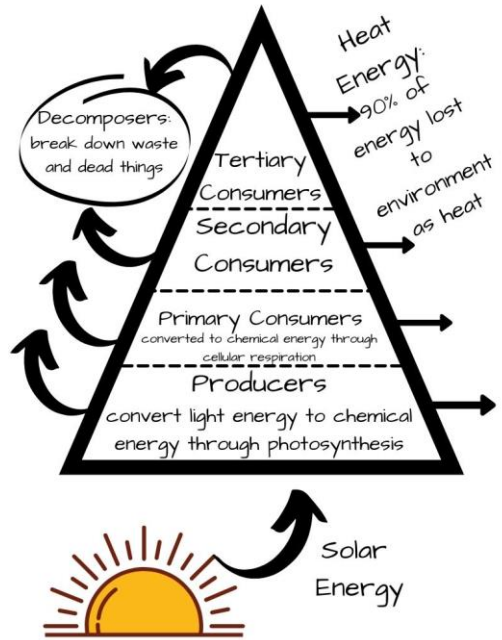
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(Cones open after fire) _____

Name _____ Date _____

Energy Flow in Ecosystems



If producers absorb 25,000 J of energy, how much will be available to the secondary consumers? _____

Give an example of a producer that is not a plant. _____

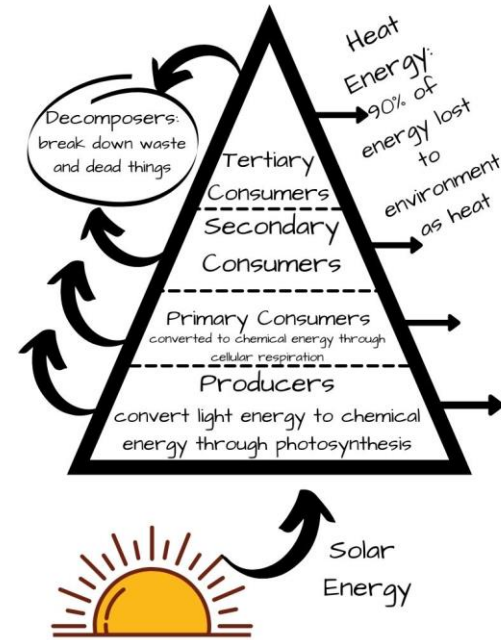
If an organism could be a primary or secondary consumer, it is known as an _____.

What is happening to the 90% of energy that isn't available to the next trophic level? _____

Explain why there is less biomass at the higher trophic levels as well as less energy. _____

Name _____ Date _____

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Energy Vocabulary Review-match the words to the correct definitions.

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| A. autotrophs | B. consumers | C. omnivores |
| D. food chain | E. heterotrophs | F. herbivores |
| G. decomposers | H. food web | I. producers |
| J. carnivores | K. detritivores | L. ecological pyramid |
| M. trophic level | N. biomagnification | |

_____ organisms that only eat other animals

_____ organisms that can make their own food using sunlight (2 letters)

_____ organisms that eat dead organisms

_____ occurs when toxins increase in concentration as they move up the trophic levels

_____ organisms that must eat other organisms to get energy (2 letters)

_____ diagram showing that energy decreases as you go up trophic levels

_____ organisms that can eat plants or animals

_____ simple diagram that shows feeding relationships between a few organisms

_____ feeding level

_____ organisms that only eat plants

_____ complex diagram that shows multiple feeding relationships in an ecosystem

_____ organisms that breakdown waste and dead organic matter to recycle nutrients in an ecosystem

Name _____ Date _____

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Name _____ Date _____

Plants & Nutrients

Review (look up if necessary):

1. What 3 things do plants need to carry out photosynthesis?
 - a. _____
 - b. _____
 - c. _____
2. What are 2 functions of plant roots?
 - a. _____
 - b. _____

Look up the following information:

3. What are the "big 3" elements found in fertilizer?
 - a. _____
 - b. _____
 - c. _____
4. These elements are important nutrients for plants. What structure do plants use to absorb these elements? _____
5. Which two elements are considering the most limiting?
_____ & _____
6. What do plants and animals use each of these elements to make?
 - a. _____
 - b. _____
7. These nutrients are absorbed by plants in an ecosystem. How do animals get the nutrients they need? _____

8. What happens if plants don't get enough nutrients? _____

9. How would this affect animals? _____

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Eutrophication Video Bellringer

Watch the video at bit.ly/3mZYG0f and answer the following questions.

What is a "dead zone" in the ocean? _____

What are 2 ways that photosynthetic organisms are important to marine ecosystems? _____

Other than sunlight, what 2 nutrients do producers need?

_____ & _____

What is eutrophication? _____

Why is an increase in algae growth on the surface a problem? _____

What happens when large amounts of producers die and start decomposing? _____

What are some major sources of pollutants that lead to an increase in algae growth? _____

How do these dead zones affect us? _____

What are some ways to prevent run-off that contributes to these dead zones? _____

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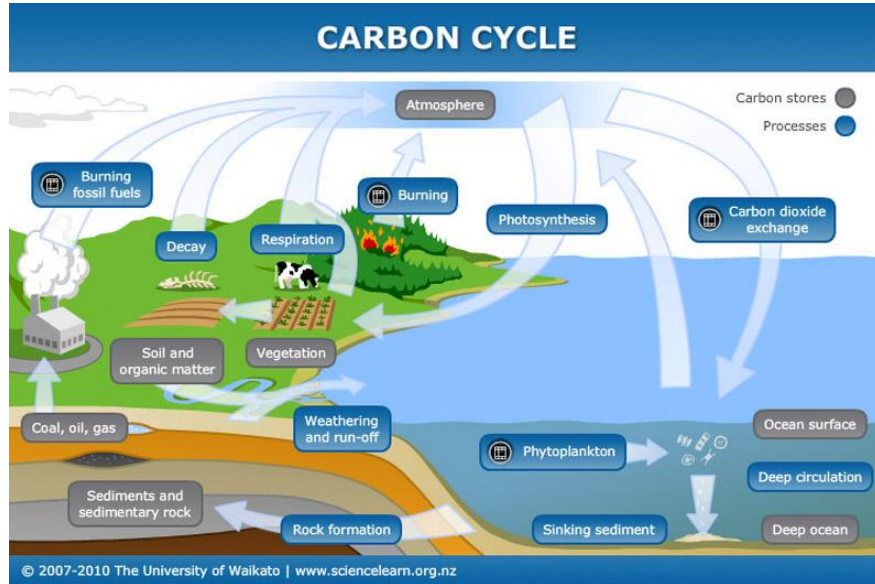
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Carbon Cycle Bellringer



Circle the 2 processes that remove carbon from the atmosphere. Put a star next to the 4 processes that release carbon into the atmosphere.

Explain one path carbon could take to cycle from the atmosphere and back again. _____

What happens when we disrupt any of the carbon sinks (storage)? _____

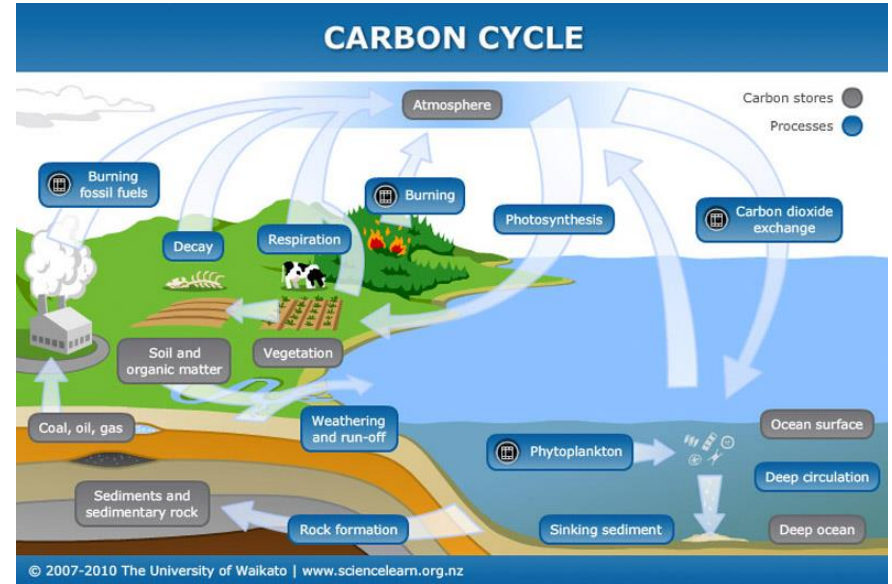
What does CO₂ do in the atmosphere? _____

What is something we could do to reverse the problem of releasing too much CO₂? _____

Which type of biomolecule is produced during photosynthesis? _____

Name _____ Date _____

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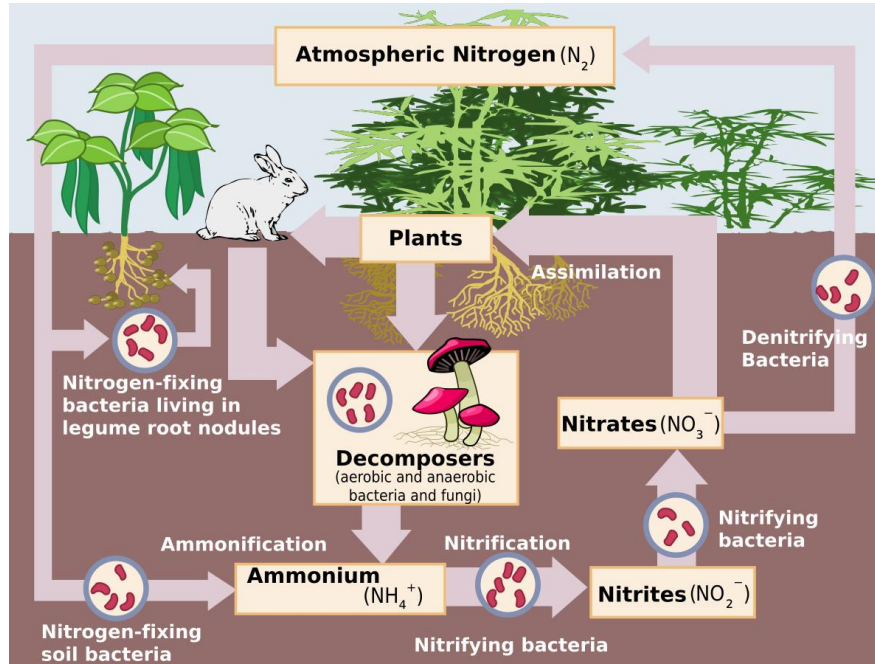
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Name _____ Date _____

Nitrogen Cycle Bellringer



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Explain one path nitrogen could take to cycle from the atmosphere and back again. _____

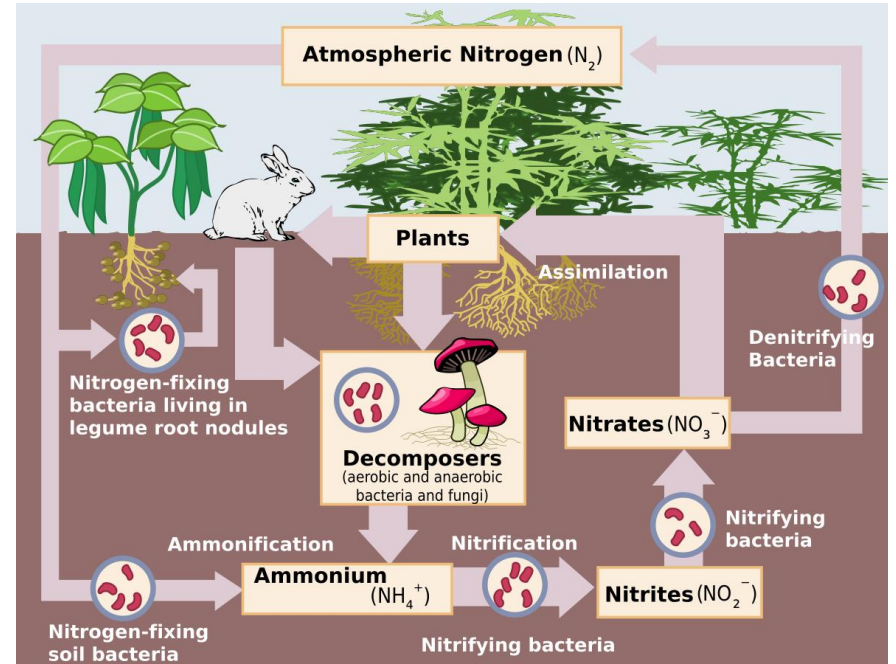
Nitrogen fixation converts atmospheric nitrogen into usable nitrogen. Which organisms perform this process? _____

Why do plants need nitrogen? _____

If the nitrogen cycle is disrupted, which group of organisms would be affected first? _____

Name _____ Date _____

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Succession & Stability Bellringer

Label each example as either primary (P) or secondary (S) succession.

- | | |
|-------------------------|--------------------------|
| _____ Volcanic activity | _____ Forest fire |
| _____ Plowing a field | _____ Retreating glacier |
| _____ Flood | _____ Tornado |
| _____ Hurricane | _____ Paving a sidewalk |

Explain how each of the following could affect biodiversity & ecosystem stability.

Cutting down native forest to plant crop trees _____

Introducing a non-native species that is able to reproduce quickly and doesn't have many predators _____

Using a small area to plant native grasses and wildflowers in a lawn _____

Name _____ Date _____

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