Post Test - Biology

Question 1 .

A population of drosophila flies lives in a forest and has variation in their egg-laying behavior. The majority of the flies have the trait of laying eggs in the rotting bark of trees. A small percentage of the flies have the trait of laying eggs in bark that is dampened by sap.

The drosophila population moves into a new forested area that is drier, where rotting bark is harder to find than sap. How will the population change over several generations?

A. It will contain a smaller proportion of flies that lay eggs in sap because the trait is already only a small percentage of the population and will get smaller over time.

B. It will contain a larger proportion of flies that lay eggs in sap because the trait results in a higher chance of reproducing successfully and passing on the gene.

C. It will contain a smaller proportion of flies that lay eggs in sap because not enough offspring will be produced and the number of individuals in the population will drop.

D. It will contain the same proportion of flies that lay eggs in sap because behavioral traits are not based in genetics and cannot be passed to offspring.

Question 2 .

Transcription and translation are the two processes involved in protein synthesis. During transcription, DNA is copied into messenger RNA (mRNA) in the nucleus of a cell. Messenger RNA then moves into the cytoplasm, where it attaches to a ribosome and is translated into a protein. Which statement best describes the role of transfer RNA (tRNA) in translation?

A. Numerous tRNA molecules are joined together by mRNA to form a protein.

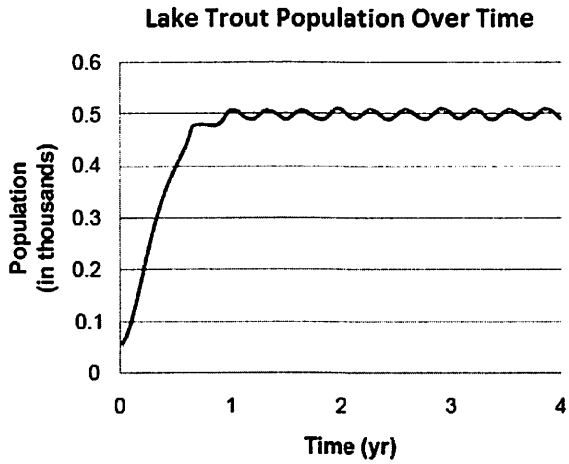
B. Amino acids that correspond to the codons on mRNA are brought to the ribosome by tRNA.

C. After reading the codons on tRNA, the ribosome delivers and attaches amino acids to the mRNA.

D. Transfer RNA makes an identical copy of the base sequence on mRNA.

Question 3 .

A small population of lake trout were introduced into a lake ecosystem. The graph below shows how the population changed from when it was introduced to four years after its introduction into the ecosystem.



Which of the following most likely occurred at year 1?

A. The population reached its carrying capacity.

B. The ecosystem experienced an extreme drought.

C. A new population that preyed on lake trout was introduced.

D. The ecosystem doubled in size due to excessive flooding.

Question 4 .

The Earth's carbon cycle consists of the flow, cycling, and recycling of all of the carbon on the Earth. Every living organism's composition includes the element carbon. How does carbon become part of both producers and consumers?

A. Consumers take in carbon dioxide from the air, and producers eat the consumers.

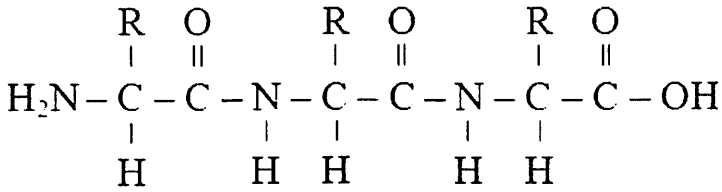
B. Carbon is a part of sunlight and enters through the skins of both producers and consumers.

C. Producers take in carbon directly from the soil through their roots, and consumers eat the producers.

D. Producers take in carbon dioxide from the air, and consumers eat the producers.

Question 5 .

Examine the structural formula below.



Which of the following biomolecules is best represented by this formula?

A. carbohydrate

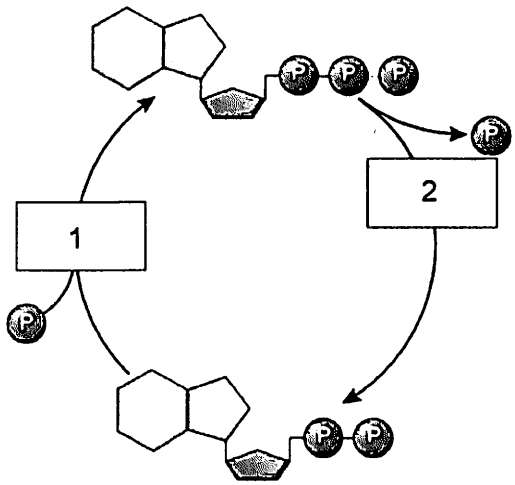
B. nucleic acid

C. lipid

D. protein

Question 6 .

The model below shows how ATP and ADP are cycled in a cell.



How is energy transferred during steps 1 and 2 in the model?

A. Energy is stored when ATP is broken down in step 1 and released when ATP is formed in step 2.

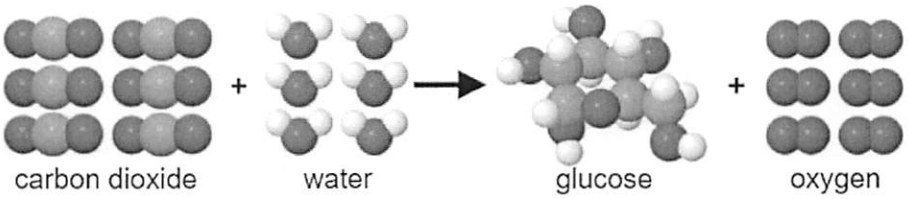
B. Energy is released when ATP is formed in step 1 and stored when a bond in ATP is broken in step 2.

C. Energy is stored when ATP is formed in step 1 and released when a bond in ATP is broken in step 2.

D. Energy is released when ATP is broken down in step 1 and stored when ATP is formed in step 2.

Question 7 .

A model of the photosynthesis reaction is shown below. This reaction requires light and takes place in the leaves of plants.



Why is glucose more useful to plants than the inputs of photosynthesis?

- **A.** Glucose molecules can be transported more easily than water and carbon dioxide molecules.
- **B.** Glucose molecules can be broken down to obtain water for the plant to use.
- **C.** Glucose molecules store energy in their chemical bonds, and plants can use this energy.
- **D.** Glucose molecules contain more elements than water and carbon dioxide molecules.

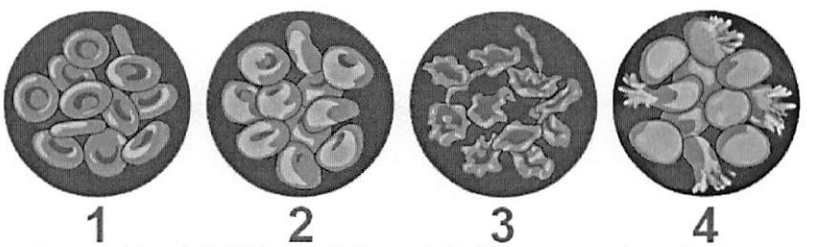
Question 8 .

James is homozygous dominant for curly hair (CC), and his wife is heterozygous (Cc). What is the probability that their first child will also be homozygous dominant for curly hair?

- **A.** 75%
- **B.** 0%
- **C.** 25%
- **D.** 50%

Question 9 .

Sandra examined some animal cells using a compound microscope. Under normal conditions, the cells have an approximate salinity of 1 M NaCl and resemble the slide shown in picture 1.



If the cells are submerged in a 0.8 M NaCl solution, what will happen to the cells?

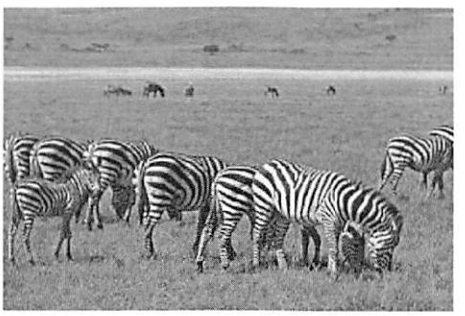
- **A.** Water will move into the cells and they will swell as in picture 2.
- **B.** Water will move into the cells until they swell and burst as in picture 4.
- **C.** Water will move out of the cells and they will shrink as in picture 3.
- **D.** Nothing will happen; they will look the same as in picture 1.

Question 10 .

How do viruses compare with organisms?

- **A.** Viruses are larger than the cells of organisms, and cells replicate inside of viruses.
- **B.** Both contain nucleic acids, but viruses are not composed of cells.
- **C.** Both contain ribosomes, but viruses do not contain a nucleus.
- **D.** Viruses contain DNA within their nuclei, and cells contain RNA within their nuclei.

Question 11 .



A herd of zebra eating grass includes groups of organisms from different species. These groups best exemplify

- **A.** a biome interaction.
- **B.** a population interaction.
- **C.** an ecosystem interaction.
- **D.** a community interaction.

Question 12 .

How does primary succession compare with secondary succession?

- **A.** An community begins primary succession after a mild disturbance.
- **B.** An community begins secondary succession when it reaches equilibrium.
- **C.** An community undergoing primary succession has higher stability.
- **D.** A community undergoing secondary succession has higher species diversity.

Question 13 .

Codon Chart							
		Second Position					
		U	C	A	G		
First Position (5')	U	Phenylalanine Phenylalanine Leucine Leucine	Serine Serine Serine Serine	Tyrosine Tyrosine Stop Stop	Cysteine Cysteine Stop Tryptophan	U C A G	Third Position (3')
	C	Leucine Leucine Leucine Leucine	Proline Proline Proline Proline	Histidine Histidine Glutamine Glutamine	Arginine Arginine Arginine Arginine	U C A G	
	A	Isoleucine Isoleucine Isoleucine Methionine	Threonine Threonine Threonine Threonine	Asparagine Asparagine Lysine Lysine	Serine Serine Arginine Arginine	U C A G	
	G	Valine Valine Valine Valine	Alanine Alanine Alanine Alanine	Aspartic acid Aspartic acid Glutamic acid Glutamic acid	Glycine Glycine Glycine Glycine	U C A G	

$^{5'}$ AGAUCGAGU $^{3'}$ $\rightarrow$ $^{5'}$ ACAUCGAGU $^{3'}$

The chain above represents three codons. Which of the following changes would be expected in the amino acid chain if the mutation shown above occurred?

- **A.** The amino acid sequence would remain unchanged.
- **B.** The amino acid sequence would be shorter than expected.
- **C.** The identity of one amino acid would change.
- **D.** The identities of more than one amino acid would change.

Question 14 .

Cork is a material that is often used to make bottle stoppers and bulletin boards. This material is made from cork oak trees.

In 1665, a scientist named Robert Hooke examined a thin slice of cork under a microscope. The slice was made up of many small compartments, which Hooke called cells.

What part of cell theory does Hooke's discovery best support?

- **A.** Cells are the basic building blocks of all living organisms.
- **B.** All new cells come from pre-existing cells.
- **C.** Energy flow, or metabolism, occurs within cells.
- **D.** Cells contain genetic material that is passed down to daughter cells.

Question 15 .

A population of organisms becomes separated by a large canyon. Over millions of years, the organisms on one side of the canyon become much different from the organisms on the other side of the canyon. Eventually the populations are genetically different enough that they can no longer interbreed. This example can best be described as _____.

- **A.** speciation
- **B.** meiosis
- **C.** mitosis
- **D.** homeostasis

Question 16 .

The diagram below shows a typical food chain from an ecosystem along the eastern coast of the United States.

Modified from image courtesy of USGS

Which of the following is the most reasonable inference from the food chain?

- **A.** There are more herring than striped bass in this ecosystem.
- **B.** Most of the energy in the ecosystem is possessed by the bald eagles.
- **C.** Bald eagles are the most numerous species in this ecosystem.
- **D.** Herring obtain their energy primarily from striped bass.

Question 17 .

In many eukaryotic cells, DNA stored in the nucleus is transcribed into messenger RNA. The mRNA is then transported into the cytoplasm where ribosomes assist in their translation into proteins. Finally, these proteins are packaged and sorted in the Golgi apparatus for use in other parts of the cell or in preparation for secretion into other cells.

Which of the following statements is supported by this description?

- **A.** Some organelles are more important than other organelles within a cell.
- **B.** Only up to three organelles may interact with each other at any given moment in time.
- **C.** Various organelles within a cell interact with each other to carry out life processes.
- **D.** Organelles within a cell act independently of each other at all times.

Question 18 .

Which of the following are examples of asexual reproduction?

I. binary fission
II. budding
III. fragmentation
IV. meiosis

- **A.** III and IV only
- **B.** I, II, and IV only
- **C.** I and II only
- **D.** I, II, and III only

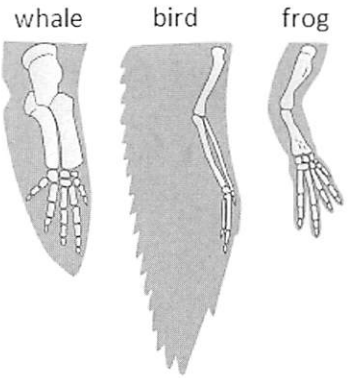
Question 19 .

In DNA, which of the following determines the traits of an organism?

- **A.** strength of hydrogen bonds
- **B.** sequence of nitrogen bases
- **C.** number of sugars
- **D.** amount of adenine

Question 20 .

The diagram below shows the forelimb structure of three different species.



While the forelimb of each species is adapted for a particular function, the same bone structures are present in each one. What does this indicate about the species?

- **A.** They are adapted to live in similar environments.
- **B.** They share a common ancestor with one another.
- **C.** They are genetically similar enough to interbreed.
- **D.** They are the result of migration between populations.

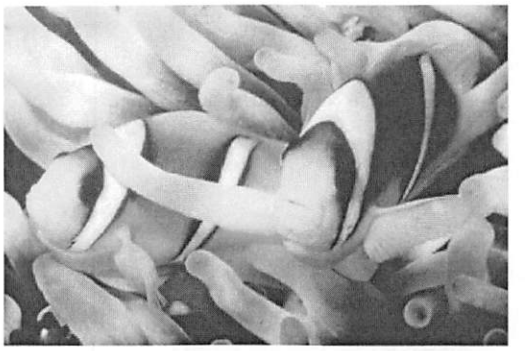
Answers

1. B
2. B
3. A
4. D
5. D
6. C
7. C
8. D
9. A
10. B
11. D
12. D
13. C
14. A
15. A
16. A
17. C
18. D
19. B
20. B

Relationships in Ecosystems

Question 1 .

A sea anemone has tentacles (similar to jellyfish) that deliver a chemical sting to animals that come in direct contact with them. Clownfish, however, are immune to the sea anemone's sting. They live among the tentacles of sea anemones and rely on the anemones for protection.

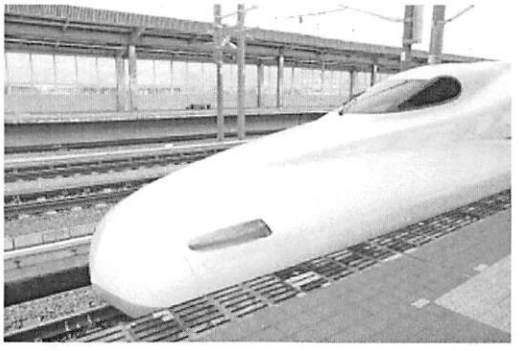


Sea anemones are filter feeders, and the movement of the clownfish increases the current of water flowing through the anemone. In addition, clownfish tend to drop scraps of food as they feed. What type of relationship exists between the clownfish and the sea anemone?

- **A.** parasitism
- **B.** mutualism
- **C.** predation
- **D.** commensalism

Question 2 .

Early Japanese bullet trains were so fast that they were causing problems when they traveled through tunnels. They created loud booms when they exited tunnels that disturbed residents and damaged the tunnels themselves. To address this problem, the front end of the train was redesigned so that the train could keep its speed but make less noise exiting tunnels. The updated design can be seen below.



The inventors of the new train applied biomimicry to their design. Which organism did scientists most likely research to design the train?

- **A.** a kingfisher bird that can dive into the water, beak first, without making a large splash
- **B.** a shark that can glide through the water due to its specialized, drag-reducing skin
- **C.** a humpback whale that can pull itself all the way out of the water before reentering
- **D.** a woodpecker that can bore a hole in a tree without suffering head damage

Question 3 .

Plants require nitrogen and phosphorus but cannot efficiently absorb these nutrients from the soil. Instead, they obtain the nutrients through fungi that live in their roots. In return, the fungi have access to carbohydrates manufactured by the plants. Without the fungi, plants would not be healthy and abundant, and the food supply of all of the organisms in the ecosystem would be in danger.

This is an example of how _____ relationships maintain balance within an ecosystem.

A. divergent

B. competitive

C. symbiotic

D. abiotic

Question 4 .

The American bullfrog is native to much of the eastern United States. This species has successfully begun to spread west as an invasive species. It is thriving in the western United States because of its large size, high mobility, and tremendous reproductive capabilities.

American bullfrogs have very generalized eating habits and often eat the same food sources as the native frog species in the western United States, causing a reduction in the overall food supply.

The relationship between the American bullfrog and native frog species in the western United States can best be characterized as _____.

A. parasitism

B. predation

C. competition

D. mutualism

Question 5 .

Directions: Drag the tiles to the correct boxes to complete the pairs.

Parasitism, mutualism, and commensalism are all examples of symbiotic relationships. Match each term to the correct definition.

parasitism mutualism commensalism

a symbiotic relationship in which one organism benefits while another organism is harmed	⟷
a symbiotic relationship in which both organisms receive a benefit	⟷
a symbiotic relationship in which one organism benefits while the other organism neither benefits nor is harmed	⟷

Question 6 .

The *monarch* butterfly is a type of butterfly with a unique self-defense trait: It is toxic to birds and will make them sick if eaten. Over a long period of time, another type of butterfly, the *viceroy*, has developed a wing coloration that is very similar to the appearance of the *monarch*. However, the *viceroy* has not developed the trait of being toxic.

Judging from the above information, what inference can be made about *viceroy* butterflies?

A. Wing coloration will not benefit the *viceroys* if they are not toxic.

B. *Viceroys* are now part of the same species as *monarchs*.

C. If preyed upon by birds, *viceroys* will make the birds sick.

D. Birds will mistake them for *monarchs* and not eat the *viceroys*.

Question 7 .

_____ occurs when individual organisms work together to accomplish a common goal.

A. Parasitism

B. Cooperation

C. Predation

D. Competition

Question 8 .

Katydids and cicadas are winged insects found in forests and grasslands. The table below describes interactions between cicadas and between cicadas and katydids in their environment.

Male and Female Cicadas	Male Cicadas and Katydids
The male produces a mating song. The female responds with a specific sequence of wing clicks. The male then approaches the female to mate.	In response to the mating song of male cicadas, the katydid produces a sequence of wing clicks similar to those of female cicadas. This lures the male to the katydid, who eats it.

Which of the following describes one of the relationships between katydids and cicadas?

A. They have a mimicry relationship, but changes in wing clicking behavior in female cicadas will not have an effect on wing clicking behavior in katydids.

B. They have a commensal relationship, and katydids will receive a benefit from the relationship even if the sequence of female wing clicks changes.

C. They have a commensal relationship, but katydids will not receive a benefit from the relationship if the sequence of female wing clicks changes.

D. They have a mimicry relationship, and changes in wing clicking behavior in female cicadas will most likely lead to changes in wing clicking behavior in katydids.

Question 9 .

African moths depend on orchids for nectar, and orchids depend on moths for pollination. As a result of this relationship, the African moths have developed a long proboscis in response to the orchids' deep flowers. Which of the following theories does this relationship support?

A. overproduction

B. mimicry

C. co-evolution

D. camouflage

Question 10 .

Tapeworms cannot produce their own food. Instead, they live inside of another living organism's digestive tract and ultimately harm the organism as they absorb necessary nutrients from it.

In the above relationship, the tapeworm is considered a _____ while the other organism is known as the _____.

A. predator; parasite

B. predator; prey

C. consumer; producer

D. parasite; host

Answers

1. B
2. A
3. C
4. C
5. --
6. D
7. B
8. D
9. C
10. D

Explanations

1. The clownfish benefits from the relationship since the fish is provided with housing and protection from the sea anemone. The sea anemone receives scraps of food from the clownfish. It also benefits from an increase in water flow caused by the swimming motion of the fish, so the relationship is one of **mutualism**.

2. In order to reduce the effects of the train exiting tunnels at high speeds, the train inventors needed to redesign the front of the train. A **kingfisher bird that can dive into the water, beak first, without making a large splash** provided an excellent design to research and mimic. The shape of the beak of the kingfisher allows it to cut through water with minimal disturbance. The new front end of the train is able to cut through the air in a similar way. This application of biomimicry not only solved the noise problem of the train, but also made it faster and more efficient.

3. **Symbiotic** relationships are essential for maintaining balance in an ecosystem.

   Over time, species have developed beneficial or cooperative relationships. As a result, other species that can take advantage of those relationships have developed. For instance, all animals take advantage of the beneficial relationship between plants and the fungi that live in plant roots.

4. **Competition** takes place when two or more organisms or species within an ecosystem seek the same resource. In the case of the American bullfrog, the invasive species is reducing the amount of food resources available to native frogs in the western United States. This causes competition between American bullfrogs and the native species because the growth of both populations is limited by the amount of food that is available to them.

5. Parasitism, mutualism, and commensalism are all examples of symbiotic relationships.

   - **Parasitism** is a symbiotic relationship in which one organism (the *parasite*) benefits while another organism (the *host*) is harmed. For example, a tick is a parasite that feeds on and harms a host, such as a dog.
   - **Mutualism** is a symbiotic relationship in which both organisms receive a benefit. For example, some fungi obtain food by living on the roots of plants. The fungi help break down nutrients, which can then by absorbed by the plant.
   - **Commensalism** is a symbiotic relationship in which one organism benefits while the other organism neither benefits nor is harmed. For example, some barnacles attach themselves to whales, so they can move to new environments and find more food. The whales are not affected by the barnacles.

6. Survival in nature often depends on appearance. If *viceroy* butterflies appear similar enough to *monarchs* that birds avoid eating them, it does not matter whether *viceroys* are actually toxic—**birds will mistake them for *monarchs* and not eat the *viceroys*.**

7. **Cooperation** occurs when organisms work together to accomplish a common goal. Examples of cooperative behavior include groups of organisms chasing off potential predators, family groups raising young as a community, and organisms who raise alarm calls to warn other members of their group of a potential danger.

8. A katydid imitates the wing clicks of female cicadas to attract males to eat. This is an example of a **mimicry** relationship because one organism imitates, or mimics, another.

   A mimicry relationship is a type of coevolutionary relationship. In these relationships, changes in the trait in one of the species lead to changes in the trait in the second species. So, **changes in wing clicking behavior in female cicadas will most likely lead to changes in wing clicking behavior in katydids.**

9. The evolutions of the African moth and the orchid are interlinked. Since the African moths' evolution of a long proboscis came about as a result of the orchids' deep flowers, they have a **co-evolutionary** relationship. The long proboscis of the African moth increases its success in its ecosystem because it is able to obtain food more easily.

10. Interactions between organisms can be positive, negative, or neutral. One type of interaction that can occur between organisms is a parasite/host relationship. In this kind of interaction, one organism (the parasite) lives inside or on another organism (the host) and takes nutrients from that organism. The parasite receives a benefit from this relationship and the host is harmed.

A tapeworm is a **parasite**. The organism that a tapeworm parasitizes is known as the **host**.

Hydrology

Name: **Class:**

Teacher: **Date:**

Directions: Place each item in the correct order.

ITEMBANK:

Abyssal Plain	Aquifer	Coastal Zone	Continental Margin	Currents	Freshwater	Hydrologic Cycle
Mid-Ocean Ridge	Mississippi River	Ocean	Pearl River	Salinity	Sea Level	Tides
Upwelling	Water Cycle	Water Table	Watershed	Zone of Saturation	buoyancy	universal solvent

This H_2O contains no significant amounts of salt. Access to this is a critical issue for the survival of many species, including humans, especially in desert or otherwise arid areas. _____

This is the circulation of water between land, air and surface. _____

This is an underground level where the ground becomes saturated with water. _____

This is an area of soil or rock below the level of the water table where all the voids are filled with water. _____

This is the continuous circulation of water throughout Earth and between Earth's systems. During this movement water can be in various stages. _____

This is the an area drained by a river, stream, or other water source. _____

This is is an underground layer of water-bearing permeable rock from which groundwater can be easily extracted using a well. _____

This is a large body of water covering most of the earth. _____

These are caused by the gravitational pull of the moon. _____

This is a continuous directed movement of ocean water. _____

This is a unit of measurement associated with large bodies of water. _____

This is an oceanographic occurrence that involves wind-driven motion of dense, cooler, and usually nutrient-rich water towards the ocean surface. _____

This is the amount of salt dissolved in a body of water.

This is the zone of the ocean floor that separates the thin oceanic crust from thick continental crust.

This is an underwater mountain range, typically having a valley known as a rift running along its axis, formed by plate tectonics.

This is a flat or very gently sloping area of the ocean basin floor.

This is the area between the land and the water.

This is the ability of an object to float in a liquid, such as water.

A substance capable of dissolving a large variety of substances.

This is the largest river system in North America and extends from Minnesota to the Gulf of Mexico.

This is one of the larger rivers in Mississippi. It forms in Winston County, Mississippi from the confluence of Nanawaya and Tallahaga Creeks and ends into the Gulf of Mexico.

Hydrology - Key

Name: **Class:**

Teacher: **Date:**

Directions: Place each item in the correct order.

This H_2O contains no significant amounts of salt. Access to this is a critical issue for the survival of many species, including humans, especially in desert or otherwise arid areas.	Freshwater
This is the circulation of water between land, air and surface.	Water Cycle
This is an underground level where the ground becomes saturated with water.	Water Table
This is an area of soil or rock below the level of the water table where all the voids are filled with water.	Zone of Saturation
This is the continuous circulation of water throughout Earth and between Earth's systems. During this movement water can be in various stages.	Hydrologic Cycle
This is the an area drained by a river, stream, or other water source.	Watershed
This is is an underground layer of water-bearing permeable rock from which groundwater can be easily extracted using a well.	Aquifer
This is a large body of water covering most of the earth.	Ocean
These are caused by the gravitational pull of the moon.	Tides
This is a continuous directed movement of ocean water.	Currents
This is a unit of measurement associated with large bodies of water.	Sea Level
This is an oceanographic occurrence that involves wind-driven motion of dense, cooler, and usually nutrient-rich water towards the ocean surface.	Upwelling
This is the amount of salt dissolved in a body of water.	Salinity
This is the zone of the ocean floor that separates the thin oceanic crust from thick continental crust.	Continental Margin

This is an underwater mountain range, typically having a valley known as a rift running along its axis, formed by plate tectonics.	Mid-Ocean Ridge
This is a flat or very gently sloping area of the ocean basin floor.	Abyssal Plain
This is the area between the land and the water.	Coastal Zone
This is the ability of an object to float in a liquid, such as water.	buoyancy
A substance capable of dissolving a large variety of substances.	universal solvent
This is the largest river system in North America and extends from Minnesota to the Gulf of Mexico.	Mississippi River
This is one of the larger rivers in Mississippi. It forms in Winston County, Mississippi from the confluence of Nanawaya and Tallahaga Creeks and ends into the Gulf of Mexico.	Pearl River

Interpret an Energy Pyramid

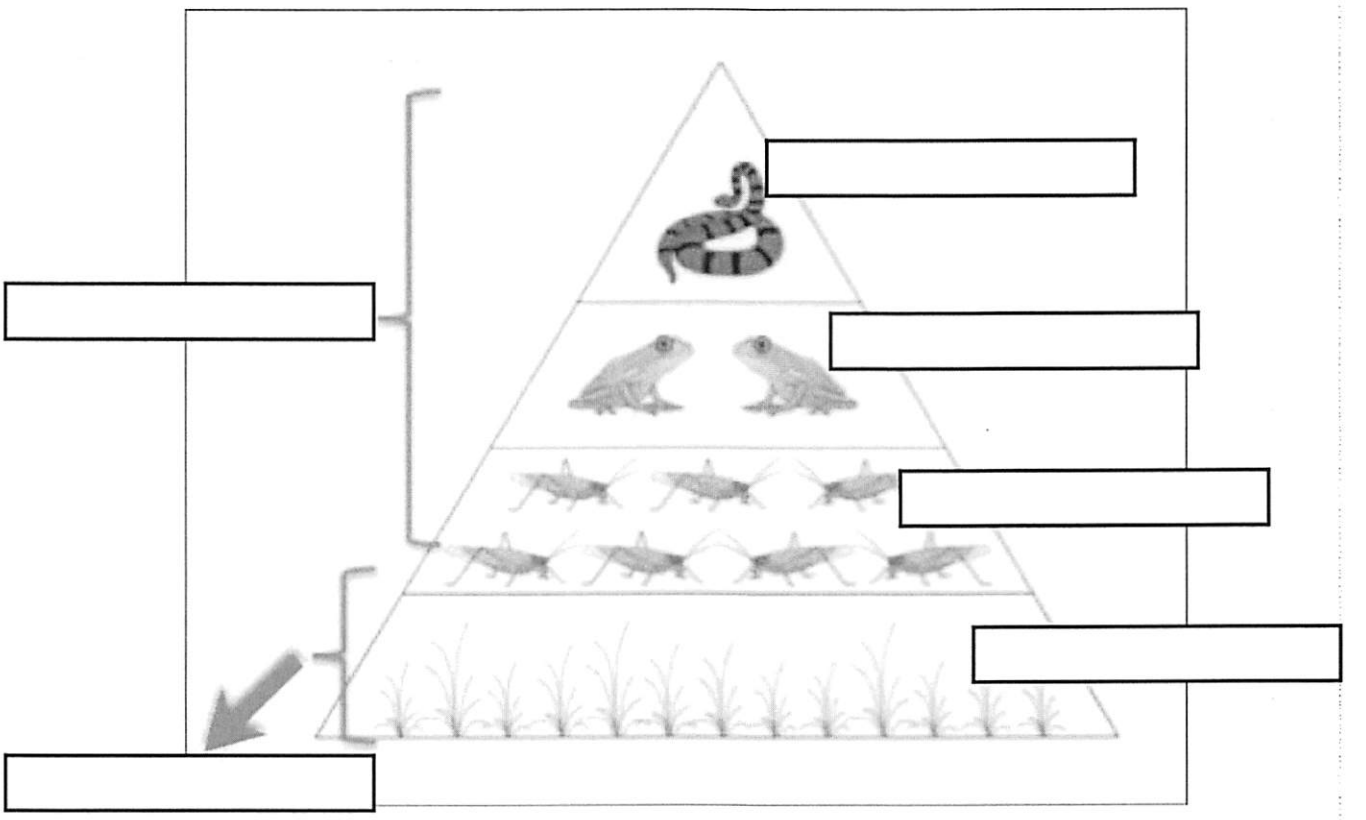
Name: **Class:**

Teacher: **Date:**

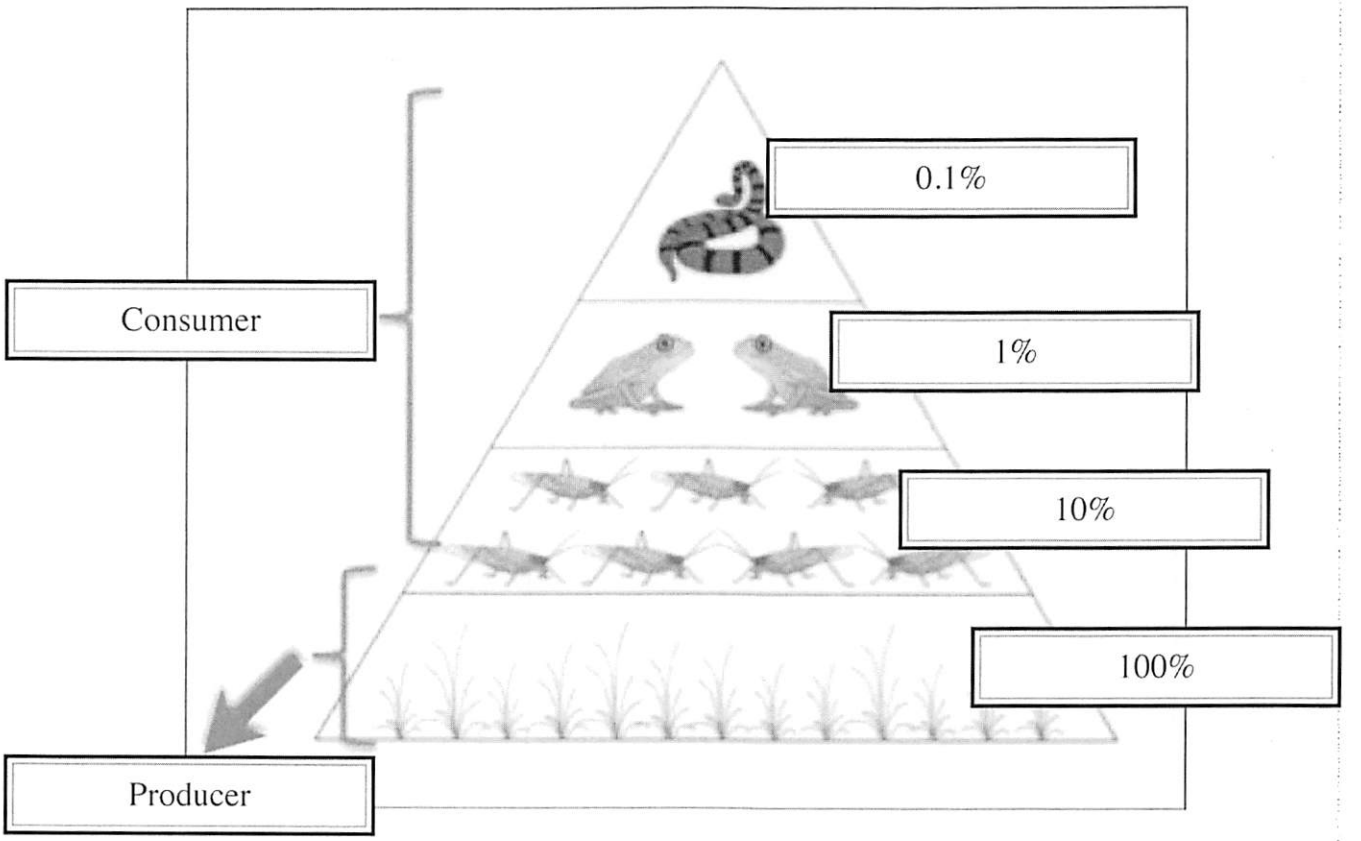
Directions: Match each item to its corresponding space below.

ITEMBANK:

- 0.1% - The amount of the producers' energy that is transferred to tertiary consumers/decomposers on the energy pyramid.
- 1% - The amount of the producers' energy that is transferred to secondary consumers on the energy pyramid.
- 10% - The amount of the producers' energy that is transferred to primary consumers on the energy pyramid.
- 100% - The amount of energy that producers provide to the energy pyramid.
- Consumer - This is an organism that relies on other organisms for its food and energy supply; also called a heterotroph.
- Producer - This is an organism that supplies matter and energy, also known as an autotroph.



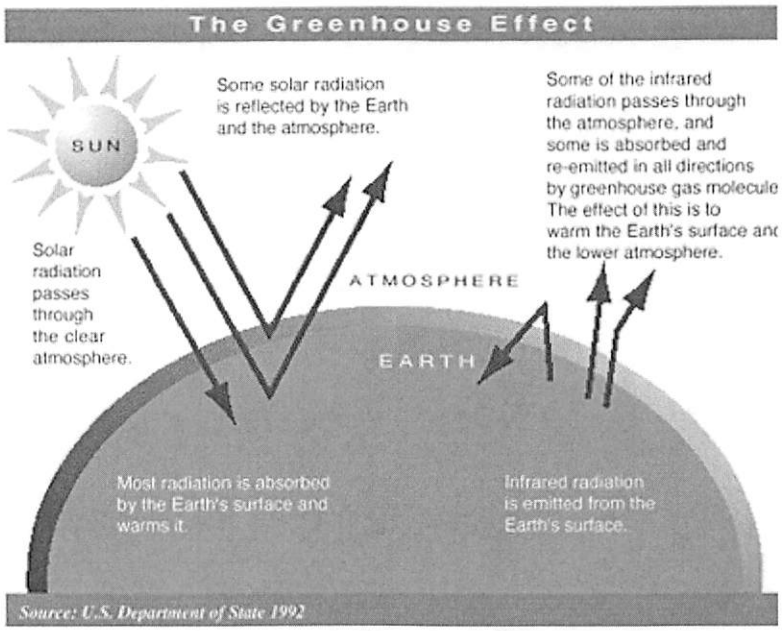
Interpret an Energy Pyramid - Key



The Greenhouse Effect

Name: **Class:**

Teacher: **Date:**



Earth's temperature depends on the balance between energy entering and leaving the Earth system. When incoming energy from the sun is absorbed by the Earth system, Earth warms. The Earth avoids warming when the sun's energy is reflected back into space. When absorbed energy is released back into space, Earth cools. Many factors, both natural and human, can cause changes in Earth's energy balance.
Classify these contributing factors (in text box) as:

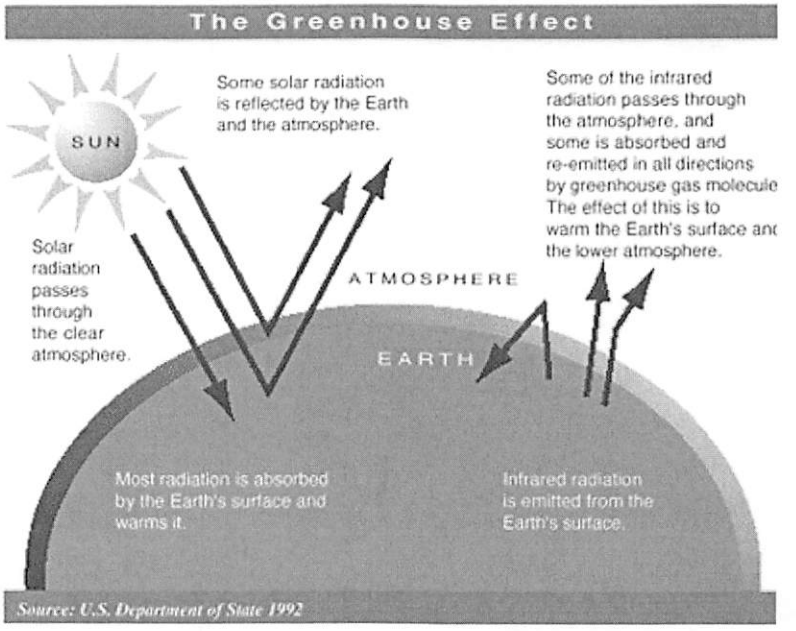
- Incoming Radiation
- Factors of Reflectivity
- Greenhouse Effect

- Ice melt a polar regions	- Use of fossil fuels
- Volcanic eruptions	- Warmer oceans
- Increased cloud cover	- Use of CFC's
- Decreased snow cover	- Shape of Earth's orbit

The Greenhouse Effect Key

Name: **Class:**

Teacher: **Date:**



Earth's temperature depends on the balance between energy entering and leaving the Earth system. When incoming energy from the sun is absorbed by the Earth system, Earth warms. The Earth avoids warming when the sun's energy is reflected back into space. When absorbed energy is released back into space, Earth cools. Many factors, both natural and human, can cause changes in Earth's energy balance.
Classify these contributing factors (in text box) as:

- Incoming Radiation - shape of Earth's orbit, volcanic eruptions, increased cloud cover
- Factors of Reflectivity - ice melt in polar regions, decreased snow cover
- Greenhouse Effect - use of fossil fuels, CFC's, warmer oceans

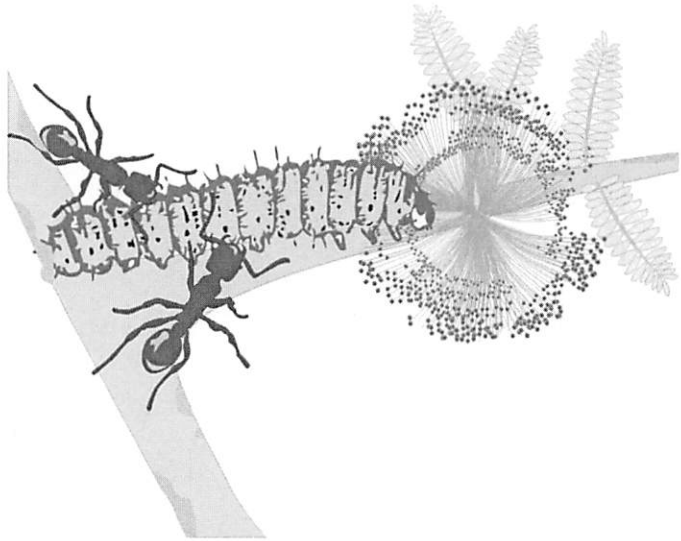
Interdependent Organisms

Name: Class:

Teacher: Date:

The picture shows three-way interdependence among ants, caterpillars, and an acacia plant.

The ants feed on nectar from nectar glands on the caterpillars' bodies. The ants protect both the caterpillars and the acacia plant from predators. The caterpillars feed off the leaves and flowers of the acacia plant. The acacia plant also provides shelter to the ants.



1. Which organisms are benefited?

2. Which form of interdependence is shown by these organisms? Explain.

3. What type of interdependence would result if the ants were removed?

4. What type of interdependence would result if the caterpillars were removed?

5. Collect information on the interdependent organisms in the table below. State the type of interdependence between the animals mentioned in the table. Explain your answers.

Example	**Type of interdependence**	**Explanation**
Hookworms reside in the small intestine of an organism.		
Barnacles are crustaceans that stick to the skin of whales.		
Cattle egrets search for food among cattle in fields.		
A remora shark has an adhesive disk on its head, which it uses to attach itself to a larger animal like a whale. It detaches itself from the whale to feed on food which floats away from the whale's mouth.		
Bees pollinate flowering plants.		
Female mosquitoes feed on the blood of mammals.		

Interdependent Organisms

KEY

1 All three organisms benefit from their coexistence.

2 Mutualism is the kind of interdependence in which all the coexisting organisms benefit.

3 If the ants are removed, the situation will just include caterpillars feeding on the acacia plant. The interdependence would change to parasitism because the acacia plant loses its leaves, while the caterpillars benefit.

4 If the caterpillars were removed, the ants would still protect the acacia plant, and would still be sheltered by it. The relationship would still be a form of mutualism.

5

Example	Type of interdependence	Explanation
Hookworms reside in the small intestine of an organism.	Parasitism	The hookworm gets its nutrition from its host mammal. However, a hookworm causes a number of harmful effects on the host such as blood loss, iron deficiency, and allergic reactions.
Barnacles are crustaceans that stick to the skin of whales.	Commensalism	The barnacles are transported by the whales to places where the barnacles can find their food. However, they do not affect the whales.
Cattle egrets search for food among cattle in fields.	Commensalism	As the cattle graze, they stir up insects in the field. The egrets feed on the insects. Here, the egrets benefit from the relationship, while the cattle are not affected.
A remora shark has an adhesive disk on its head, which it uses to attach itself to a larger animal like a whale. It detaches itself from the whale to feed on food floating away from the whale's mouth.	Commensalism	The remora shark benefits from the situation, while the whale remains unaffected.
Bees pollinate flowering plants.	Mutualism	The bees in turn obtain nectar from the flowers. Both the bees and the flowering plants benefit from their coexistence.
Female mosquitoes feed on the blood of mammals.	Parasitism	Mosquitoes cause an itch where they bite a mammal. They also infect the mammals with diseases like malaria.

Levels of Organization - Biosphere

Name: **Class:**

Teacher: **Date:**

Directions: List the levels of organization, from broadest to most specific.

ITEMBANK:

- Biome - Terrestrial or aquatic, several major regions on Earth with specific environmental features that determine life forms present.
- Biosphere - The portion of the Earth and its atmosphere that can support life.
- Community - These are the groups of plants and animals that interact in a specific area.
- Ecosystem - All the biotic and abiotic features in a region.
- Organism - Any living thing with one or more cells.
- Population - All the individuals of a species that live together in one place at the same time

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

Levels of Organization - Biosphere - Key

Name: **Class:**

Teacher: **Date:**

Directions: List the levels of organization, from broadest to most specific.

1. Biosphere
2. Biome
3. Ecosystem
4. Community
5. Population
6. Organism

Photosynthesis and Cellular Respiration

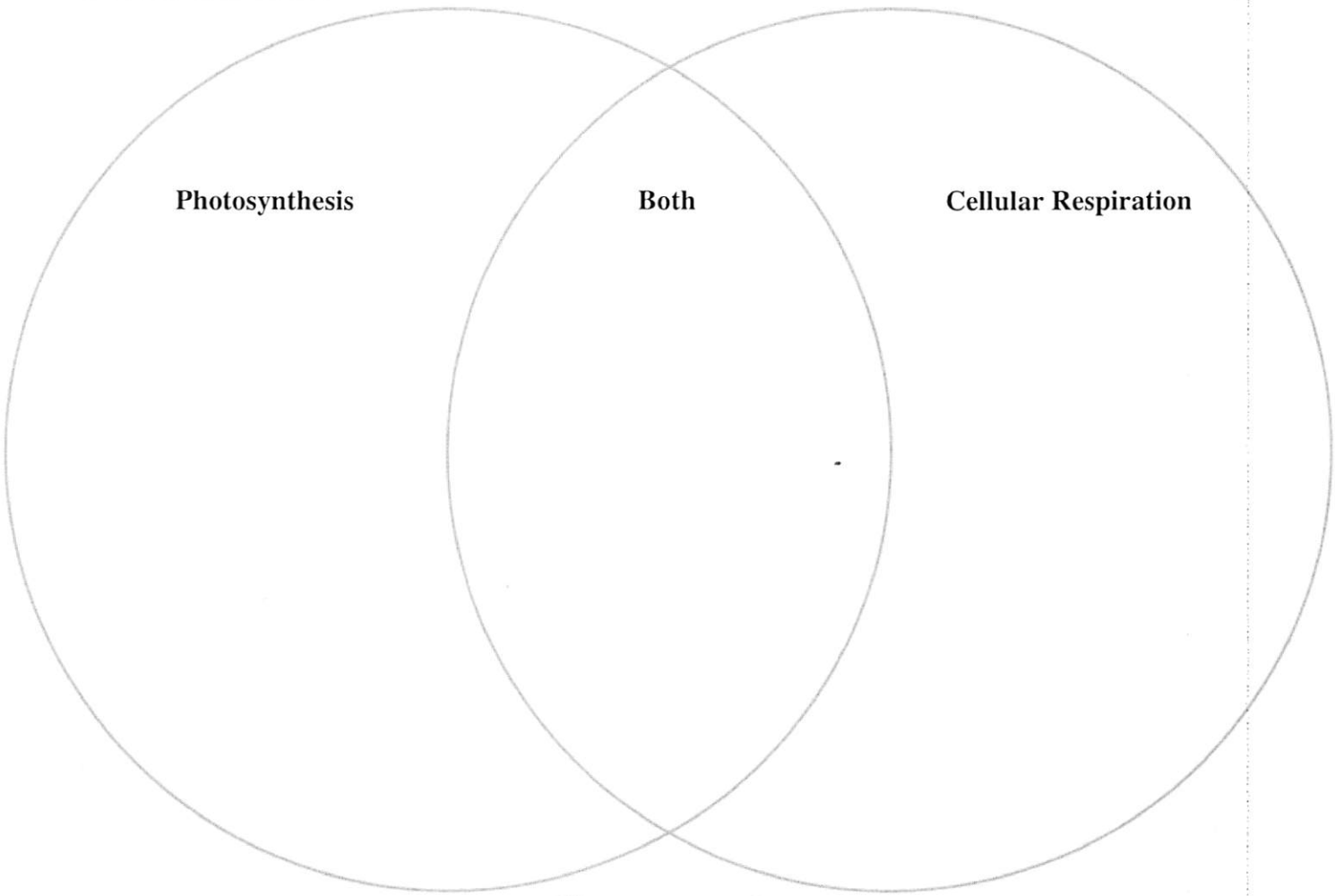
Name: **Class:**

Teacher: **Date:**

Directions: Match each items to its corresponding place on the Venn diagram.

ITEMBANK:

- Produces ATP
- Chemical reaction
- Chloroplast
- Mitochondria
- Producers/autotrophs
- Products are carbon dioxide and water. - This is the substance(s) formed in a chemical reaction.
- Products are glucose and oxygen. - This is the substance(s) formed in a chemical reaction.
- Reactants are carbon dioxide and water. - These are the elements or compounds that enter into a chemical reaction.
- Reactants are glucose and oxygen. - These are the elements or compounds that enter into a chemical reaction.
- Solar energy into usable chemical energy

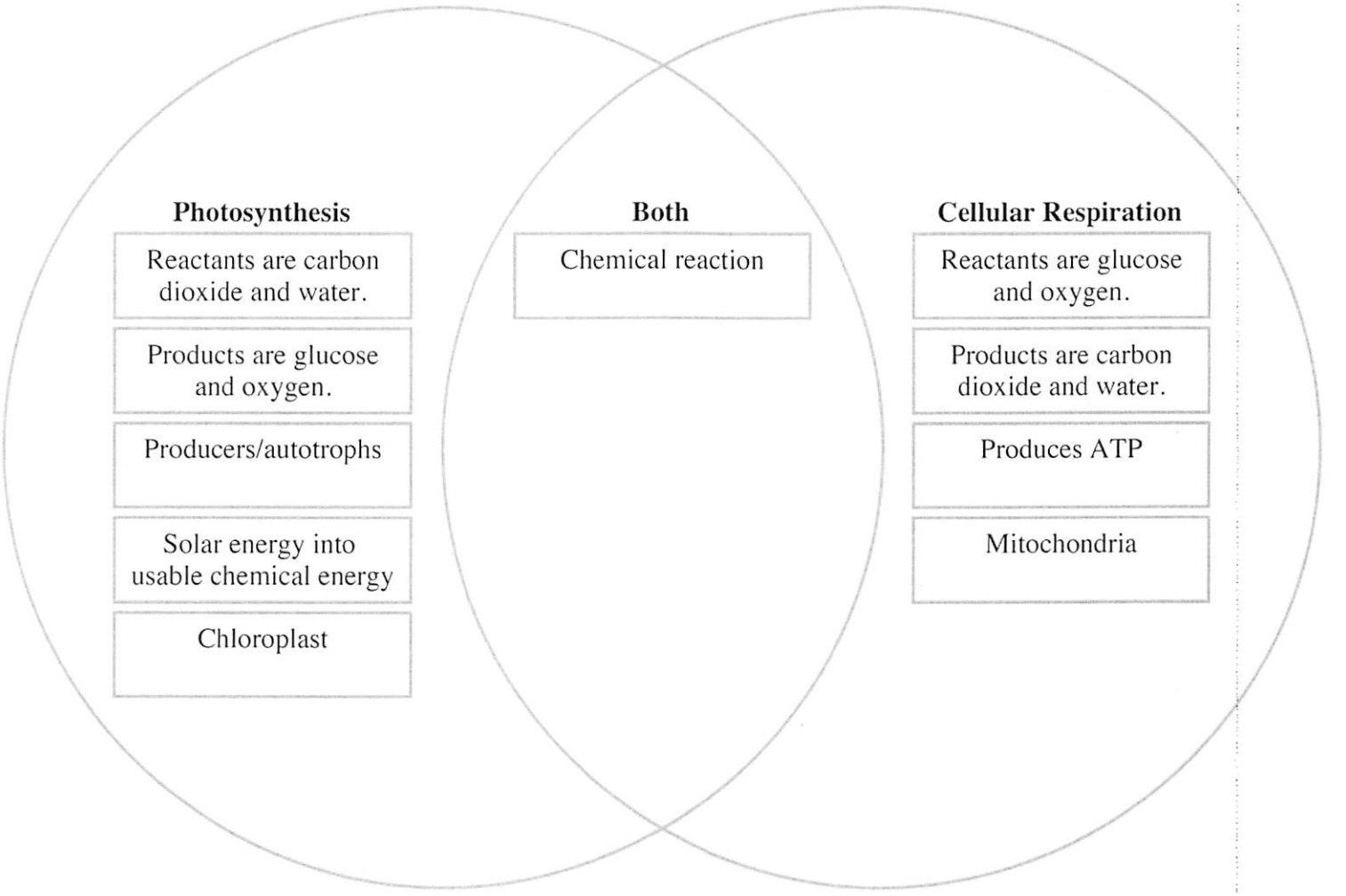


Photosynthesis and Cellular Respiration - Key

Name: **Class:**

Teacher: **Date:**

Directions: Match each items to its corresponding place on the Venn diagram.



World Biomes

Name: **Class:**

Teacher: **Date:**

Directions: Place each item in the correct order.

ITEMBANK:

Desert	Estuary	Fresh water	Marine	Savanna	Taiga	Temperate	Tropical Rainforest	Tundra

This is a term use to describe an ecological community in which moisture and temperature are high.

A tropical grassland with sparse trees.

This is a term used to describe a region between polar zones and the tropics with warm summers, cold winters and sufficient precipitation to support its species.

Arid region that receives less than 10 inches of precipitation annually.

This is a northern hemisphere habitat with wet soil.

An ecosystem dominated by lichens, mosses, grasses, and woody plants. It is generally found at high latitudes. It is described as having a marshy surface where mosses,

lichens, berries and low shrubs grow with mucky soil and permafrost underneath.

This type of water has a very low salinity content when compared to brackish and the ocean.

The thin zone along a coastline where freshwater systems and rivers meet and mix with a salty ocean (such as a bay, mouth of a river, salt marsh, lagoon).

Biome with a salt water environment.

World Biomes - Key

This is a term use to describe an ecological community in which moisture and temperature are high.

Tropical Rainforest

A tropical grassland with sparse trees.

Savanna

This is a term used to describe a region between polar zones and the tropics with warm summers, cold winters and sufficient precipitation to support its species.

Temperate

Arid region that receives less than 10 inches of precipitation annually.

Desert

This is a northern hemisphere habitat with wet soil.

Taiga

An ecosystem dominated by lichens, mosses, grasses, and woody plants. It is generally found at high latitudes. It is described as having a marshy surface where mosses, lichens, berries and low shrubs grow with mucky soil and permafrost underneath.

Tundra

This type of water has a very low salinity content when compared to brackish and the ocean.

Fresh water

The thin zone along a coastline where freshwater systems and rivers meet and mix with a salty ocean (such as a bay, mouth of a river, salt marsh, lagoon).

Estuary

Biome with a salt water environment.

Marine