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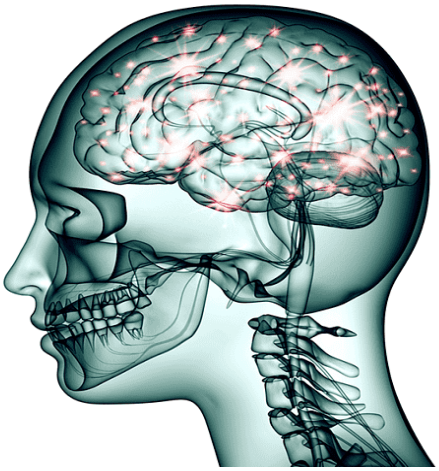
NEXT GENERATION SCIENCE STANDARDS For States, By States

New Vision International School

interactive SCIENCE

WORKBOOK

Grade 6



SEMESTER 1

Name: _____

Class: _____

Teacher: _____

PEARSON

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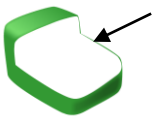
Lesson 1: What is a Plant? (use with pages 8 – 13)

Fill in the blank to complete each statement.

1. *A group of similar cells that perform a specific function is called a(n)*_____.
2. *The internal transporting system through which water, minerals, and food move inside the plant is called* _____.
3. *A(n)* _____ *is a structure inside a plant's cell in which food is made.*
4. *The process by which plants make food is called* _____.
5. *A(n)* _____ *is a waxy, waterproof layer that covers the leaves and stems of most plants.*
6. *The sac inside a plant cell where water, wastes, and food are stored is called a(n)* _____.
7. *The green pigment called* _____ *is necessary to the food*-making process in *plants.*

Understanding Main Ideas: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.



_____ 1. *The* ***cell wall*** *helps a plant retain water.*

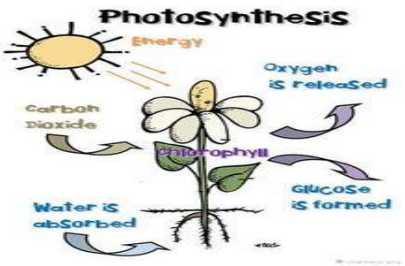
_____ 2. *During photosynthesis, plants produce* ***carbon dioxide****.*

_____ 3. *The green pigment found in specialized plant structures is called* ***chlorophyll****.*

_____ 4. *The system of tube-like structures inside a plant through which water, minerals, and food move is called* ***root*** *tissue.*

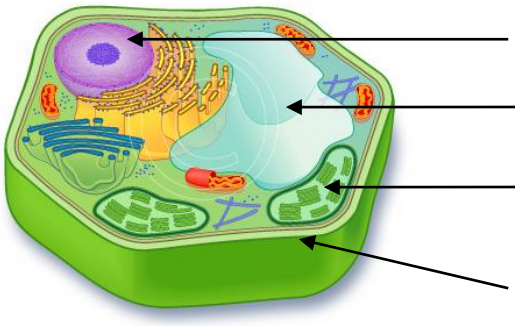
_____ 5. *Nearly all plants are* ***unicellular****.*

_____ 6. *The energy for photosynthesis comes from the* ***sun****.*



Label some structure of the plant cell.

nucleus	***cell wall***	***vacuole***	***chloroplast***



Answer the following questions.

1. What do you think happens to a plant cell if the plant is given too much water?

_____

_____

_____

_____

2. Describe the pros and cons of being a tall land plant.

_____

_____

_____

_____

Name: _____ ***Date:*** _____

Lesson 2: Classifying Plants (use with pages 14 – 23)

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

_____1. cotyledon	a.) a thin, rodlike structure that anchors a moss plant and absorbs water and nutrients
_____2. rhizoid	b.) a seed leaf
_____3. frond	c.) the leaf of a fern
_____4. pollen	d.) structures that contain cells that will later become sperm cells

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. Seedless vascular plants use ***spores*** to reproduce.

_____ 2. The young leaves of some ***hornworts*** are known as fiddleheads.

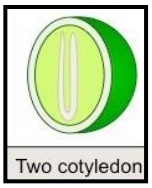
_____ 3. The vascular tissue that conducts water and nutrients in a plant is ***phloem***.

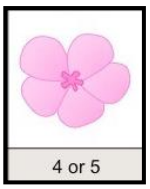
_____ 4. All flowering plants are ***gymnosperms***.

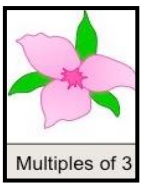
_____ 5. The root like structures that anchor a moss plant and absorb water and nutrients are called ***rhizomes***.

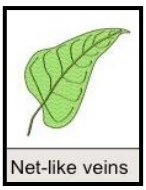
_____ 6. ***Angiosperm*** species outnumber all other land plant species by about seven to one.

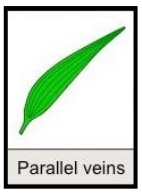
Classify the given structures of plants as DICOT or MONOCOT. Write D for dicot and M for monocot.

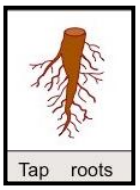


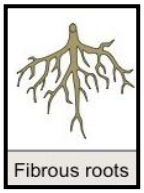












Answer the following questions.

1. Why are most nonvascular plants short?

_____

_____

_____

_____

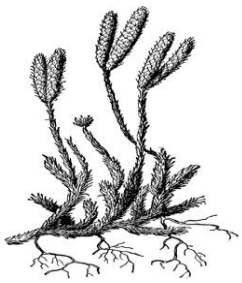
2. Why do you think there are more ferns than club mosses?

_____

_____

_____

_____



Name: _____ ***Date:*** _____

Lesson 3: Plant Structures (use with pages 24 – 33)

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

_____1. cambium

_____2. petal

_____3. germination

_____4. embryo

_____5. transpiration

_____6. sepal

_____7. pollination

_____8. root cap

a.) the process by which water evaporates from a plant's leaves

b.) the process by which an embryo grows and pushes out of a seed

c.) colorful, leaf like structure of a flower

d.) the young plant that develops from a fertilized egg

e.) the transfer of pollen from male reproductive structures to female reproductive structures

f.) the layer of a woody stem that produces new xylem

g.) rounded tip that protects a growing root

h.) leaf like structure that protects a bud

Fill in the blank to complete each statement.

1. Seed _____ is the scattering of seeds.

2. A flower bud is protected by leaf like structures called _____.

3. The _____ protects the root as it grows through the soil.

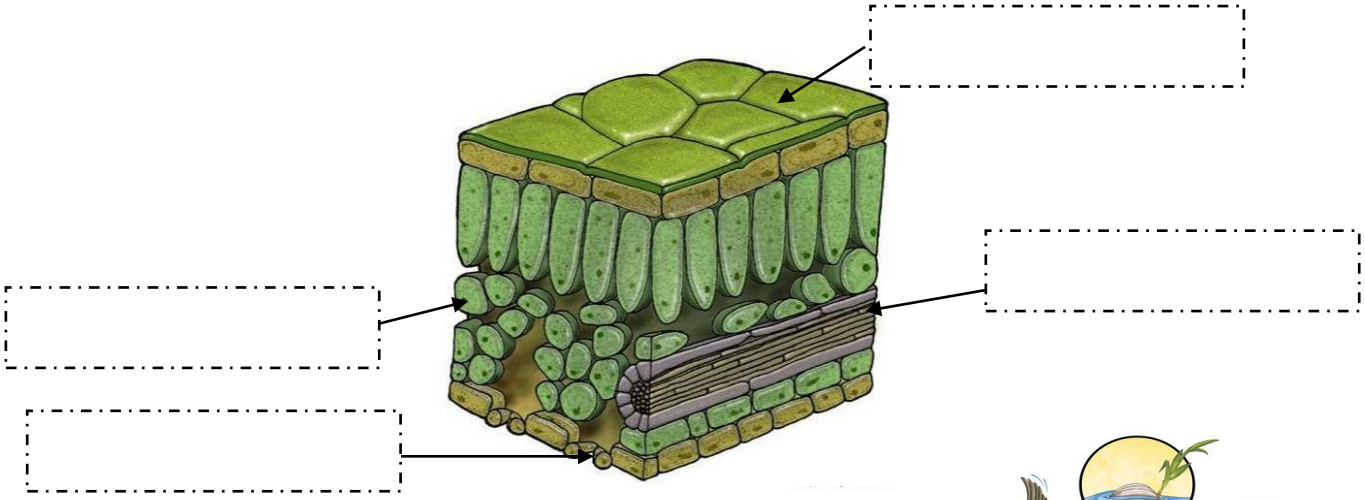
4. A tree has 24 light rings and 24 dark rings. The tree is _____ years old.

5. _____ on the surface of a leaf controls the movement of gases into and out of the leaf.

6. The hollow structure at the base of a pistil that protects seeds as they develop is the _____.

Label the structure of the leaf.

Cuticle	***Chloroplast***	***Vein***	***Stoma***



Answer the following questions.

1. How does dispersal affect a seed's chances for survival?

_____

_____

_____

_____

2. If you forgot to water a houseplant for a few days, would the stomata be open or closed? Why?

_____

_____

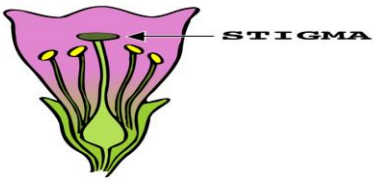
_____

_____

Name: _____ ***Date:*** _____

Lesson 4: Plant Reproduction (use with pages 34 – 41)

Fill in the blank to complete each statement.



1. A fertilized egg is called a(n) _____.

2. When pollen lands on the stigma of a flower, _____ occurs.

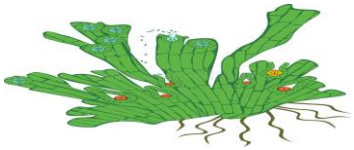
3. A(n) _____ is a ripened ovary.

4. A plant that lives for two years and flowers in the second year is called a(n) _____.

5. The reproductive structure of a gymnosperm is the _____.

6. Egg cells develop inside a structure called a(n) _____.

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.



_____ *1. The **gametophyte** produces spores.*

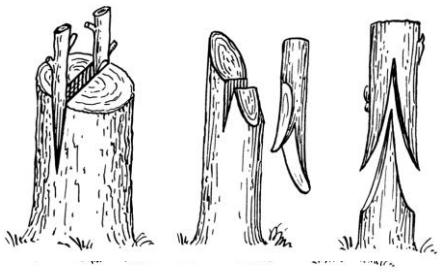
_____ *2. Most gymnosperms produce both male and female **fruit**.*

_____ *3. After a pollen grain lands on the stigma of a flower, a(n) **pollen tube** grows down into the ovule.*

_____ *4. The female sex cell is the **sperm**.*

_____ *5. Animals that eat fruits help to **pollinate** their seeds by depositing them in new areas.*

_____ *6. Grafting is an example of **asexual** reproduction.*



Arrange the steps of gymnosperm production in correct order from 1-7.

_____ *Fertilization*

_____ *Pollination*

_____ *Cone Production*

_____ *Egg production*

_____ *Pollen Production and ovule Development*

_____ *Seed Dispersal*

_____ *Seed Development*

Answer the following questions.

1. *Why do plants like liverworts need to live in moist environments?*

_____

_____

_____

_____

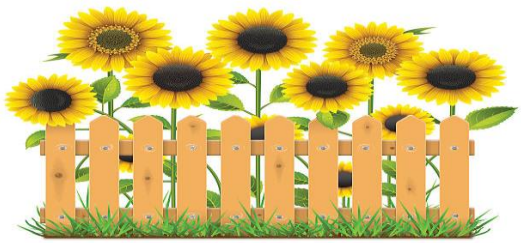
2. *Describe how angiosperms are classified according to the length of their lifecycle.*

_____

_____

_____

_____



Name: _____ ***Date:*** _____

Lesson 5: Plant Responses and Growth? (use with pages 42 – 47)

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

_____ *1. critical night length*

_____ *2. auxin*

_____ *3. short-day plant*

_____ *4. long-day plant*

_____ *5. hormone*

_____ *6. day-neutral plant*

_____ *7. Tropism*

a.) a hormone that controls a plant's response to light

b.) a plant that flowers when the nights are shorter than a critical length

c.) a plant's growth response toward or away from a stimulus

d.) a chemical that affects the growth and development of a plant

e.) a plant whose flowering cycle is not sensitive to periods of light and dark

f.) a plant that flowers when the nights are longer than a critical length

g.) the number of hours of darkness that determines whether or not a plant will flower

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ *1. Chemicals produced by a plant that control its growth and development are called **hormones**.*

_____ *2. A plant's roots grow away from a rock they hit in the soil. This is an example of a **positive** thigmotropism.*

_____ *3. **Chlorophyll** speeds up that rate at which a plant's cells grow and controls a plant's response to light.*

_____ *4. The critical night length for a certain plant is 10 hours. This plant will flower only when nights are **shorter** than 10 hours.*

_____ *5. A plant adaptation that helps it survive freezing temperatures and lack of liquid water is **dormancy**.*

Answer the following questions.

1. *Why do the leaves of some trees change color in autumn?*

_____

_____

_____

_____

2. *What do you think would happen if a plant did not create enough of the hormone that controlled flower formation?*

_____

_____

_____

_____

Name: _____ ***Date:*** _____

Lesson 1: Skeletons and Muscles (use with pages 64 – 69)

Fill in the blank to complete each statement.

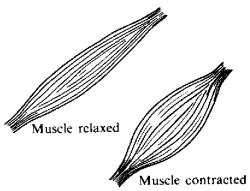
1. Tissues that contract or relax to create movement are _____.

2. A shark's endoskeleton is made up of _____, which is a tissue that is more flexible than bone.

3. A(n) _____ is a place where two or more parts of skeleton meet.

4. During _____, an arthropod sheds its exoskeleton to grow a new one.

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.



_____ *1. Some **muscles** are parts of an organ.*

_____ *2. When a muscle **relaxes**, it becomes shorter.*

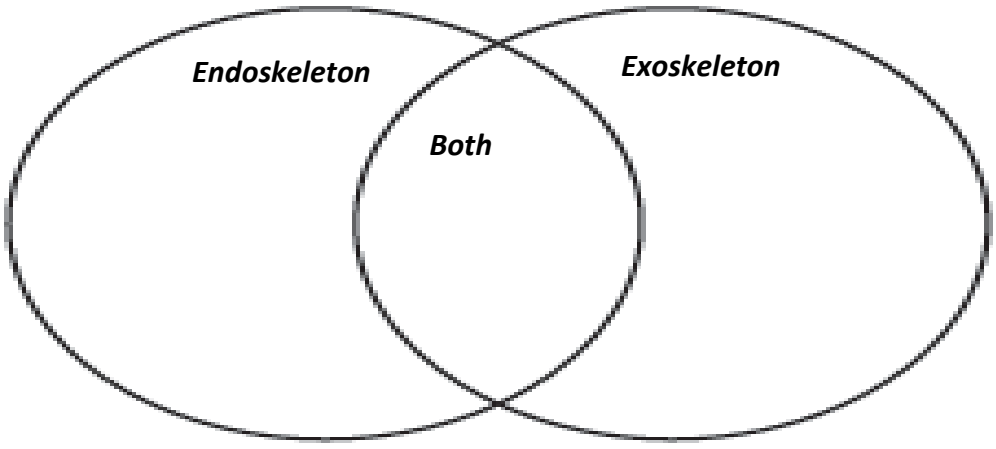
_____ *3. Cartilage is **less** flexible than bone.*

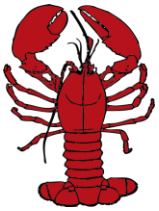
_____ *4. During **molting** arthropods shed their skeletons in order to grow.*

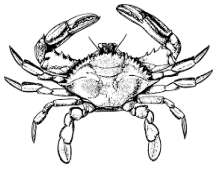
_____ *5. **Mollusks** have spike like structures among their cells instead of skeletons.*

_____ *6. A jellyfish skeleton is made up of fluid-filled cavities surrounded by **air**.*

Compare and contrast Endoskeleton and Exoskeleton using the Venn diagram below.







Answer the following questions.

1. Why do muscles occur in pairs?

_____

_____

_____

_____

2. Why is a lobster more vulnerable to predators when it molts?

_____

_____

_____

_____

Name: _____ ***Date:*** _____

Lesson 2: The Nervous System (use with pages 70 – 75)

Fill in the blank to complete each statement.

1. A(n) _____ is an animal's reaction to a stimulus.

2. The _____ is the part of a complex animal's nervous system that receives information, interprets it, and controls the animal's response.

3. Eyes and ears are examples of _____ organs.

4. The odor of baking bread is an example of a(n) _____.

5. A(n) _____ is an electrical message that travels through the nervous system.

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ *1.* ***Sensory*** *neurons carry response information to organs.*

_____ *2. A(n)* ***brain*** *is a nerve cell with a unique structure for receiving and passing on information.*

_____ *3. Blinking in bright light is an example of a(n)* ***response****.*

_____ *4. A(n)* ***ear*** *is a sense organ that detects stimuli in the form of sight.*

_____ *5. An impulse is sent through the body as a(n)* ***electrical*** *signal.*

Answer the following questions.

1. How are animals with many sense organs able to process many stimuli at the same time?

_____

_____

_____

_____

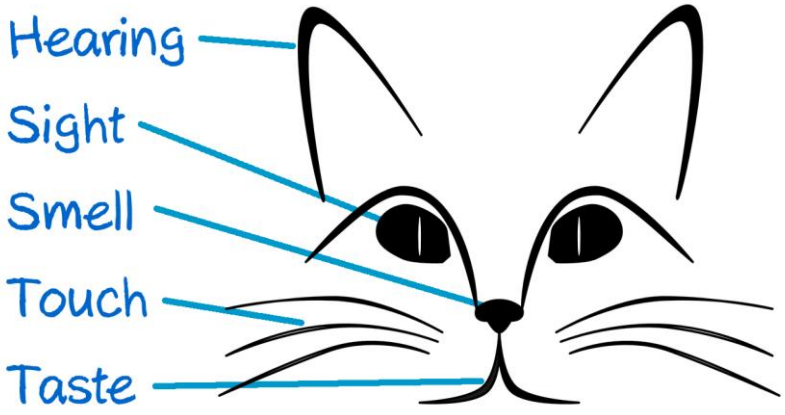
2. *Why is having many sense organs an advantage for an animal?*

_____

_____

_____

_____



Name: _____ ***Date:*** _____

Lesson 5: Animal Reproduction and Fertilization (use with pages 101 – 107)

Fill in the blank to complete each statement.

1. _____ *reproduction requires only one parent organism.*

2. *Most vertebrates and most invertebrates reproduce* _____.

3. *Sponges reproduce asexually when a new sponge grows from a parent and breaks off in a process called* _____.

4. _____ *may occur either inside or outside the female organism's body.*

5. *External fertilization usually occurs in* _____ *so that the egg and sperm cells do not dry out.*

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. ***Sexual*** *reproduction requires a mate.*

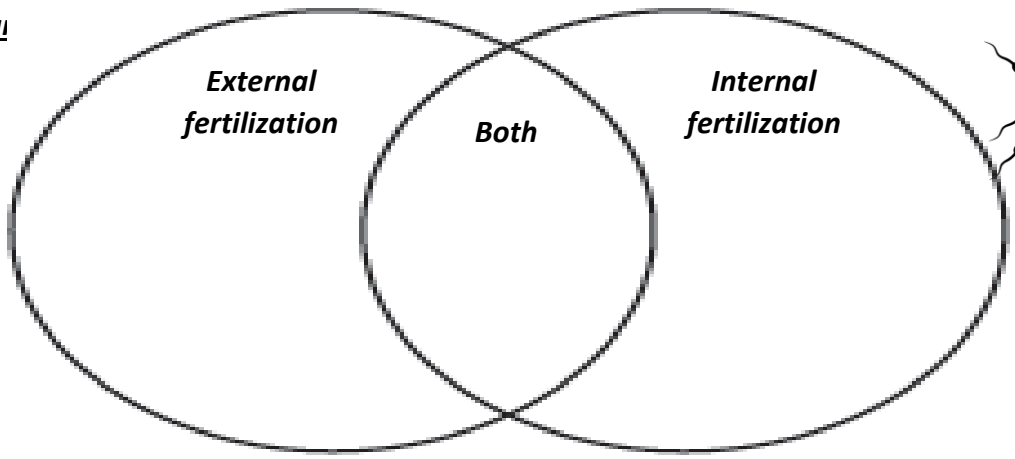
_____ 2. *Offspring from* ***asexual*** *reproduction have different DNA than the parent(s).*

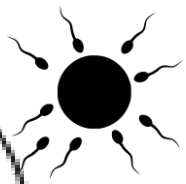
_____ 3. *A(n)* ***polyp*** *is a cnidarian body form that looks like an open umbrella.*

_____ 4. ***Internal*** *fertilization occurs inside the female organism's body.*

_____ 5. *The length of time between fertilization and birth is called the* ***fertilization*** *period.*

Compare and contrast external and internal fertilization using the venn diagra





Answer the following questions.

1. *How are the reproductive cycles of sponges and cnidarians similar?*

_____

_____

_____

_____

2. *In rare cases, female sharks born in captivity that have never been exposed to male sharks have become pregnant. Is this an example of asexual or sexual reproduction? Explain your answer.*

_____

_____

_____

_____

Name: _____ ***Date:*** _____

Lesson 1: Living Things and the Environment (use with pages 130 – 135)

Circle the letter of the correct answer.

1. Which of the following lives in a prairie ecosystem?

a. grass *c. oak tree*

b. mushroom *d. woodpecker*

2. Which of the following is a biotic factor?

a. temperature *c. bacteria*

b. sunlight *d. water*

3. Which of the following lists the levels of an ecosystem in order from largest to smallest?

a. population, organism, community, ecosystem

b. ecosystem, community, organism, population

c. organism, community, population, ecosystem

d. ecosystem, community, population, organism

4. An organism gets food, water, shelter, and other things it needs to live, grow, and reproduce from its _____.

a. population *c. abiotic factors*

b. habitat *d. species*

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____*1. The nonliving things that interact with an organism are called **biotic factors**.*

_____*2. The study of how living things interact with each other and their environment is called **ecology**.*

_____*3. A group of organisms that can mate with each other and produce offspring that can also mate and reproduce is called a species.*

_____*4. **Oxygen** is an abiotic factor in the environment that is important for plants to make their own food.*

_____*5. All the organisms that live in a particular area and their nonliving surroundings make up an **ecosystem**.*

_____*6. All the members of one **community** living in a particular area make up a population.*

Answer the following questions.

1. List two biotic and two abiotic factors in the given image below.

BIOTIC	***ABIOTIC***
_____	_____
_____	_____

2. Name two biotic factors in your habitat and explain how your life would be different without them.

Factor	***Affect***
_____	_____
	_____
	_____
_____	_____
	_____
	_____

3. How do living things affect one another?

_____

_____

_____

_____

Name: _____ ***Date:*** _____

Lesson 2: Populations (use with pages 136 – 143)

Fill in the blank to complete each statement.

1. Water and food are examples of _____ for populations.

2. If an area has all the wolves that it can support, the wolf population has reached its _____.

3. A population can decrease due to deaths or _____.

4. If animals cannot find enough places to build nests, it is because _____ is a limiting factor for the population.

5. A flood that covers and meadow and drowns animals and a late frost that kills young plants are examples of how _____ can affect the size of a population.

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____*1. The size of a population increases if the number of individuals added to the population is **equal to** the number of individuals leaving the population.*

_____*2. Immigration means moving **out of** a population.*

_____*3. Three coyotes per square kilometer is an example of **population density**.*

_____*4. If foxes arrive in an area and catch and eat a large number of rabbits, the foxes are causing an increase in the **birth rate** of the rabbit population.*

_____*5. Sunlight can be a limiting factor for populations of **plants**.*

Answer the following questions.

1. A vegetable garden is 12 meters long by 7 meters wide. It is home to 168 mice. What is the population density of the mice?

_____

_____

_____

2. *What are two ways that the size of a population can increase? What are two ways that the size of a population can decrease?*

_____

_____

_____

_____

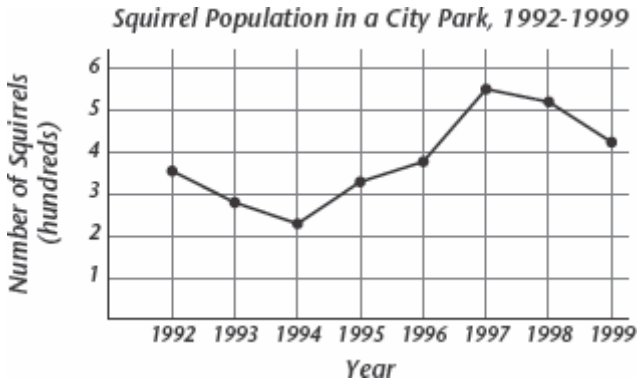
3. *Identify three limiting factors that can prevent a population from increasing. Explain how each factor limits a population's size.*

_____

_____

_____

The line graph below shows how the size of the squirrel population in a city park changed over time. Use the line graph to answer questions 4–6.



4. *Over which time period(s) did the squirrel population increase?* _____

5. *Over which time period(s) did the squirrel population decrease?* _____

6. *In which year did the population reach its lowest point? What was the size of the population that year?* _____

Name: _____ ***Date:*** _____

Lesson 3: Interactions Among Living Things (use with pages 144 – 153)

Circle the letter of the correct answer.

1. When a snake kills a shrew, the shrew is the _____.

a. host *c. predator*

b. prey *d. parasite*

2. An example of an adaptation that helps a prey species avoid being caught is _____.

a. claws *c. sharp teeth*

b. mimicry *d. poisonous stingers*

3. The role of an organism in its habitat is its _____.

a. host *c. niche*

b. prey *d. adaptation*

4. A relationship in which two species live closely together and both benefit is _____.

a. mutualism *c. parasitism*

b. predation *d. commensalism*

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ *1. In **natural selection**, individuals whose unique characteristics are well-suited for an environment tend to survive and produce more offspring.*

_____ *2. Adaptations are behaviors and **social** characteristics that allow organisms to live successfully in their environments.*

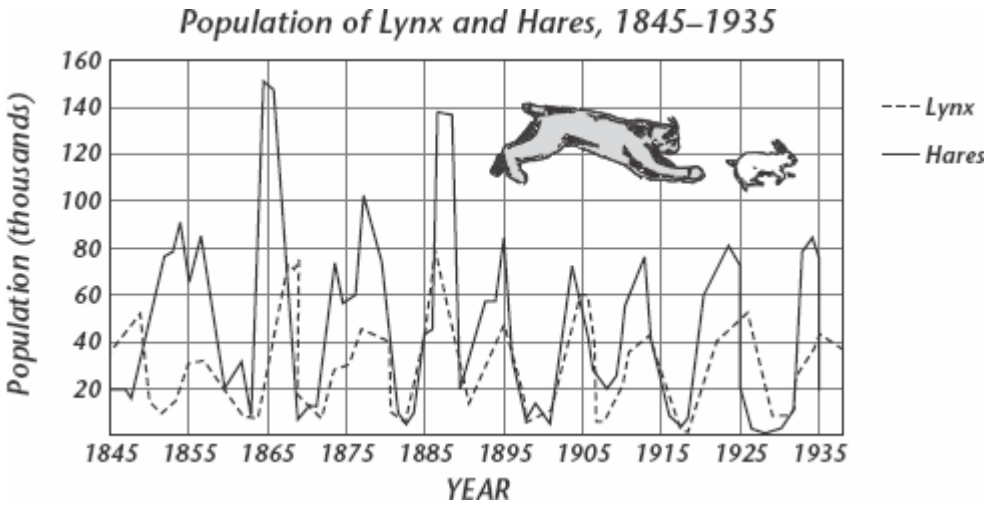
_____ *3. A grackle and a sparrow try to eat from the same ear of corn in a field. This is an example of **mutualism**.*

_____ *4. The two main kinds of interactions among organisms are competition and **adaptation**.*

_____ *5. An increase in a predator population will likely result in a **decrease** in the prey population.*

_____ *6. Dwarf mistletoe is a plant that grows into the bark of a tree to obtain water and nutrients. The mistletoe is a **parasite**.*

<u>The line graph below shows how the populations of lynx and snowshoe hares has changed over time. Use the line graph to answer questions 1 - 3.</u>



1. *When the hare population increased, what happened to the lynx population? Why?*

   _____

2. *How do you think an increase in the lynx population affected the hare population? Why?*

   _____

3. *What other factors could have caused a decrease in the hare population?*

   _____