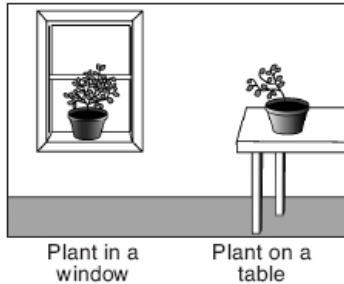


## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 1

Two plants of the same species and size were planted in identical pots of soil. One pot was placed in a window and the other was placed on a table. Both plants were given the same amount of water and nutrients.

The diagram below shows the two plants after 1 month.



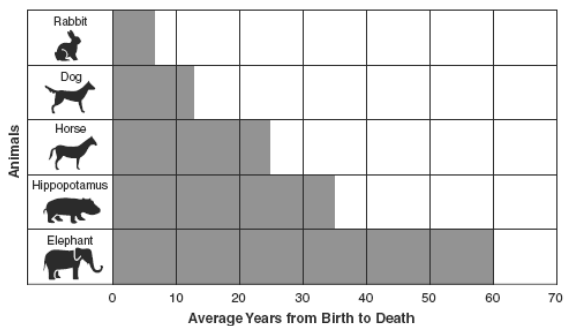
The plant in the window grew bigger because it received more

- A light
- B air
- C water
- D nutrients

Three identical seeds are planted and grown in identical pots of soil. All three pots receive equal amounts of sunlight. The plants are watered once each day. Plant A is given 10 milliliters (mL) of water. Plant B is given 20 mL of water. Plant C is given 30 mL of water. The height of each plant is measured and recorded after ten days. Which question could be answered by this experiment?

- A How much space does a plant need to grow?
- B How much soil does a plant need to grow?
- C How much water will make a plant grow tallest?
- D How much sunlight will make a plant grow tallest?

The graph below shows information about several animals.



What is the best title for this graph?

- A Life Cycles of Some Animals
- B Life Spans of Some Animals
- C Life Processes of Some Animals
- D Life Functions of Some Animals

The data table below shows some average monthly air temperatures for a city in New York State. The average air temperature for the month of April is **not** shown.

Based on the data, what would the average air temperature probably have been in April?

- A 28°F
- B 34°F
- C 46°F
- D 60°F

The data table below shows the average monthly temperature for Albany, New York, for the first four months of the year.

Use the data in the table to complete the bar graph below. The average temperature for January is shown.

## Sample Elementary Level Science Exam Questions (2013 & 2012)

Base your answers to questions 37 and 38 on the data table below and on your knowledge of science. The table shows the air temperatures recorded for a week in September, 2004 in Albany, New York, at 12 p.m. and 8 p.m.

**Data Table**

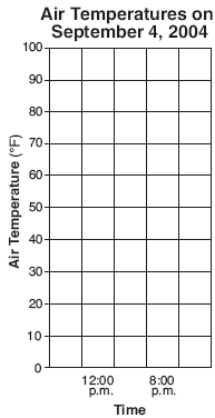
| Date        | Air Temperature (°F) |        |
|-------------|----------------------|--------|
|             | 12 p.m.              | 8 p.m. |
| September 1 | 73                   | 58     |
| September 2 | 82                   | 59     |
| September 3 | 72                   | 63     |
| September 4 | 80                   | 60     |
| September 5 | 76                   | 56     |
| September 6 | 76                   | 52     |
| September 7 | 77                   | 56     |

What date and time had the **lowest** recorded air temperature?

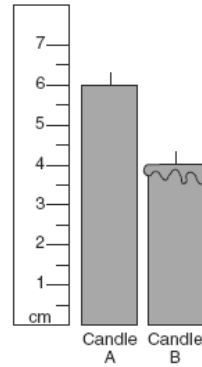
Date: \_\_\_\_\_, **2004**

Time: \_\_\_\_\_ **p.m.**

Use the grid below to make a bar graph of the air temperatures on September 4, 2004.



Two candles, A and B, were the same size. Candle B was lit and burned for an hour. After the hour, the candles were measured, as shown in the diagram below.



How many centimeters shorter is candle B after it burned for an hour?

- A 2 cm
- B 3 cm
- C 4 cm
- D 5 cm

A student tested the five objects shown below to see if they would float or sink when placed in water. The nail, keys, and egg sank. The ball and apple floated.



(Not drawn to scale)

Complete the data table below to show the results of the student's test. Use an **X** to show if each object floated or sank.

**Data Table**

| Object | Floated | Sank |
|--------|---------|------|
| apple  |         |      |
| ball   |         |      |
| egg    |         |      |
| keys   |         |      |
| nail   |         |      |

## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 2

Matter is defined as anything that takes up space and has

- A mass
- B texture
- C odor
- D color

Complete the chart below by identifying the state of matter described by each set of properties. The first set of properties and state of matter are shown.

**Properties of Different States of Matter**

| Properties                              | State of Matter |
|---|-----------------|
| definite shape<br>definite volume       | solid           |
| no definite shape<br>no definite volume |                 |
| no definite shape<br>definite volume    |                 |

Which metric units should be used to describe the mass of an object?

- A centimeters
- B liters
- C grams
- D degrees Celsius

When a cup of water at room temperature is put in a freezer, the water's state of matter will change from

- A liquid to gas
- B gas to liquid
- C liquid to solid
- D solid to liquid

The hardness, odor, and taste of an object can all be

- A measured with a metric ruler
- B measured with a spring scale
- C observed with the senses
- D observed with a hand lens

Which object has the greatest flexibility?

- A wooden block
- B paper cup
- C metal nail
- D glass bottle

A definite shape and a definite volume are properties of which state of matter?

- A solid, only
- B liquid, only
- C solid and liquid
- D liquid and gas

Which tool should a student use to see the patterns on a small object?

- A balance
- B hand lens
- C thermometer
- D graduated cylinder

Objects have properties that can be observed using the five senses. The chart below shows some observations made with the senses. Complete the chart by identifying the sense used to make each observation. The sense used to observe red color is shown.

| Observation Made | Sense |
|------------------|-------|
| red color        | sight |
| salty flavor     |       |
| strong odor      |       |
| smooth surface   |       |
| loud noise       |       |

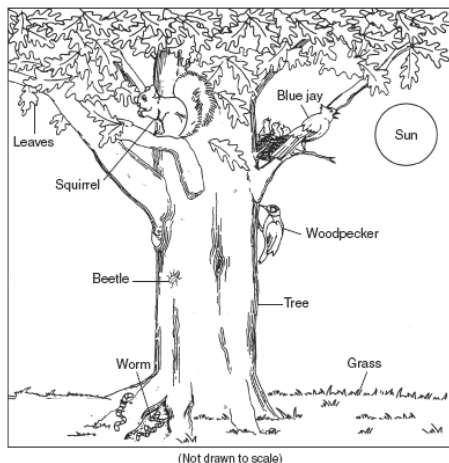
## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 3

Which organisms break down and recycle dead plants and animals?

- A predators
- B prey
- C decomposers
- D producers

Base your answers to questions 15 and 16 on the diagram below and on your knowledge of science. The diagram shows some organisms living together.



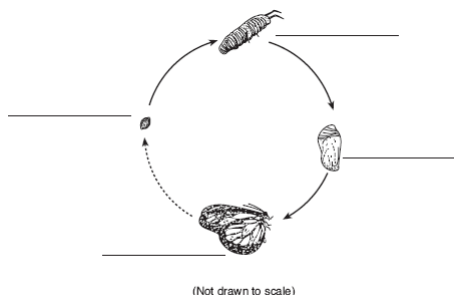
15 The baby birds in the nest are competing for

- A food
- B mates
- C predators
- D camouflage

16 Which two organisms in this diagram are producers?

- A blue jay and woodpecker
- B beetle and squirrel
- C worm and leaves
- D tree and grass

The diagram below shows the four stages in the life cycle of a butterfly. Identify the stages using these words: larva, adult, egg, pupa.



Green plants get the energy they need to make food from

- A water
- B air
- C soil
- D sunlight

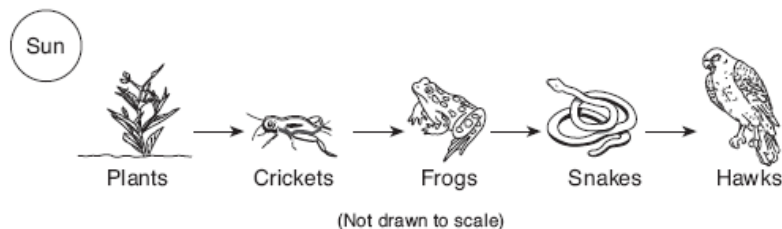
Trees start as seeds and grow into mature trees that produce more seeds. This pattern represents a

- A food chain
- B life cycle
- C food supply
- D life span

Which sequence shows the order of stages in a plant's life cycle?

- A young plant → seed → adult plant
- B seed → adult plant → young plant
- C adult plant → young plant → seed
- D seed → young plant → adult plant

Base your answers to questions 27 and 28 on the food chain below and on your knowledge of science



27 If the number of frogs suddenly increases, which population will most likely **decrease** first?

- A hawks
- B snakes
- C crickets
- D plants

28 What is the main source of energy for all the organisms in this food chain?

- A Sun
- B plants
- C frogs
- D hawks

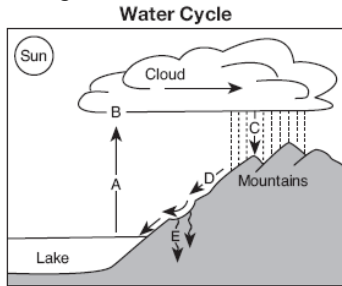
## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 4

The appearance of the Moon as observed from Earth changes over time because of the Moon's

- A path around Earth
- B length of daylight
- C gravity
- D temperature

The diagram below shows the processes in the water cycle, labeled A through E.



Select the letter from the diagram that shows each process in the water cycle and place the letters in the chart below. The letter for groundwater moving into the ground is shown.

| Process                           | Letter from Diagram |
|-----------------------------------|---------------------|
| groundwater moves into the ground | E                   |
| condensation                      |                     |
| evaporation                       |                     |
| runoff                            |                     |
| precipitation                     |                     |

The diagram below shows Earth rotating.



What is the total number of complete rotations that Earth makes in 2 weeks?

- A 1
- B 2
- C 7
- D 14

Which Earth movement results in day and night?

- A erosion
- B deposition
- C revolution
- D rotation

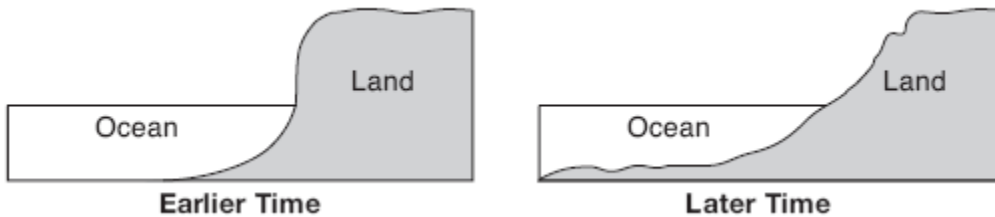
Which terms are both used to describe the weather?

- A gravity and wind direction
- B precipitation and runoff
- C groundwater and erosion
- D air temperature and wind speed

At approximately which time of day is the Sun at the highest point in the sky to an observer in New York State?

- A 6 a.m.
- B noon
- C 6 p.m.
- D midnight

The diagrams below show side views of an area of land near the ocean. The diagrams show how this area changed over a period of time.



The changes to the land shown in the diagram were most likely caused by

- A erosion and deposition
- B erosion and magnetism
- C gravity and evaporation
- D gravity and condensation

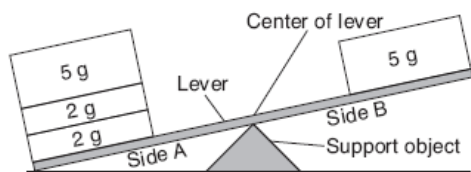
## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 5

Which force causes a bicycle to slow down when the brakes are used?

- A friction
- B electricity
- C gravity
- D magnetism

Base your answers to questions 31 and 32 on the diagram below and on your knowledge of science. The diagram shows four blocks placed on sides A and B of a lever. The mass of each block is shown.



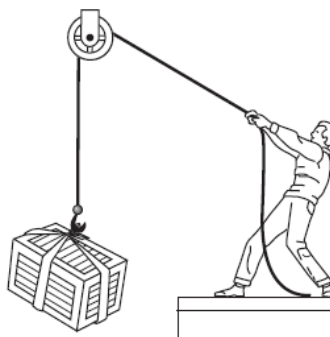
31 Explain why side A of the lever is lower than side B.

32 Explain how the four blocks can be rearranged on the lever so that it will be balanced.

Which factor will cause a **decrease** in the force of attraction between two magnets?

- A increasing the size of the two magnets
- B increasing the distance between the two magnets
- C changing the color of the two magnets
- D changing the texture of the two magnets

The diagram below shows a person using a tool to lift a box.



Which tool is being used?

- A inclined plane
- B lever
- C magnet
- D pulley

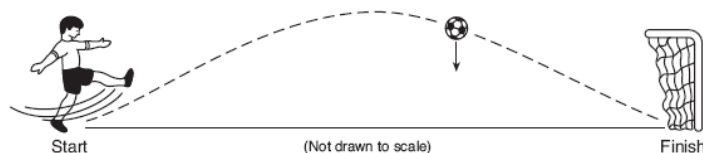
Gravity and magnetism are both

- A common forces
- B natural cycles
- C states of matter
- D forms of energy

Which property of an object describes how easily electricity travels through it?

- A color
- B temperature
- C reflectivity
- D conductivity

The diagram below shows the path of a soccer ball as it travels from start to finish. The arrow represents a force acting on the ball.



Which force is represented by the arrow?

- A magnetism
- B gravity
- C electricity
- D friction

## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 6

There is a shadow under a tree. Which form of energy must be present for the shadow to occur?

- A heat
- B light
- C sound
- D mechanical

Which form of energy is produced when paper is burned?

- A heat
- B magnetic
- C electrical
- D chemical

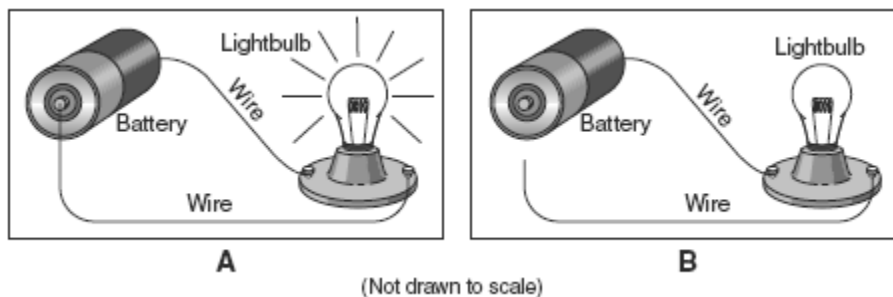
Two empty metal cans, one black and one white, were placed outside on a hot day. Both cans were the same size and were left in the Sun for 3 hours. Compared to the white can, the black can would most likely be

- A cooler, because it absorbs less sunlight
- B cooler, because it absorbs more sunlight
- C warmer, because it absorbs less sunlight
- D warmer, because it absorbs more sunlight

Some objects transform one form of energy to another form of energy. The chart below lists three objects that transform energy. Complete the chart by filling in each blank with a correct form of energy. The energy transformation for the first object is shown.

| Object                   | Energy Transformation                     |
|--------------------------|---|
| solar-powered calculator | changes light energy to electrical energy |
| battery                  | changes chemical energy to _____ energy   |
| drum                     | changes mechanical energy to _____ energy |

The diagrams below show two circuits, A and B. The lightbulb in circuit A is lit. The lightbulb in circuit B is **not** lit.



Explain why the lightbulb is lit in circuit A.

## Sample Elementary Level Science Exam Questions (2013 & 2012)

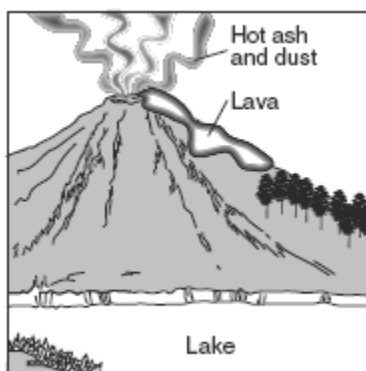
### Sample Set 7

A large amount of oil was spilled in a lake environment. Within a few weeks, the number of plants and animals living in the area where the oil was spilled will most likely

- A decrease
- B increase
- C remain the same

Trains, cars, and airplanes help humans travel quickly. What is **one negative** effect that the use of these types of transportation has on the environment?

The diagram below shows a volcanic eruption. When volcanoes erupt, they can release large amounts of hot liquid rock (lava) and clouds of hot ash and dust.



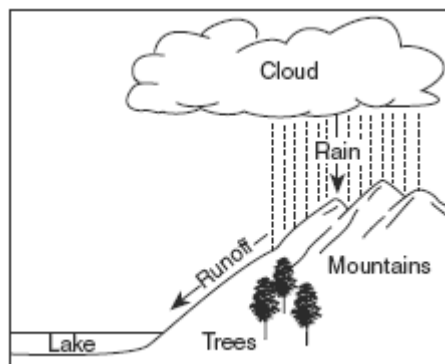
Describe **one negative** effect that a volcanic eruption has on the environment of animals living in the area.

Describe **two negative** effects that a tornado can have on animals living in the area.

Which items would be most useful at home during a power failure?

- A flashlights and extra batteries
- B hats and sunscreen
- C raincoats and umbrellas
- D insect spray and jackets

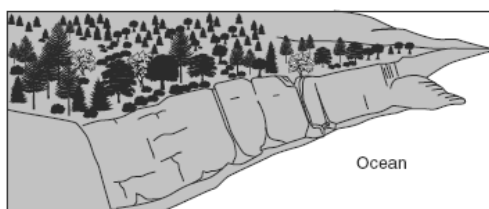
The diagram below shows runoff occurring during a rainstorm.



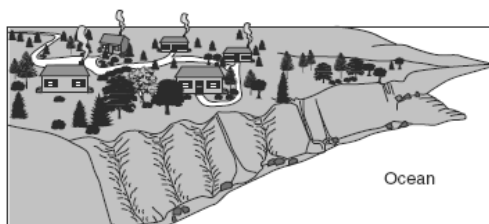
After a heavy rain, the amount of runoff increases. Explain **one** way the increased runoff could affect the environment.

A puddle formed on a sidewalk when it rained during a night. By noon the next day, some of the liquid water in the puddle had evaporated. Explain what may have happened to cause the water to evaporate.

The diagrams below show an oceanside environment before and after houses were built in the area.



Before Development



After Development

State **one negative** effect that building the houses may have had on this oceanside environment.



## Sample Elementary Level Science Exam Questions (2013 & 2012)

### Sample Set 8

One example of a living thing is

- A air
- B water
- C a rock
- D a worm

Which is an example of a **nonliving** thing?

- A bird
- B insect
- C dog
- D water

A dog growls when a predator gets close. Growling is an example of which animal behavior?

- A migration
- B hibernation
- C communication
- D germination

Which two processes occur during the life spans of all animals?

- A hibernation and migration
- B growth and development
- C changing color and shedding fur
- D building nests and communication

The diagram below shows the beaks of three different birds. Birds use their beaks to obtain food.

The differences in the birds' beaks are examples of



(Not drawn to scale)

- A migrations
- B hibernations
- C physical adaptations
- D seasonal changes

Which activity is a good health habit?

- A drinking alcohol
- B exercising regularly
- C sleeping only 5 hours daily
- D smoking cigarettes

Which two processes are common to all living things?

- A flying and breathing
- B migrating and reproducing
- C using nutrients and growing
- D eliminating waste and hibernating

Animals get the energy they need for growth and repair by

- A eating food
- B absorbing sunlight
- C eliminating waste
- D drinking water

In late fall, a rabbit's fur grows thicker. This adaptation occurs to

- A keep the rabbit's body warm
- B keep the rabbit safe from predators
- C help the rabbit find a mate
- D help the rabbit find green plants

Which term is an example of a life process?

- A coloration
- B camouflage
- C migration
- D reproduction

The photograph below shows burdock seeds. The seeds are inside a structure with thin, sharp hooks.

These seeds will most likely be dispersed when they

- A are eaten by animals
- B attach to an animal's fur
- C germinate in the soil
- D develop in the water

The main function of a fish's fins is to help the fish

- A reproduce
- B see
- C breathe
- D move

When ocean waters become too warm, some whales travel to colder water. This movement is an example of

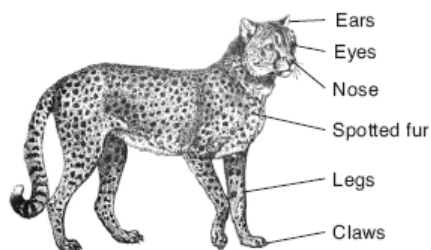
- A nest building
- B hunting
- C migrating
- D hibernating

## Sample Elementary Level Science Exam Questions (2013 & 2012)

Which three things do animals need from their environment in order to survive?

- A soil, water, and food
- B soil, light, and water
- C air, food, and water
- D air, water, and light

The diagram below shows an adult cheetah. Several external body structures are labeled.



Select **one** external body structure of the cheetah labeled in the diagram. Explain how that body structure helps the cheetah to survive in its environment.

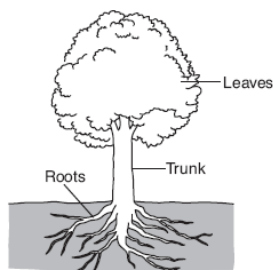
Body structure: \_\_\_\_\_

Explanation: \_\_\_\_\_

Which characteristic helps some animals defend themselves against predators?

- A strong odor
- B poor hearing
- C weak eyesight
- D shivering

The diagram below shows three major structures of a tree.

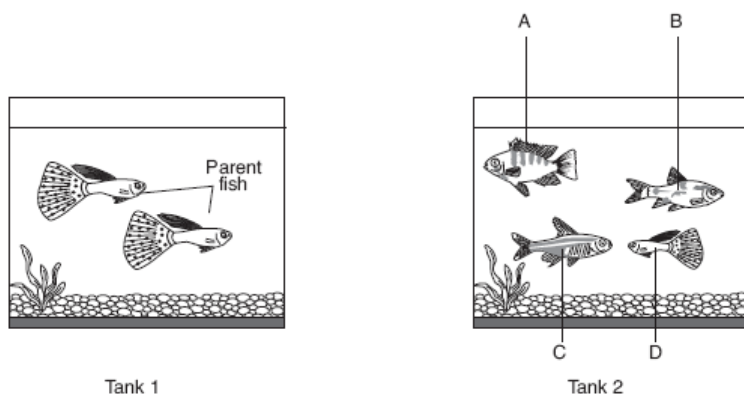


Select **one** structure labeled in the diagram and explain how it helps the tree to grow and survive.

Structure: \_\_\_\_\_

Explanation: \_\_\_\_\_

Two tanks with fish are shown below. Parent fish are in tank 1. The fish in tank 2 are labeled A, B, C, and D.

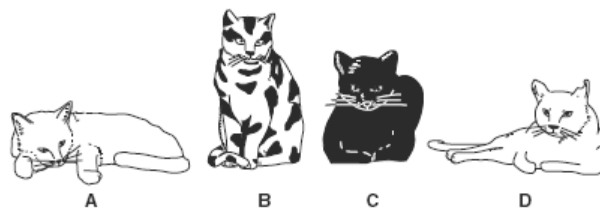


Which fish in tank 2 is most likely the offspring of the two parent fish in tank 1?

- A A
- B B
- C C
- D D

## Sample Elementary Level Science Exam Questions (2013 & 2012)





The diagram below shows four kittens labeled A, B, C, and D. The kittens have the same parents.



Complete the chart below by placing an **X** in the correct column to show whether the example describes an inherited trait, a learned trait, or an acquired trait.

| Example   | Inherited Trait | Learned Trait | Acquired Trait |
|---|-----------------|---------------|----------------|
| Kitten A has long whiskers.   |                 |               |                |
| Kitten B has black spots.   |                 |               |                |
| Kitten C goes to its food bowl when it hears the food being opened. |                 |               |                |
| Kitten D has lost part of its ear in a fight.                       |                 |               |                |

The chart below shows a diagram of a plant divided into four parts. Each part is a different plant structure that serves a different function. Some of the structures and functions are shown. Complete the blank spaces in the chart by identifying the plant structure shown in the diagram or describing **one** function of that plant structure.

| Diagram   | Plant Structure | Function of Plant Structure                  |
|---|-----------------|--|
|  |                 | produces fruit with seeds to make new plants |
|  | leaves          |  |
|  |                 | provides support for the plant               |
|  | roots           |  |

The diagrams below show a woodland habitat in winter and in summer. During which season would a white rabbit be best protected from predators? Explain your answer.



Winter



Summer

Season: \_\_\_\_\_

Explanation: \_\_\_\_\_