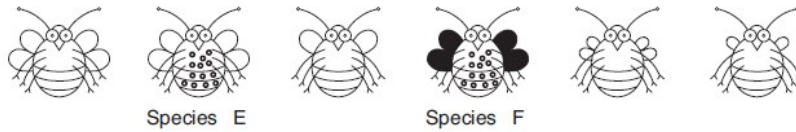


Name:

Date:

Base your answers to the following questions on the diagram below and on your knowledge of biology. The diagram represents six insect species.



1

A dichotomous key to these six species is shown below. Complete the missing information for sections 5.a. and 5.b. so that the key is complete for all six species.

#### Dichotomous Key

1. a. has small wings .....go to 2  
b. has large wings.....go to 3
2. a. has a single pair of wings .....Species A  
b. has a double pair of wings .....Species B
3. a. has a double pair of wings .....go to 4  
b. has a single pair of wings.....Species C
4. a. has spots .....go to 5  
b. does not have spots.....Species D
5. a. \_\_\_\_\_.....Species E  
b. \_\_\_\_\_.....Species F

#### Scoring Guide:

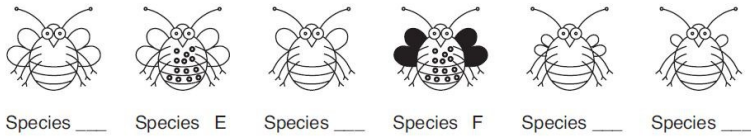
Allow 1 credit. Acceptable responses include, but are not limited to:

- 5. a. has white or clear or light wings
- 5. b. has shaded or black or dark wings

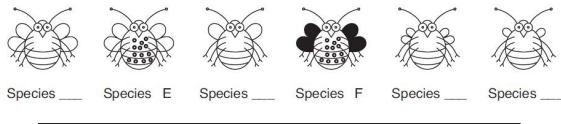
Note: Allow credit for any response that shows a distinction in wing shading.

2

Use the key to identify the drawings of species A, B, C, and D. Place the letter of each species on the line located below the drawing of the species.

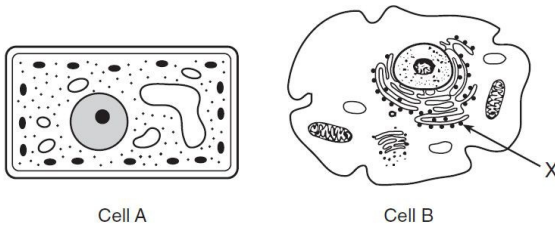


**Scoring Guide:**    Allow 1 credit for correctly identifying the species, as shown below.



**Species \_D\_ Species E Species \_C\_ Species F Species \_B\_ Species \_A\_**

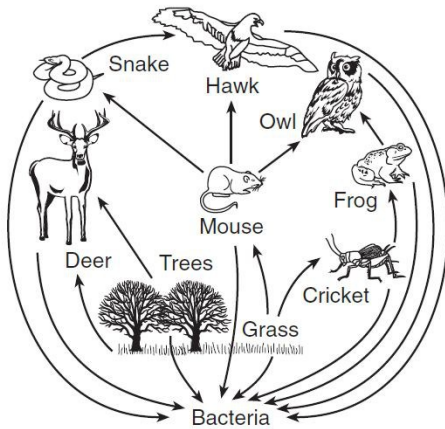
3



Identify the organelle labeled X in cell B. [1]

\_\_\_\_\_

**Answer:**    Allow 1 credit for ribosome.



State what would most likely happen to the cricket population if all of the grasses were removed. [1]

---

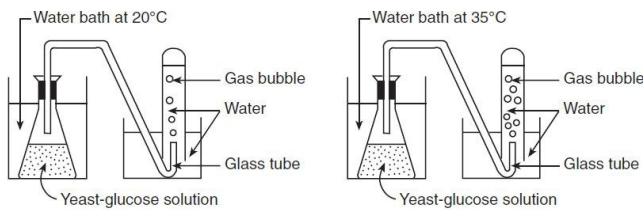


---

**Answer:** Acceptable responses include, but are not limited to:

- The cricket population would decrease.

The laboratory setups represented below were used to investigate the effect of temperature on cellular respiration in yeast (a single-celled organism). Each of two flasks containing equal amounts of a yeast-glucose solution was submerged in a water bath, one kept at 20°C and one kept at 35°C. The number of gas bubbles released from the glass tube in each setup was observed and the results were recorded every 5 minutes for a period of 25 minutes. The data are summarized in the table below.



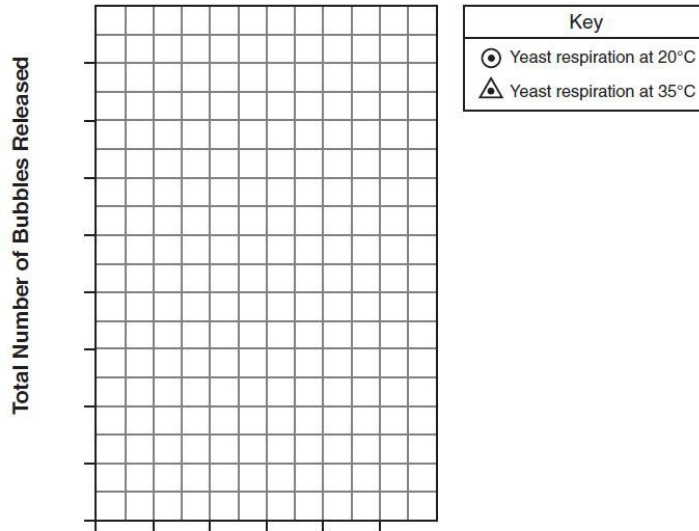
Data Table

Time (minutes)	Total Number of Bubbles Released	
	20°C	35°C
5	0	5
10	5	15
15	15	30
20	30	50
25	45	75

Using the information in the data table below, construct a line graph on the grid on, following the directions below.

Mark an appropriate scale on each axis.

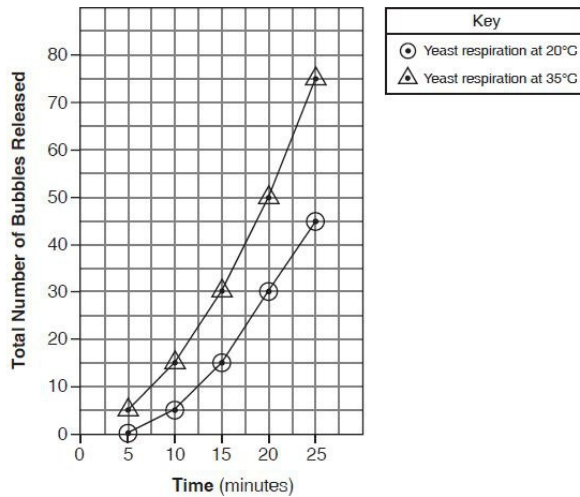
The Effect of Temperature on Respiration in Yeast



**Answer:** Allow 1 credit for marking an appropriate scale on both axes.

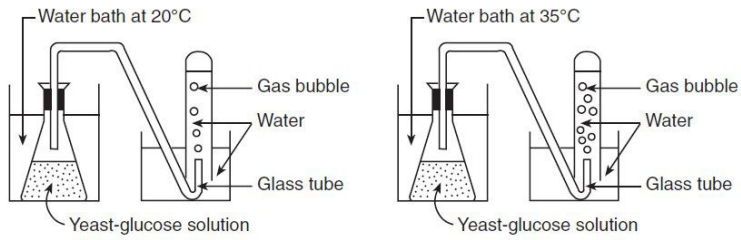
Example of a 3-credit response for questions 49–51:

The Effect of Temperature on Respiration in Yeast



**Note:** Allow credit only if circles and triangles are used.  
Make no assumptions about the origin unless it is labeled.  
Do *not* allow credit for plotting points that are not in the data table, e.g., (0,0).

The laboratory setups represented below were used to investigate the effect of temperature on cellular respiration in yeast (a single-celled organism). Each of two flasks containing equal amounts of a yeast-glucose solution was submerged in a water bath, one kept at 20°C and one kept at 35°C. The number of gas bubbles released from the glass tube in each setup was observed and the results were recorded every 5 minutes for a period of 25 minutes. The data are summarized in the table below.

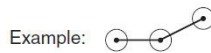


**Data Table**

Time (minutes)	Total Number of Bubbles Released	
	20°C	35°C
5	0	5
10	5	15
15	15	30
20	30	50
25	45	75

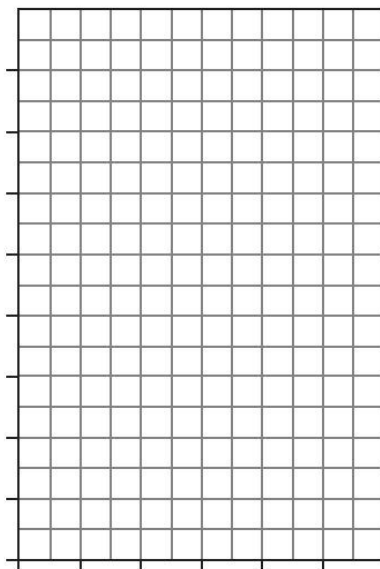
Using the information in the data table, construct a line graph on the grid below, following the directions below.

Plot the data for the total number of bubbles released at 20°C on the grid on the next page. Surround each point with a small circle and connect the points.



**The Effect of Temperature on Respiration in Yeast**

Total Number of Bubbles Released

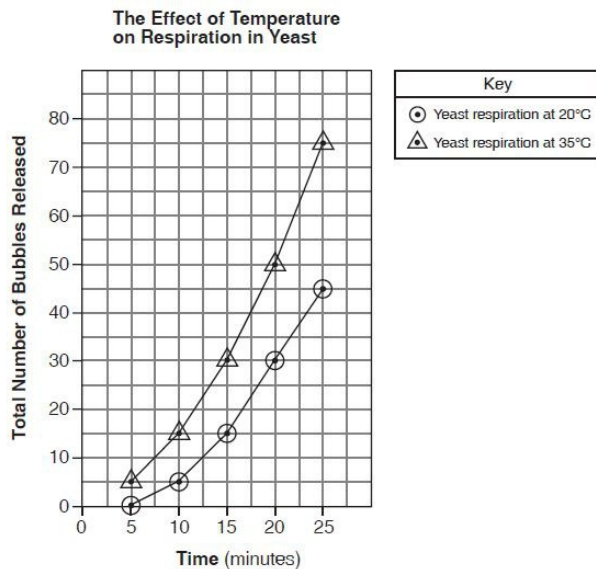


Key	
	Yeast respiration at 20°C
	Yeast respiration at 35°C

**Answer:** Allow 1 credit for plotting the data correctly for the total number of bubbles released at 20°C,

surrounding each point with a small circle, and connecting the points.

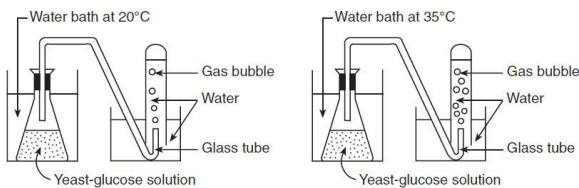
Example of a 3-credit response for questions 49–51:



**Note:** Allow credit only if circles and triangles are used.  
 Make no assumptions about the origin unless it is labeled.  
 Do not allow credit for plotting points that are not in the data table, e.g., (0,0).

7

The laboratory setups represented below were used to investigate the effect of temperature on cellular respiration in yeast (a single-celled organism). Each of two flasks containing equal amounts of a yeast-glucose solution was submerged in a water bath, one kept at 20°C and one kept at 35°C. The number of gas bubbles released from the glass tube in each setup was observed and the results were recorded every 5 minutes for a period of 25 minutes. The data are summarized in the table below.



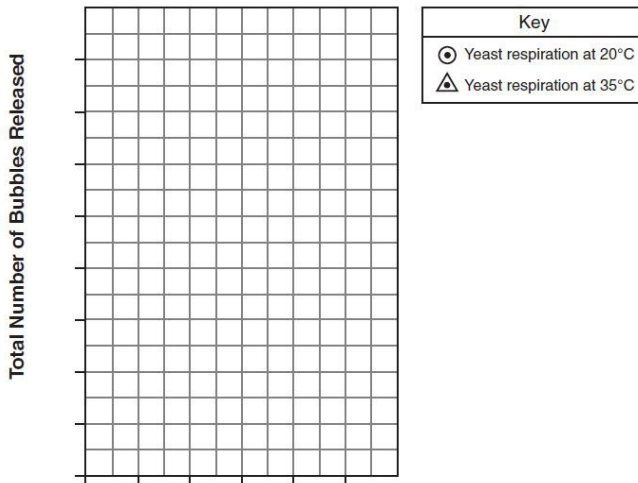
Time (minutes)	Total Number of Bubbles Released	
	20°C	35°C
5	0	5
10	5	15
15	15	30
20	30	50
25	45	75

Using the information in the data table, construct a line graph on the grid below, following the directions below.

Plot the data for the total number of bubbles released at 35°C on the grid. Surround each point with a small triangle and connect the points.

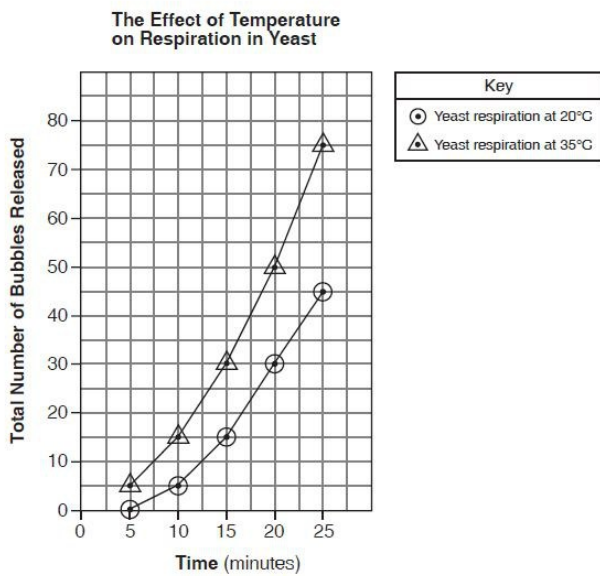
Example: 

**The Effect of Temperature on Respiration in Yeast**



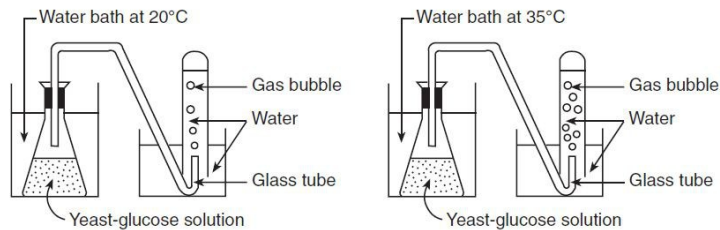
**Answer:** Allow 1 credit for plotting the data correctly for the total number of bubbles released at 35°C, surrounding each point with a small triangle, and connecting the points.

Example of a 3-credit response for questions 49–51:



**Note:** Allow credit only if circles and triangles are used.  
 Make no assumptions about the origin unless it is labeled.  
 Do not allow credit for plotting points that are not in the data table, e.g., (0,0).

The laboratory setups represented below were used to investigate the effect of temperature on cellular respiration in yeast (a single-celled organism). Each of two flasks containing equal amounts of a yeast-glucose solution was submerged in a water bath, one kept at 20°C and one kept at 35°C. The number of gas bubbles released from the glass tube in each setup was observed and the results were recorded every 5 minutes for a period of 25 minutes. The data are summarized in the table below.



**State one relationship between temperature and the rate of gas production in yeast.**

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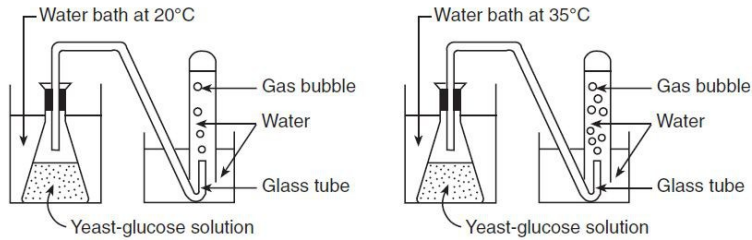
**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

- As the temperature increases, the gas production increases.
- As temperature changes from 35°C to 20°C, the gas production decreases.
- There is a direct relationship.



9

The laboratory setups represented below were used to investigate the effect of temperature on cellular respiration in yeast (a single-celled organism). Each of two flasks containing equal amounts of a yeast-glucose solution was submerged in a water bath, one kept at 20°C and one kept at 35°C. The number of gas bubbles released from the glass tube in each setup was observed and the results were recorded every 5 minutes for a period of 25 minutes. The data are summarized in the table below.

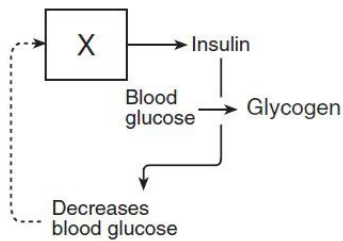


Identify the gas that would be produced by the process taking place in both laboratory setups.

\_\_\_\_\_

**Answer:** Allow 1 credit for CO<sub>2</sub> or carbon dioxide.

10



Identify the organ labeled X.

\_\_\_\_\_

**Answer:** Allow 1 credit for pancreas.

Base your answers to questions 60 and 61 on the information below and on your knowledge of biology.

You are the owner of a chemical company. Many people in your community have been complaining that rabbits are getting into their gardens and eating the flowering plants and vegetables they have planted. Your company is developing a new chemical product called Bunny Hop-Away that repels rabbits. This product would be sprayed on the plants to prevent the rabbits from eating them. Certain concerns need to be considered before you make the product available for public use.

State one safety procedure that should be followed when the product is sprayed on plants. [1]

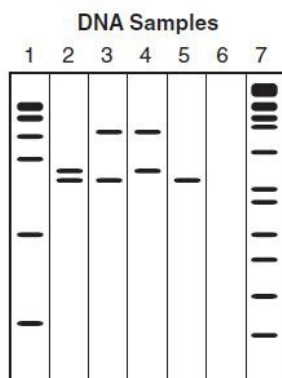
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**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

- wear goggles
- wear shoes
- wear gloves
- wear mask
- follow directions on package

Base your answers to questions 65 through 67 on the diagram below and on your knowledge of biology. The diagram shows the results of a technique used to analyze DNA.



12

This technique used to analyze DNA directly results in

- (1) synthesizing large fragments of DNA
- (2) separating DNA fragments on the basis of size
- (3) producing genetically engineered DNA molecules
- (4) removing the larger DNA fragments from the samples

Answer: 2

13

This laboratory technique is known as

- (1) gel electrophoresis
- (2) DNA replication
- (3) protein synthesis
- (4) genetic recombination

Answer: 1

14

State one specific way the results of this laboratory technique could be used.

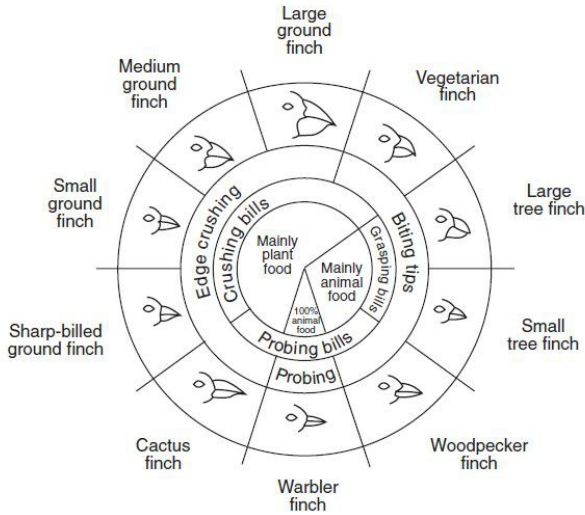
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Answer: Allow 1 credit. Acceptable responses include, but are not limited to:

- determining evolutionary relationships
- gene testing for diagnosis
- paternity testing
- determining identity
- solving crimes

The cactus finch, warbler finch, and woodpecker finch all live on one island. Based on the information in the diagram below, which one of these finches is least likely to compete with the other two for food? Support your answer with an explanation.



From: Galapagos: A Natural History Guide

Variations in Beaks of Galapagos Islands Finches

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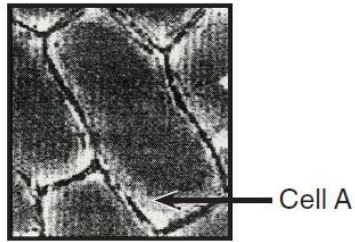
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**Answer:**

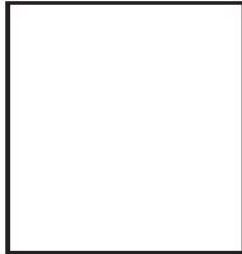
Allow 1 credit. Acceptable responses include, but are not limited to:

- The cactus finch is least likely to compete with the other two for food because it eats mainly plant food, while the other two eat mainly or all animal food.

Cell A shown below is a typical red onion cell in water on a slide viewed with a compound light microscope.



Draw a diagram of how cell A would most likely look after salt water has been added to the slide and label the cell membrane in your diagram. [2]



Base your answers to questions 71 through 73 on the information below and on your knowledge of biology.

A series of investigations was performed on four different plant species. The results of these investigations are recorded in the data table below.

**Characteristics of Four Plant Species**

Plant Species	Seeds	Leaves	Pattern of Vascular Bundles (structures in stem)	Type of Chlorophyll Present
A	round/small	needle-like	scattered bundles	chlorophyll a and b
B	long/pointed	needle-like	circular bundles	chlorophyll a and c
C	round/small	needle-like	scattered bundles	chlorophyll a and b
D	round/small	needle-like	scattered bundles	chlorophyll b

17

Based on these data, which two plant species appear to be most closely related?  
Support your answer. [1]

Plant species \_\_\_\_\_ and \_\_\_\_\_

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---

**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

- A and C- most characteristics in common
- A and C- same type of chlorophyll present

18

What additional information could be gathered to support your answer to question 71?

---

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**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

- structure of protein molecules
- types of enzymes present
- DNA sequences
- other physical characteristics

19

State one reason why scientists might want to know if two plant species are closely related.

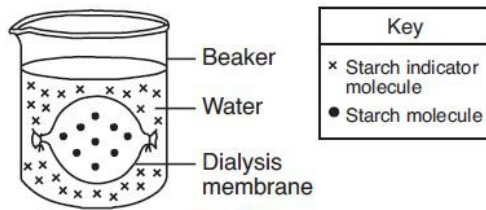
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**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

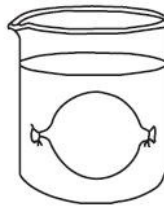
- Two related plants may produce similar substances that could be used for medicines.
- A related plant may provide a cheaper source of a substance.
- If a plant becomes extinct, a related plant may provide an alternative source of a substance.

Base your answers to questions 76 and 77 on the experimental setup shown below.



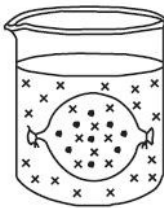
20

On the diagram below, draw in the expected locations of the molecules after a period of one hour.



**Answer:** Allow 1 credit for drawing all the •s inside the membrane only, and drawing some of the x's inside and some outside the membrane.

Example of a 1-credit response:



**Note:** The starch indicator does not have to be evenly distributed.

21

When starch indicator is used, what observation would indicate the presence of starch?

---

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**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

- A blue-black color would indicate the presence of starch.
- A color change would occur.

22

State *one* reason why some molecules can pass through a certain membrane, but other molecules can *not*.

---

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**Answer:** Allow 1 credit. Acceptable responses include, but are not limited to:

- Some molecules are too large to pass through the membrane.
- Some molecules are not soluble.
- the permeability of the membrane



Base your answer on the passage below and on your knowledge of biology.

#### Sudden Death from a Marine Predator

Members of the Conidae family (cone snails) have been collected for centuries for their beautiful and elaborately detailed shells. Cone snails are marine mollusks found in reef environments throughout the world.

Cone snails feed on organisms such as fish, worms, and other mollusks. They are very slow moving but capture their prey by paralyzing them using venom. The venom contains some of the most deadly neurotoxins known. The neurotoxins work by attaching to receptor molecules on nerves, blocking the transmission of nerve impulses. The neurotoxins are injected into the prey by way of a hollow, spearlike tooth and the effects are usually immediate. One species, a fish-eating cone snail, can paralyze the prey in about two seconds.

The venom produced by each species is prey specific. It may contain two or more different types of neurotoxins, each composed of long chains of amino acids.

Explain how a neurotoxin present in the venom can paralyze one type of prey but not another.

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**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- The prey must contain the receptor for that particular neurotoxin to produce its effect.
- The neurotoxin usually binds to a specific receptor.
- The neurotoxins are prey specific.

Base your answers on the passage below and on your knowledge of biology.

#### Sudden Death from a Marine Predator

Members of the Conidae family (cone snails) have been collected for centuries for their beautiful and elaborately detailed shells. Cone snails are marine mollusks found in reef environments throughout the world.

Cone snails feed on organisms such as fish, worms, and other mollusks. They are very slow moving but capture their prey by paralyzing them using venom. The venom contains some of the most deadly neurotoxins known. The neurotoxins work by attaching to receptor molecules on nerves, blocking the transmission of nerve impulses. The neurotoxins are injected into the prey by way of a hollow, spearlike tooth and the effects are usually immediate. One species, a fish-eating cone snail, can paralyze the prey in about two seconds.

The venom produced by each species is prey specific. It may contain two or more different types of neurotoxins, each composed of long chains of amino acids.

State one way the neurotoxin protein in the venom of cone snails can be different.

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---

**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- The amino acid sequence can be different.
- The number of amino acids can be different.

Base your answers on the passage below and on your knowledge of biology.

#### Sudden Death from a Marine Predator

Members of the Conidae family (cone snails) have been collected for centuries for their beautiful and elaborately detailed shells. Cone snails are marine mollusks found in reef environments throughout the world.

Cone snails feed on organisms such as fish, worms, and other mollusks. They are very slow moving but capture their prey by paralyzing them using venom. The venom contains some of the most deadly neurotoxins known. The neurotoxins work by attaching to receptor molecules on nerves, blocking the transmission of nerve impulses. The neurotoxins are injected into the prey by way of a hollow, spearlike tooth and the effects are usually immediate. One species, a fish-eating cone snail, can paralyze the prey in about two seconds.

The venom produced by each species is prey specific. It may contain two or more different types of neurotoxins, each composed of long chains of amino acids.

Explain why paralyzing its prey in only two seconds is an advantage to fish-eating cone snails.

---

---

**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- since the snail moves very slowly, its prey does not have a chance to swim away.
- so prey don't get away

Base your answers on the passage below and on your knowledge of biology.

#### Sudden Death from a Marine Predator

Members of the Conidae family (cone snails) have been collected for centuries for their beautiful and elaborately detailed shells. Cone snails are marine mollusks found in reef environments throughout the world.

Cone snails feed on organisms such as fish, worms, and other mollusks. They are very slow moving but capture their prey by paralyzing them using venom. The venom contains some of the most deadly neurotoxins known. The neurotoxins work by attaching to receptor molecules on nerves, blocking the transmission of nerve impulses. The neurotoxins are injected into the prey by way of a hollow, spearlike tooth and the effects are usually immediate. One species, a fish-eating cone snail, can paralyze the prey in about two seconds.

The venom produced by each species is prey specific. It may contain two or more different types of neurotoxins, each composed of long chains of amino acids.

Cone snails of the same species often exhibit variations in the patterns of their shells. State one possible cause for these variations appearing in the shell pattern within the population of the cone snails.

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**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- DNA differences
- mutations
- gene recombination
- environmental conditions

27

Base your answers on the information below and on your knowledge of biology.

Due to the negative effects on the environment of burning coal and oil, society is looking for alternate energy resources that are renewable.

Identify one renewable resource that can be used to generate energy. [1]

\_\_\_\_\_

**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- wind
- running water
- the Sun/solar energy
- geothermal

28

Base your answers on the information below and on your knowledge of biology.

Due to the negative effects on the environment of burning coal and oil, society is looking for alternate energy resources that are renewable.

State one benefit, other than the fact that it is renewable, of using this resource. [1]

\_\_\_\_\_  
\_\_\_\_\_

**Scoring Guide:**

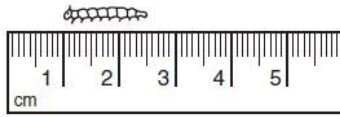
Allow 1 credit. Acceptable responses include, but are not limited to:

- may pollute less
- no greenhouse gases

**Note:** Allow credit for an answer that is consistent with the student's response to question 49.

29

A student, using a metric ruler, measured a larva as represented in the diagram below.



What is the length of the larva, in millimeters? [1]

\_\_\_\_\_ mm

**Scoring Guide:** Allow 1 credit for 15 mm  $\pm$  2 mm.

30

Base your answers to questions 52 through 55 on the information and data table below and on your knowledge of biology.

An investigation was carried out over a five-year period to measure the effect of color on the survival of trout in a stream. The stream contained many brightly colored stones and food was plentiful. At the start of the investigation (year 0), 100 bright-colored trout and 100 drab-colored trout were placed into a section of the stream that had been blocked with netting. Investigators monitored the trout populations for five years and recorded the water condition each time a count was done. The data collected are shown in the table below.

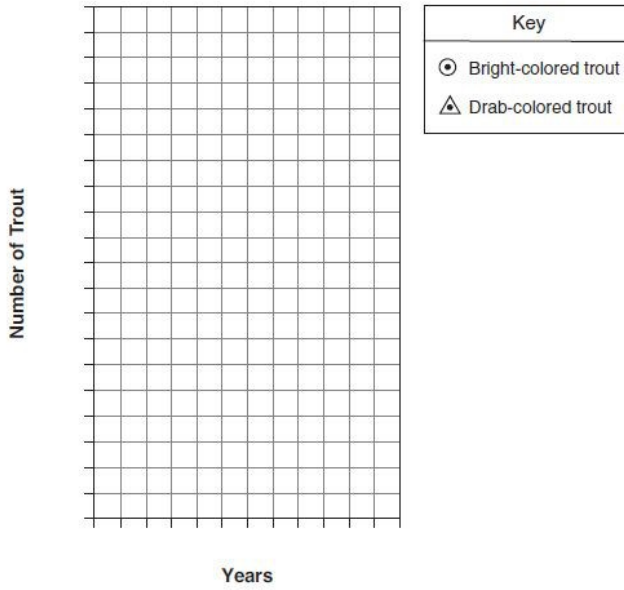
Trout Population Over Five Years

Year	Bright-Colored Trout	Drab-Colored Trout	Condition of Water
0	100	100	clear
1	64	36	clear
2	86	25	clear
3	25	77	cloudy
4	14	86	cloudy
5	90	9	clear

**Directions:** Using the information in the data table, construct a line graph on the grid, following the directions below.

Mark an appropriate scale on each labeled axis. [1]

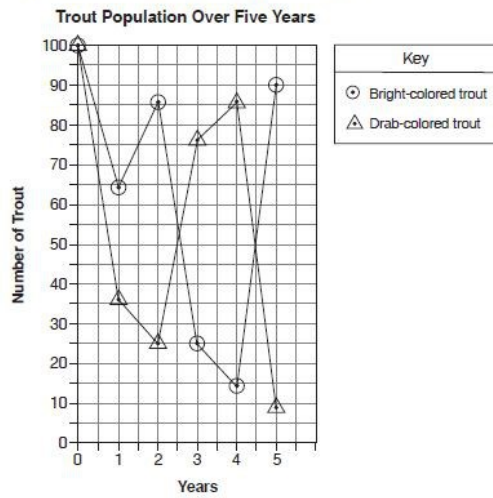
### Trout Population Over Five Years



#### Scoring Guide:

Allow 1 credit for marking an appropriate scale on each labeled axis.

Example of a 3-credit graph for questions 52–54:



**Note:** Allow credit only if circles and triangles are used.  
 Make no assumptions about the origin unless it is labeled.  
 Do *not* allow credit for plotting points that are not in the data table, e.g., (0,0), or for extending lines beyond the data points.  
 Do *not* deduct more than 1 credit for plotting points that are not in the data table or for extending lines beyond the data points.

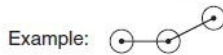
Base your answers to questions 52 through 55 on the information and data table below and on your knowledge of biology.

An investigation was carried out over a five-year period to measure the effect of color on the survival of trout in a stream. The stream contained many brightly colored stones and food was plentiful. At the start of the investigation (year 0), 100 bright-colored trout and 100 drab-colored trout were placed into a section of the stream that had been blocked with netting. Investigators monitored the trout populations for five years and recorded the water condition each time a count was done. The data collected are shown in the table below.

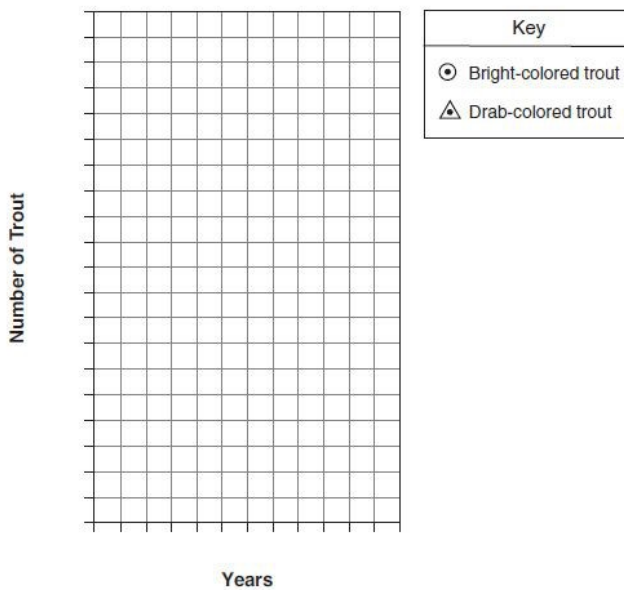
**Trout Population Over Five Years**

Year	Bright-Colored Trout	Drab-Colored Trout	Condition of Water
0	100	100	clear
1	64	36	clear
2	86	25	clear
3	25	77	cloudy
4	14	86	cloudy
5	90	9	clear

Plot the data for the bright-colored trout on the grid. Surround each point with a small circle and connect the points. [1]



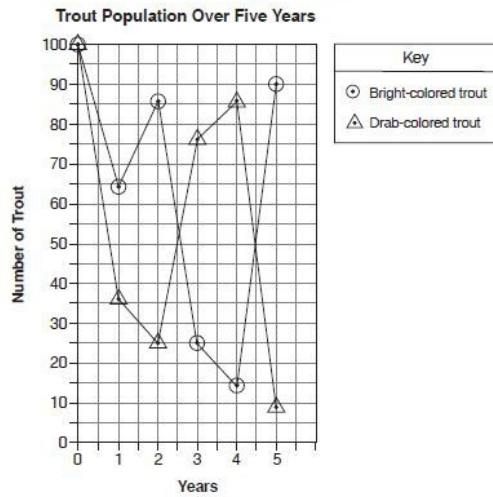
**Trout Population Over Five Years**



**Scoring Guide:** Allow 1 credit for correctly plotting the data for the bright-colored trout, surrounding each point with a small circle, and connecting the points.



Example of a 3-credit graph for questions 52–54:



**Note:** Allow credit only if circles and triangles are used.  
 Make no assumptions about the origin unless it is labeled.  
 Do *not* allow credit for plotting points that are not in the data table, e.g., (0,0), or for extending lines beyond the data points.  
 Do *not* deduct more than 1 credit for plotting points that are not in the data table or for extending lines beyond the data points.

32

Base your answers to questions 52 through 55 on the information and data table below and on your knowledge of biology.

An investigation was carried out over a five-year period to measure the effect of color on the survival of trout in a stream. The stream contained many brightly colored stones and food was plentiful. At the start of the investigation (year 0), 100 bright-colored trout and 100 drab-colored trout were placed into a section of the stream that had been blocked with netting. Investigators monitored the trout populations for five years and recorded the water condition each time a count was done. The data collected are shown in the table below.

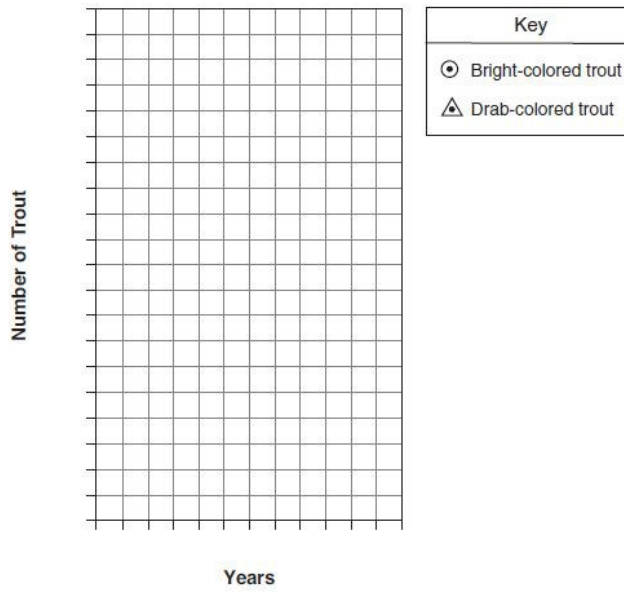
**Trout Population Over Five Years**

Year	Bright-Colored Trout	Drab-Colored Trout	Condition of Water
0	100	100	clear
1	64	36	clear
2	86	25	clear
3	25	77	cloudy
4	14	86	cloudy
5	90	9	clear

Plot the data for the drab-colored trout on the grid. Surround each point with a small triangle and connect the points. [1]

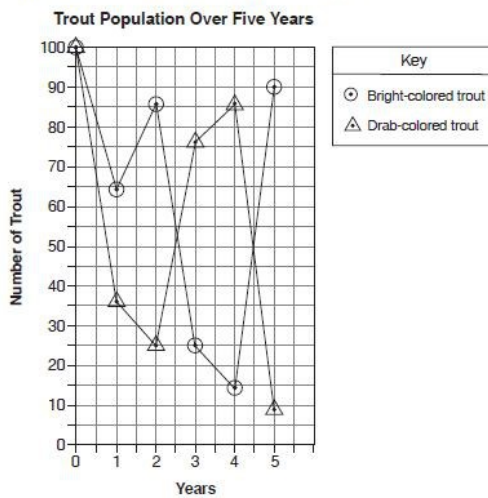
Example: 

### Trout Population Over Five Years



**Scoring Guide:** Allow 1 credit for correctly plotting the data for the drab-colored trout, surrounding each point with a small triangle, and connecting the points.

Example of a 3-credit graph for questions 52–54:



**Note:** Allow credit only if circles and triangles are used.  
 Make no assumptions about the origin unless it is labeled.  
 Do *not* allow credit for plotting points that are not in the data table, e.g., (0,0), or for extending lines beyond the data points.  
 Do *not* deduct more than 1 credit for plotting points that are not in the data table or for extending lines beyond the data points.

33

Explain how trout survival is related to the color of trout and the environmental condition of the stream.

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**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

1. Drab-colored trout survive better in cloudy water because they blend in with water.
2. Brightly colored trout survive better in clear water because they blend in with brightly colored stones.

34

Base your answer on the information below and on your knowledge of biology.

In the abyssal zones (deepest zones) of oceans, organisms live in an ecosystem that lacks sunlight. Other environmental conditions include temperatures of 4°C and extremely high water pressure. Dead material from upper ocean zones sinks and settles in the abyssal zone.

State one possible way that some organisms living permanently in the abyssal zone could obtain energy. [1]

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**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- They obtain energy from living or dead organisms that descend from the upper levels
- Wastes from above drop down
- feeding on organisms that live there

35

Base your answer on the information below and on your knowledge of biology.

In the abyssal zones (deepest zones) of oceans, organisms live in an ecosystem that lacks sunlight. Other environmental conditions include temperatures of 4°C and extremely high water pressure. Dead material from upper ocean zones sinks and settles in the abyssal zone.

Many of the animals in the abyssal zone possess light-producing cells in specific parts of their bodies. State one possible use for these lights. [1]

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**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- attract food organisms
- attract a mate
- find food

36

Base your answers on the information below and on your knowledge of biology.

In the abyssal zones (deepest zones) of oceans, organisms live in an ecosystem that lacks sunlight. Other environmental conditions include temperatures of 4°C and extremely high water pressure. Dead material from upper ocean zones sinks and settles in the abyssal zone.

Animals from the abyssal zone can not survive in upper ocean zones. State one possible reason for this. [1]

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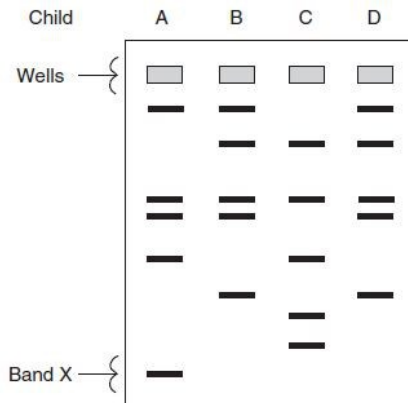
**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- not enough pressure
- too warm
- not adapted to that environment
- no food they normally eat

Base your answers to question 63 on the information and diagram below and on your knowledge of biology.

DNA samples were collected from four children. The diagram below represents the results of a procedure that separated the DNA in each sample.



Identify the procedure used to obtain these results. [1]

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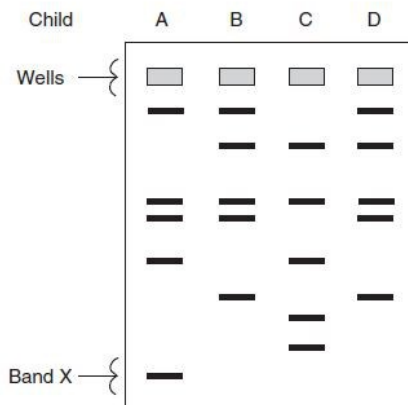
**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- electrophoresis
- gel electrophoresis
- DNA fingerprinting

Base your answers to question 65 on the information and diagram below and on your knowledge of biology.

DNA samples were collected from four children. The diagram below represents the results of a procedure that separated the DNA in each sample.



The DNA is most similar in which two children? Support your answer. [1]

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**Scoring Guide:**

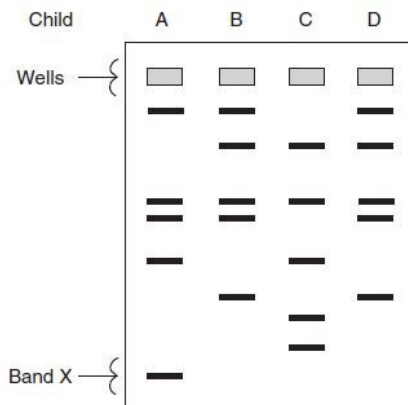
Allow 1 credit for B and D and for supporting the answer. Acceptable responses include,

but are not limited to:

- most similar because they have the most bands in common

Base your answers to question 66 on the information and diagram below and on your knowledge of biology.

DNA samples were collected from four children. The diagram below represents the results of a procedure that separated the DNA in each sample.



State *one* way information obtained from this procedure can be used. [1]

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**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- to determine paternity/maternity
- to help solve a crime
- to identify an accident victim
- to diagnose disorders

Base your answer to question 70 on the information below and on your knowledge of biology.

A student states that exercise will affect the number of times a person can squeeze a clothespin in a certain amount of time. An experiment is carried out to test this hypothesis. One group of ten students sits quietly before squeezing a clothespin as many times as possible during a one-minute interval. A second group of ten students does 25 jumping jacks before squeezing a clothespin as many times as possible during a one-minute interval.

State one way the experiment could be improved in order to increase the validity of the results. [1]

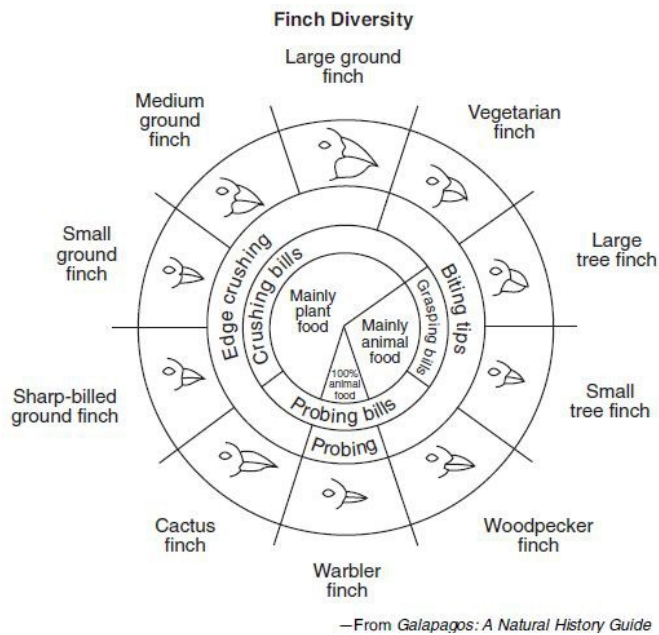
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**Scoring Guide:** Allow 1 credit. Acceptable responses include, but are not limited to:

- increase the number of students in each group
- repeat the experiment several times





Small ground finches and medium ground finches live on an island with abundant plant and animal food. Predict how the small ground finch and the medium ground finch would be affected if warbler finches migrated to the island where these finches live. Support your answer. [1]

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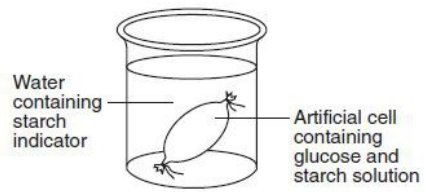


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**Answer:**

**Scoring Guide:** Allow 1 credit. Acceptable responses include, but are not limited to:

- There would be no effect because they eat different food.
- The ground finch populations may increase if the warbler finch eats animals that consume the same plants eaten by the ground finches.
- The ground finch populations may decrease if the warbler finch competes for nesting sites.



Identify the color of the contents of the artificial cell after two hours. [1]

\_\_\_\_\_

**Scoring Guide:**

Allow 1 credit. Acceptable responses include, but are not limited to:

- blue black