

Name: _____

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5th Grade Spring Break Packet

Mr. Ciani

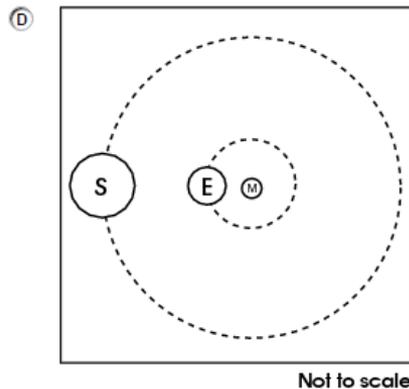
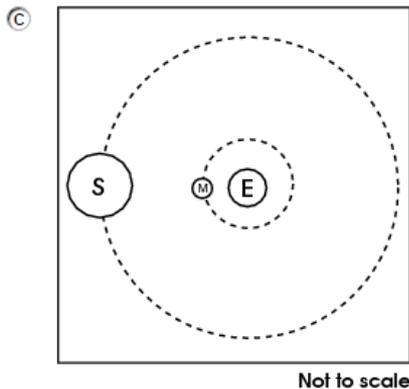
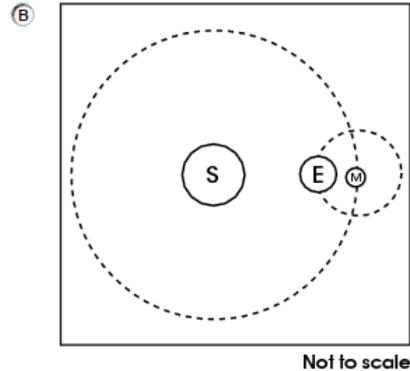
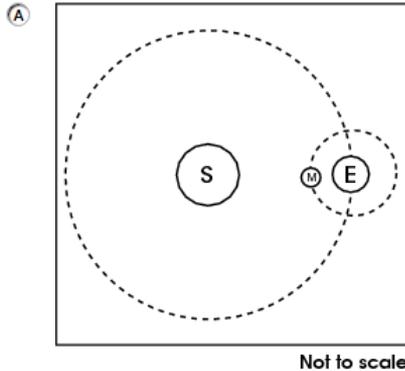
Due:
March 30th



1

Standard, Earth and Space Science 1

1) Which diagram correctly shows the orbits of Earth (E), the Moon (M) and the Sun (S)?



2

Standard, Earth and Space Science 1

2) Students study two planets: Planet X and Planet Y. The table shows the characteristics of the two unknown planets.

Characteristics of Unknown Planets

	Composition	Revolution Period	Size
Planet X	Rocky	Shorter	Smaller
Planet Y	Gaseous	Longer	Larger

Place a check in the boxes to classify each of the four planets as having the same characteristics as Planet X or Planet Y

	Jupiter	Mercury	Saturn	Venus
Planet X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planet Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3

Standard, Earth and Space Science 1

3) Planet L is an inner planet and Planet R is an outer planet. Both planets are located in our solar system. Compare the possible characteristics of each planet.

Place a check in the boxes to identify the possible characteristics of each planet.

	Planet L (Inner)	Planet R (Outer)
Orbits the sun	<input type="checkbox"/>	<input type="checkbox"/>
Closer to the sun	<input type="checkbox"/>	<input type="checkbox"/>
Likely to have rings	<input type="checkbox"/>	<input type="checkbox"/>
Mostly composed of gas	<input type="checkbox"/>	<input type="checkbox"/>
Mostly composed of rock	<input type="checkbox"/>	<input type="checkbox"/>
Likely to have less than 5 moons	<input type="checkbox"/>	<input type="checkbox"/>
Likely to have more than 10 moons	<input type="checkbox"/>	<input type="checkbox"/>

4

Standard, Earth and Space Science 1

4) The table shows some of the characteristics of four different objects in our solar system.

Characteristics of Four Objects in Our Solar System

Object	Size	Temperature	Orbit
1	Small	Cold	Around a planet
2	Small	Cold	Around the sun
3	Large	Hot	None
4	Medium	Warm	Around the sun

Which object is a moon?

(A) Object 1

(B) Object 2

(C) Object 3

(D) Object 4

5

Standard, Earth and Space Science 1

5) Which phenomenon is caused by the same force that causes objects to fall toward the surface of Earth?

- A Earth orbits the sun.
- B Sunlight travels to the planets.
- C The tails of comets point away from the sun.
- D A compass needle points to the North Pole of Earth.

6

Standard, Earth and Space Science 1

6) The planets in the solar system are in constant orbit around the sun.

Which force is responsible for maintaining these orbits?

- A. Electrical force
- B. Magnetic force
- C. Force of friction
- D. Force of gravity

7

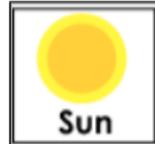
Standard, Earth and Space Science 1

The chart describes features of some objects in space.

Label the objects in the blank boxes in the chart to identify whether each feature describes the sun, the planet Neptune or both.

Drag the color of the dot which represents your answer to the appropriate box.

- You do **not** need to fill in all the blank boxes.
- Place only **one** object in each blank box.



Features of the Sun and Neptune

Made of Gases

--	--

Produces Light

--	--

Smaller than Jupiter

--	--

8

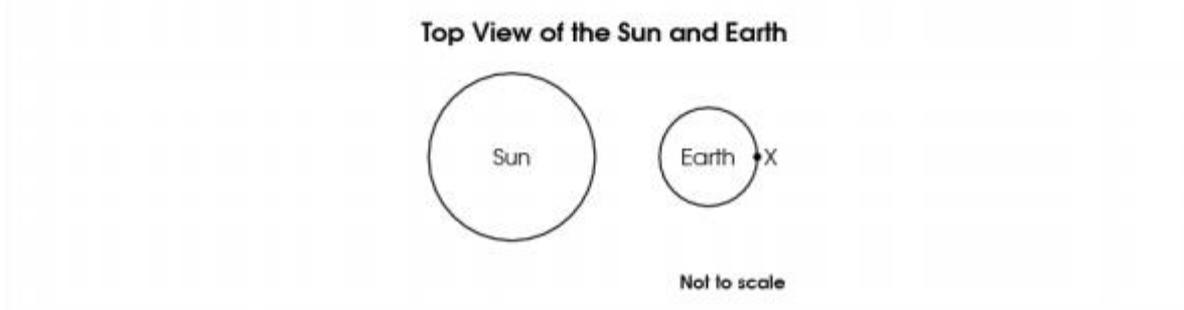
Standard, Earth and Space Science 1

A student models the motions of the Sun and Earth to understand why the Sun appears to move across the sky from sunrise to sunset. In this model, the student represents Earth and a light represents the Sun.

Which model demonstrates this appearance of the Sun moving across the sky?

- A. The student holding the light at arm's length and turning in a circle
- B. The student walking around in a wide circle while the light sits on a desk
- C. The student spinning around in place while the light sits on a desk nearby
- D. The student standing and the light being moved over the student's head

#9



Identify whether it is day or night at point X and explain why.

Then, identify where point X will be located in 12 hours and explain why.

#10

The diagram shows the planets in our solar system. Determine the compositions of the inner and outer planets based on their location in our solar system.

A. Place the correct “Composition” label for the inner planets in the blank box.

B. Place the correct “Composition” label for the outer planets into the blank box.

- Place only **ONE** label in each box.
- You do **NOT** need to use all labels.

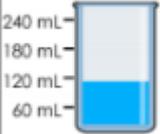
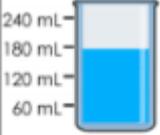
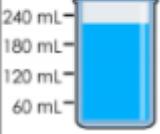
The diagram shows the solar system with the Sun on the left and planets in order: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. The inner planets (Mercury, Venus, Earth, Mars) are grouped under 'Inner Planets' and the outer planets (Jupiter, Saturn, Uranus, Neptune) are grouped under 'Outer Planets'. Below each group is a blank box labeled 'A. Composition' and 'B. Composition' respectively. To the left of the diagram is a vertical stack of three labels: 'Mostly Gas', 'Mostly Liquid', and 'Mostly Solid'. To the right is a vertical stack of three labels: 'Mostly Gas', 'Mostly Liquid', and 'Mostly Solid'. The 'Mostly Liquid' label is highlighted in blue, and the 'Mostly Solid' label is highlighted in purple. The 'Mostly Gas' label is grey. The text 'Not to scale' is at the bottom right of the diagram.

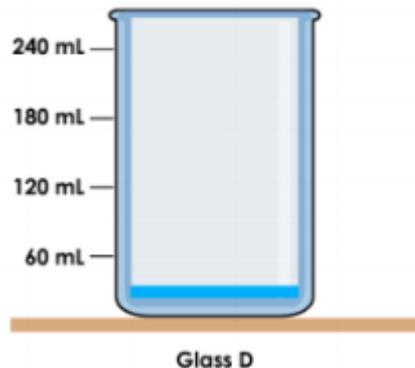
#11

A student investigates the pitch of sound with identical water glasses containing different amounts of water. Different pitches are created by tapping on the rim of each glass. The vibrations rate of each sound is measured and recorded in a table.

Using this data as a guide, place a check on a water level needed in Glass D to produce a pitch lower than the pitch produced by Glass A.

- There may be more than one correct answer.

Sample	Amount of Water	Vibrations per Second
Glass A	 240 mL 180 mL 120 mL 60 mL	500
Glass B	 240 mL 180 mL 120 mL 60 mL	600
Glass C	 240 mL 180 mL 120 mL 60 mL	700



#12

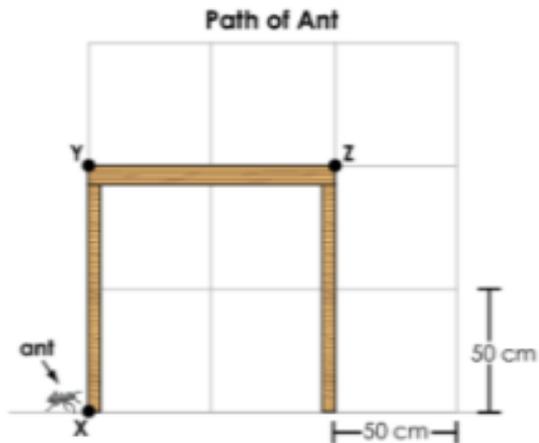
The flower appears blue in sunlight. Blue, green, red, yellow, and other colors make up sunlight.

Move the color labels into the blank boxes to show which color(s) the flower absorbs and which color(s) it reflects.

- You do **NOT** need to fill all the blank boxes.

The diagram is enclosed in a rectangular frame. At the top center is a blue daisy-like flower. To its left is a box labeled "Absorbed" containing three vertically stacked dashed rectangular boxes. To its right is a box labeled "Reflected" containing three vertically stacked dashed rectangular boxes. At the bottom of the frame is a grey horizontal bar containing four buttons labeled "Blue", "Green", "Red", and "Yellow" from left to right.

#13



A ant crawls up a table leg from point X to the top of the table to point Y. Then it crawls across the tabletop to point Z. The graph lines show that each square measures 50 cm in length. It took the ant 2 minutes to walk from point X all the way to point Z.

What was the average speed of the ant?

- A. 4 cm/min
- B. 25 cm/min
- C. 100 cm/min
- D. 200 cm/min

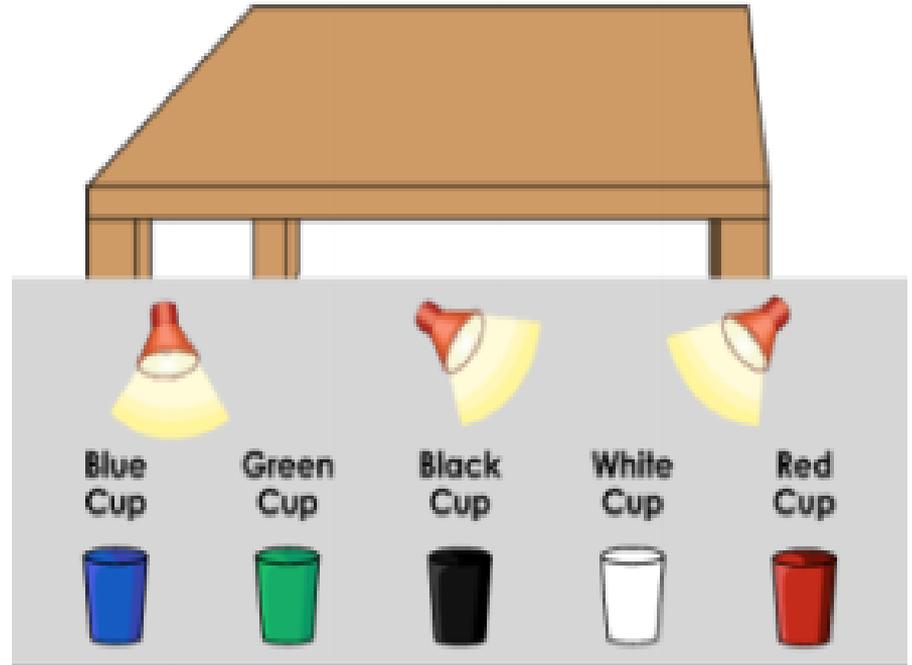
#14

A student designs a method to increase the temperature of water in a glass.

A. Tell which color of cup would absorb the most heat.

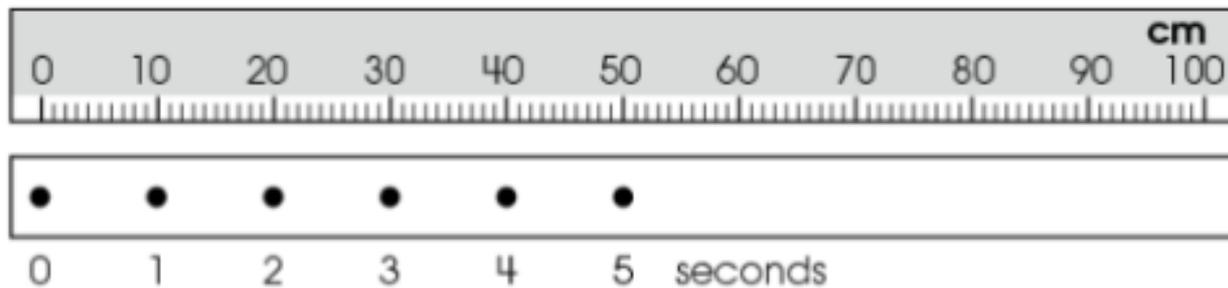
B. Tell which position (down, left, right) of the lamp would increase the temperature of the water the most.

- Choose only **ONE** cup.
- Choose only **ONE** lamp.



#15

In this picture, the dots show where a toy car is at certain times.



What statement correctly describes the motion of the toy car?

- (A) It is standing still.
- (B) It is speeding up.
- (C) It is slowing down.
- (D) It is moving at constant speed.

#16

Design an experiment to test how either force or mass* can change the motion of a cart. Use the following guidelines:

- Each fan has an equal mass*.
- Each cart has a mass* of 2kg.
- The mass* of each box is shown.
- A fan set on low exerts a small force on the cart.
- A fan set on medium exerts a medium force on the cart.
- A fan set on high exerts a large force on the cart.

- A. Choose to investigate either force or mass*. Tell your selections.
- B. Place a fan and a box on each cart to design an investigation to test the motion of the cart.
- C. Predict which cart reaches 5m/s first by telling either Cart 1 or Cart 2.
- D. Then, select the reasoning that supports the prediction.

***MASS/WEIGHT**

The screenshot shows a virtual experiment interface. On the left, there are three fan settings: Low, Medium, and High, each with a corresponding icon. Below the fans are three boxes labeled 1 kg (purple), 2 kg (green), and 4 kg (red). The main area is divided into sections A, B, C, and D. Section A asks to test the effect of Force or Mass*. Section B shows two carts, Cart 1 and Cart 2, each with a fan and a box. Section C asks to predict which cart reaches 5 m/s first. Section D asks for reasoning, with four options: 'It has the most amount of mass*', 'It has the least amount of mass*', 'It has the most force applied.', and 'It has the least force applied.'

- THERE MAY BE MORE THAN ONE CORRECT ANSWER.
- YOU DO NOT HAVE TO USE ALL OF THE MASSES* OR FANS.
- YOU MAY USE EACH OBJECT MORE THAN ONCE.
- ONLY PLACE UP TO TWO OBJECTS IN EACH CART.

#17

Ball X and BALL Y start from rest.
A force is applied to each ball.

- A. Draw force arrows into the blank boxes to show the strength of the forces that act on Ball X and Ball Y. The length of the arrow shows the strength of the force.
- B. Draw on X on the position of each ball as a result of the force applied to it.

A. Force **B. Position after 3 seconds**

Ball X

0

Ball Y

0

#18

Planet L is an inner planet and Planet R is an outer planet. Both planets are located in our solar system. Compare the possible characteristics of each planet.

Select the boxes to identify the possible characteristics of each planet.

	Planet L (Inner)	Planet R (Outer)
Orbits the sun	<input type="checkbox"/>	<input type="checkbox"/>
Closer to the sun	<input type="checkbox"/>	<input type="checkbox"/>
Likely to have rings	<input type="checkbox"/>	<input type="checkbox"/>
Mostly composed of gas	<input type="checkbox"/>	<input type="checkbox"/>
Mostly composed of rock	<input type="checkbox"/>	<input type="checkbox"/>
Likely to have less than 5 moons	<input type="checkbox"/>	<input type="checkbox"/>
Likely to have more than 10 moons	<input type="checkbox"/>	<input type="checkbox"/>

#19

A student places a straw into a glass of water. He notices that the straw appears to be split into two pieces.



Describe how light interacts with water to make the straw appear to be split into two pieces.

Type your answer in the space provided

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#20

Students study two planets: Planet X and Planet Y. The table shows the characteristics of the two unknown planets.

Characteristics of Unknown Planets

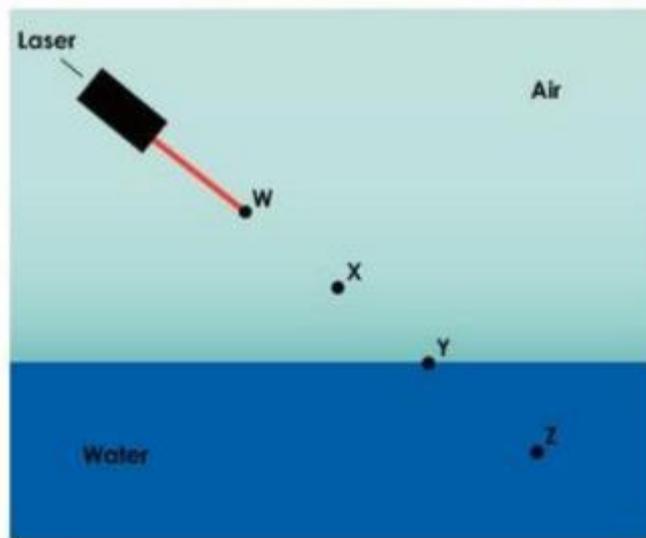
	Composition	Revolution Period	Size
Planet X	Rocky	Shorter	Smaller
Planet Y	Gaseous	Longer	Larger

Select the boxes to classify each of the four planets as having the same characteristics as Planet X or Planet Y.

	Jupiter	Mercury	Saturn	Venus
Planet X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planet Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#21

A laser is pointed at a surface of water. The initial direction of the light leaving the laser is shown.



At which point will the direction of the light change?

- (A) point W
- (B) point X
- (C) point Y
- (D) point Z

#22

The table gives the angle of the sun at noon in degrees every fifty days over the course of a year for two cities.

**Angle of Sun at Noon in
Two Cities**

Day of Year	Angle of Sun at Noon (degrees)	
	City 1	City 2
1	35	80
50	45	65
100	65	50
150	80	40
200	70	35
250	60	60
300	40	75
350	35	80

Select the **three** conclusions that are supported by the data in the table.

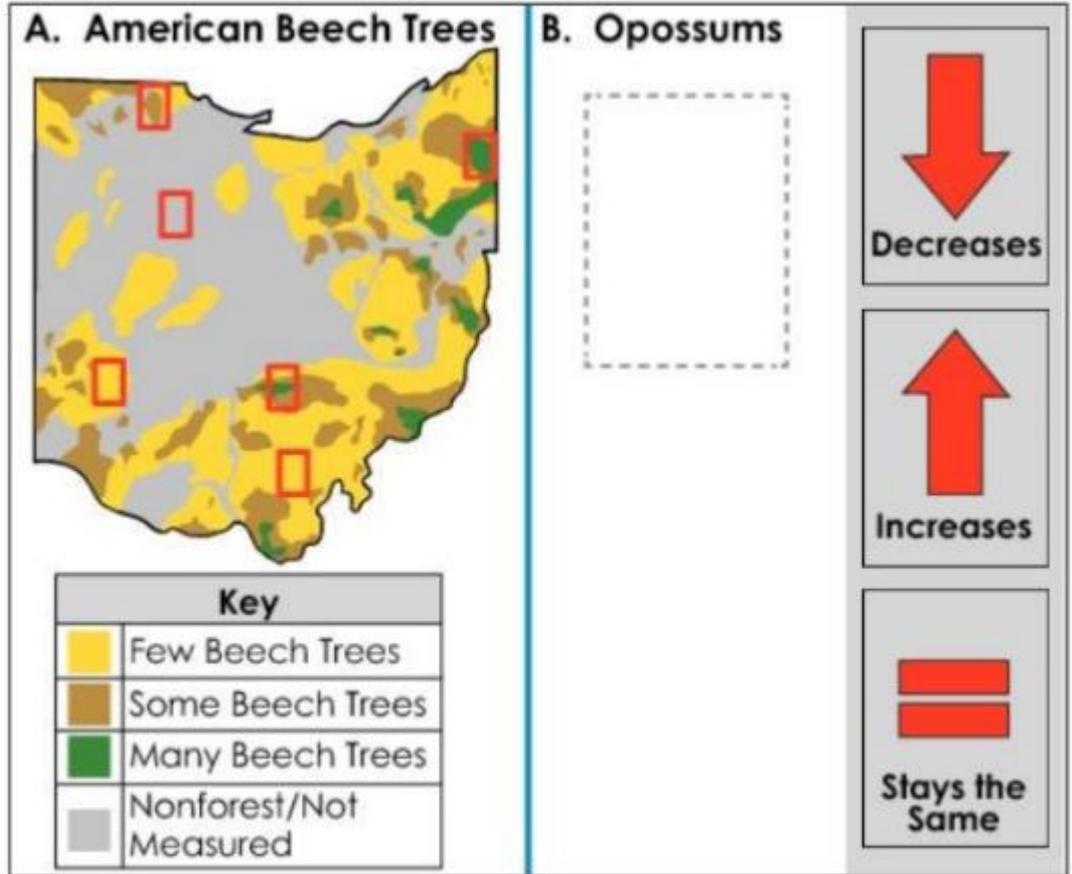
- When it is summer in City 1, it is winter in City 2.
- On any given day, the seasons are the same in both cities.
- When the angle of the sun at noon is high in City 1, it is low in City 2.
- On Day 150, the amount of direct sunlight is less in City 1 than in City 2.
- Around Day 100 and Day 250, the average daily temperatures in both cities are about the same.

#23

American beech trees in Ohio provide food and shelter to many small mammals. Squirrels and opossums use the hollow trunks for dens. Chipmunks and foxes eat the seeds.

People also use the trees. Wood from the beech tree is used to make furniture and paper.

- A. Draw or circle the area in Ohio to show where you would find the greatest number of small mammals feeding on American Beech Tree seeds.
- B. Draw a direction arrow in the blank box to show how an opossum population living in that area would change if the trees were cut down.
- **Use only one direction label.**
 - **There may be more than 1 correct answer**

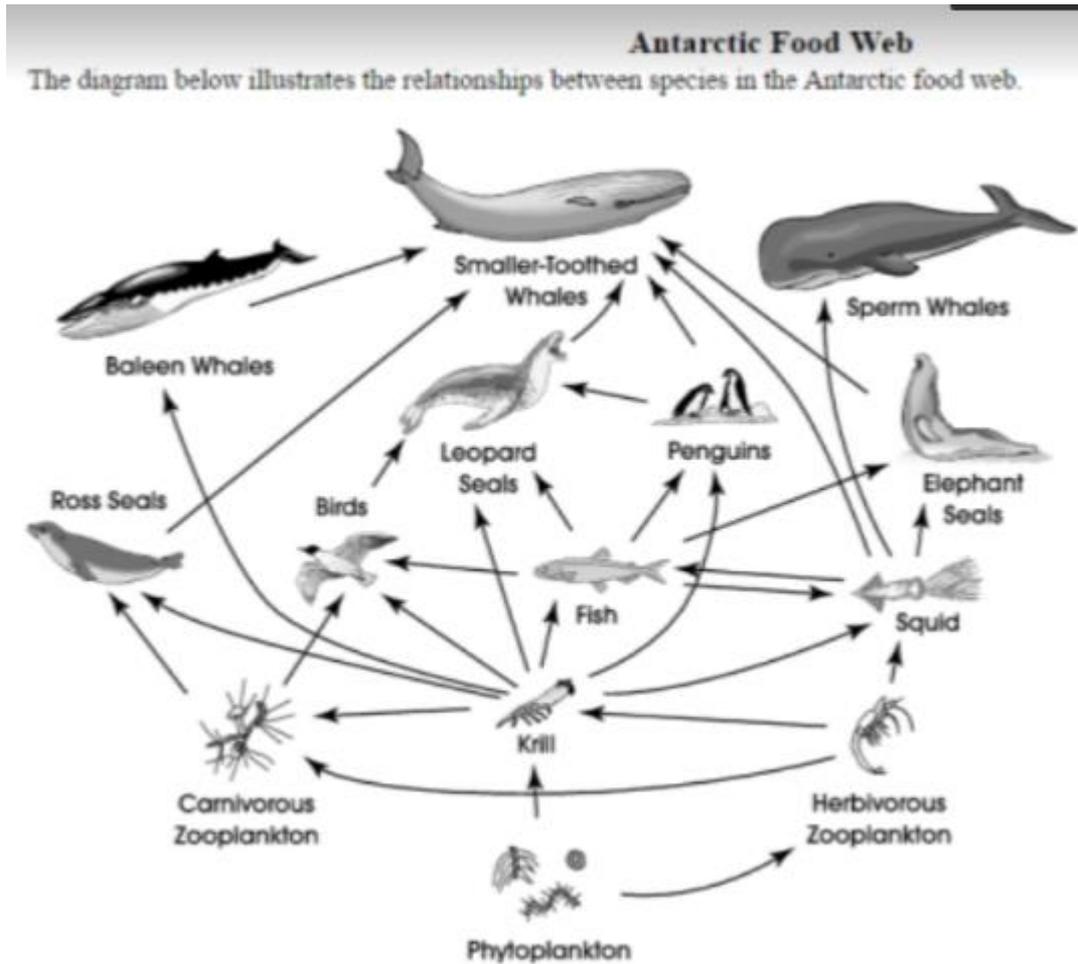


#24

Suppose the squid population in the Antarctic declines. Identify one other population that would decline as a result of fewer squid and explain why.

Identify one population that would increase as a result of fewer squid and explain why.

Type your answer.



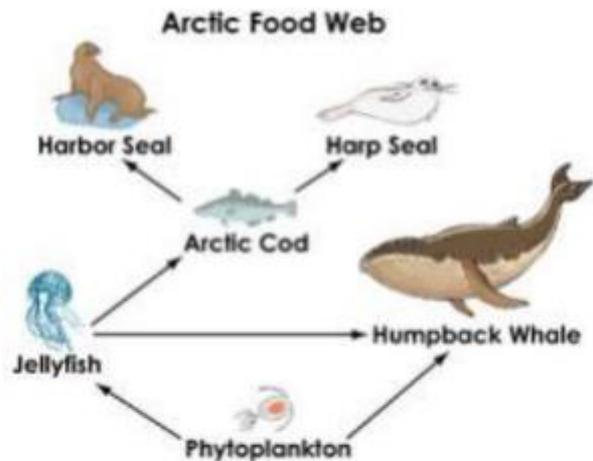
#25

Which movement causes Earth to have day and night?

- Ⓐ Earth's rotation on its axis
- Ⓑ Earth's orbit around the sun
- Ⓒ the sun's rotation on its axis
- Ⓓ the sun's orbit around Earth

#26

A disease that only harms the health of arctic cod fish in an ecosystem causes a decline in the arctic cod population. A partial arctic food web is shown.



Select the boxes to identify how the amount of energy transferred to each organism changes immediately after this severe decline in the arctic cod population.

	Increases	Decreases	No Change
Jellyfish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harp Seal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harbor Seal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phytoplankton	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humpback Whale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#27

The table shows some of the characteristics of four different objects in our solar system.

Characteristics of Four Objects in Our Solar System

Object	Size	Temperature	Orbit
1	Small	Cold	Around a planet
2	Small	Cold	Around the sun
3	Large	Hot	None
4	Medium	Warm	Around the sun

Which object is a moon?

- (A) Object 1
- (B) Object 2
- (C) Object 3
- (D) Object 4

#28

Select the **two** organisms that are carnivores.

- cougar
- mouse
- raccoon
- snake
- sunflower

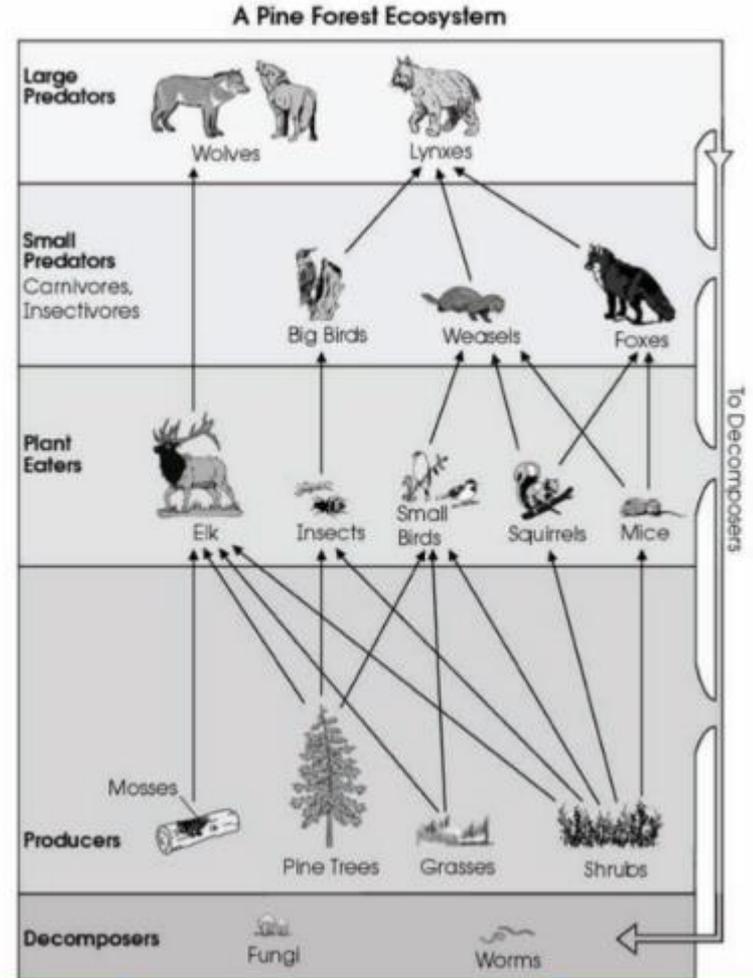
#29

The forest experiences a severe drought that kills the grasses and shrubs living under the trees.

Describe one way the loss of grasses and shrubs would affect the other organisms in the ecosystem.

Explain why the loss of grasses and shrubs would have a more significant effect on the energy flow within the ecosystem than would the removal of the wolves and lynxes.

The diagram shows some of the food web interactions in a pine forest ecosystem.



#30

The table shows properties of several objects in the solar system.

Properties of Objects in the Solar System

Object	Earth Days to Orbit Sun	Object Size (diameter in km)
V	59,800	49,528
W	225	12,104
X	687	6,792
Y	365	3,475
Z	90,560	2,370

Enter a number from 1 to 5 to rank the objects from closest (1) to farthest (5) from the sun based on the data in the table.

Object	Rank
V	<input type="text"/>
W	<input type="text"/>
X	<input type="text"/>
Y	<input type="text"/>
Z	<input type="text"/>

#31

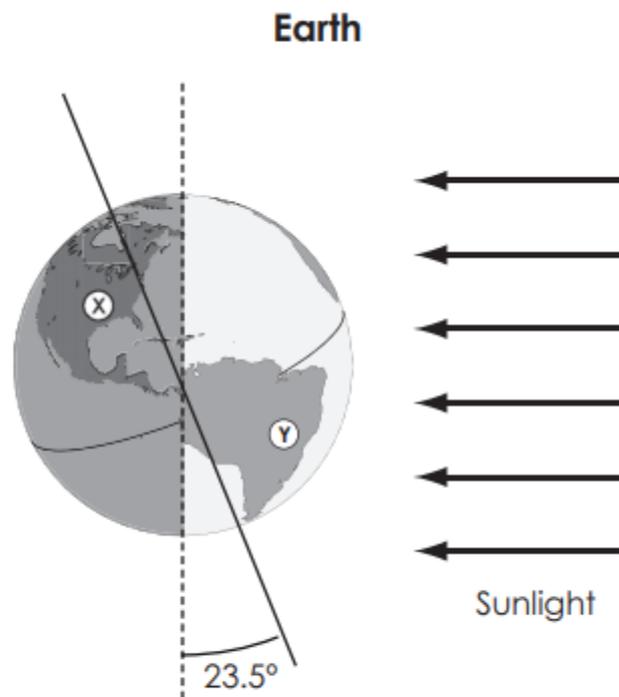
Grasshoppers, cactus plants, lizards, and rattlesnakes are organisms found in a desert ecosystem.

Which activity in a desert ecosystem increases the amount of energy available to living things?

- Ⓐ Rattlesnakes search for small rodents and mammals for food.
- Ⓑ Cactus plants change sunlight into food and grow larger.
- Ⓒ Lizards feed on the ants that crawl out of ant holes.
- Ⓓ Grasshoppers sit in the sunlight and chirp.

#32

The diagram shows Earth receiving light from the sun.



Identify the current season at location X.

Then, explain what causes the season at location X.

#33

Barnacles are small, nonswimming, hard-shelled animals that live in the ocean. They often attach their bodies to the sides of a whale. The whale is not affected by the barnacles' presence, and floating food is made available to barnacles as the whale swims.

What is the relationship between the whale and the barnacles?

- A. producer-consumer
- B. commensalism
- C. predator-prey
- D. mutualism

A student records the hours of darkness of certain days in the year and records the average temperature for those days in the data table.

#34

Student Observations for a City in Ohio

Hours of Darkness	Average Temperature (°F)
11.25	68.0
11.66	62.6
12.66	57.2
12.91	50.0
13.75	48.2
14.08	42.8

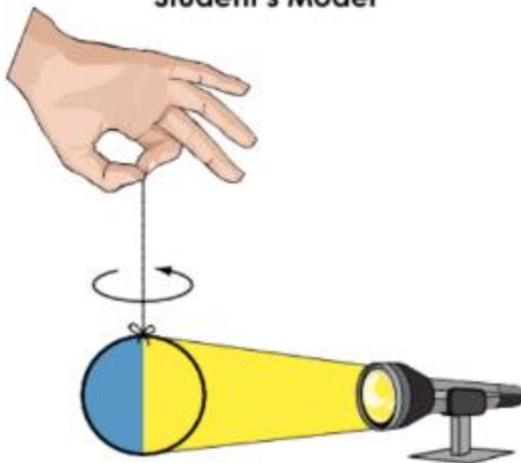
Which statement explains the trend seen in the table?

- A. The length of darkness causes warmer temperatures.
- B. The sun rotates closer to Earth to cause warmer temperatures.
- C. Changes in the speed of Earth's rotation cause changes in temperature.
- D. Changes in the angle and altitude of the sun cause changes in temperature.

#35

A student uses a string, a ball, and a flashlight to make the model shown. The ball makes a complete rotation every second.

Student's Model



Which cycle does this model show?

- (A) positions in orbit
- (B) varying lengths of day
- (C) the changing of the seasons
- (D) changing between day and night