

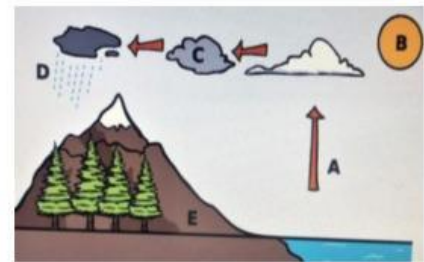
MAP practice 1

Directions: Read each question carefully and answer

1. Sunlight heats water at the equator more than water at the poles. How does this uneven heating produce ocean currents?
 - a. Heat radiates up from the equator.
 - b. Water flows downhill toward the colder poles.
 - c. Convection carries warm water away from the equator.
 - d. Warm water conducts heat from the equator to the poles.

2. Why do small mammals hibernate, like chipmunks and ground squirrels?
 - a. to give birth
 - b. to avoid predators
 - c. to conserve energy
 - d. to prevent dehydration

3. What part of the water cycle is found at C?
 - a. Condensation
 - b. Evaporation
 - c. Precipitation
 - d. Runoff
 - e. Sun's heat



4. Which is the best evidence that wind can exert force?
 - a. The leaves are falling.
 - b. The tree is bent.
 - c. The tree is losing its leaves.
 - d. The tree is bare.
 - e. The leaves are not moving.



5. Which statement best describes the seasons on Earth?
 - a. When it is winter in the Northern Hemisphere, it is summer in the Southern Hemisphere
 - b. When it is winter in the Northern Hemisphere, it is spring in the Southern Hemisphere
 - c. When it is spring in the Northern Hemisphere, it is winter in the Southern Hemisphere
 - d. When it is autumn in the Northern Hemisphere, it is winter in the Southern Hemisphere

6. The pictures show the phases of the Moon as they are viewed from Earth. Which phase of the Moon is next in this sequence?



- a. b. c. d.

7. Caitlin kept a science journal recording the time the Sun set each day in April. The table contains her observations.

April Sunset Times

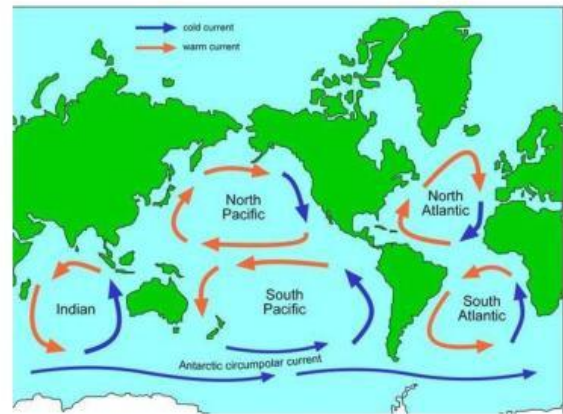
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 6:25	2 6:30	3 6:35	4 6:40	5 6:45	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

Caitlin wanted to take a picture of the Sun setting behind her house to include in her journal, but she doesn't get home till 7:15 pm. Predict the shortest days she will need to wait to take her picture.

- a. 1 day
b. 3 days
c. 6 days
d. 9 days
e. 12 days
8. Visitors to the beach often notice that during the daytime, the wind tends to blow from the ocean toward the beach, while at night, the wind tends to blow from the beach toward the ocean. This is due to
- a. Differences in the temperature of the land and the ocean
b. Differences in the number of people found on the beach during daytime and at nighttime.
c. Differences in the altitude of clouds found offshore and on land.
d. Differences in the number of clouds found offshore and on land.
e. Differences in the types of clouds found offshore and on land.

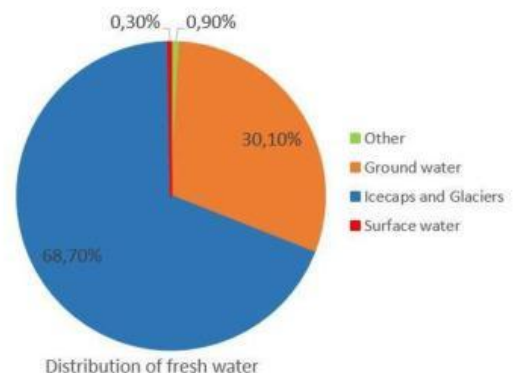
9. The picture shows a map of the world and surface ocean currents. How do these ocean currents affect the climate of the continents?

- Ocean currents drive the Coriolis force, creating circular movements of water.
- Ocean currents transfer heat energy from one area to another.
- Ocean currents carry water needed to fuel the water cycle in other locations on Earth.
- Ocean currents cause the formation of winds that cause the movement of weather systems.

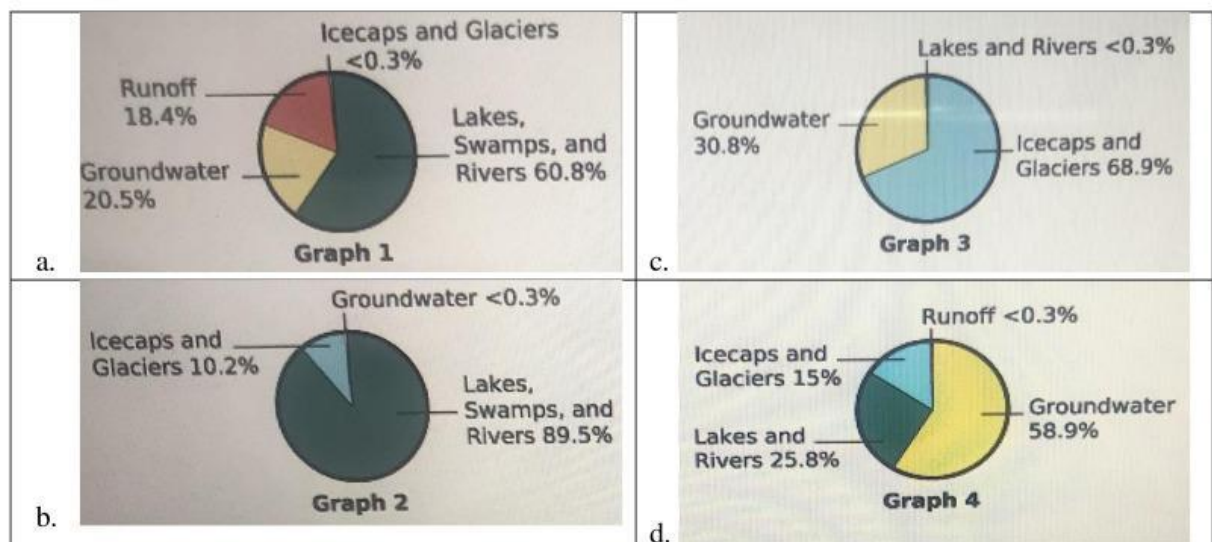


10. The graph shows how fresh water is distributed on Earth. There are different forms of water on Earth. Based on the graph, which statement best describes fresh water on Earth?

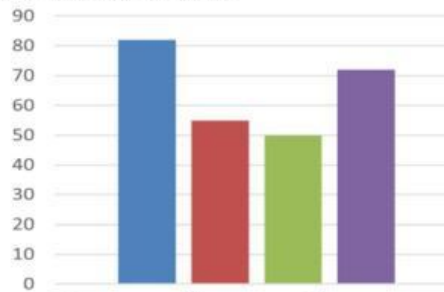
- Almost all freshwater is in the oceans of Earth
- Most of the fresh water on Earth is in ice caps and glaciers
- There is more fresh water on Earth in lakes and rivers than in groundwater.
- The amount of fresh water is about equal to the amount of salt water on Earth.



11. Which graph best represents the relative percentages of freshwater resources found on Earth?



12. The graph shows the temperature in Jackson, Mississippi, for each season in order. Which season does each bar graph most likely describe? Under each graph write (**Winter- Spring – Summer or Fall**). The graph may begin at any season of the year.

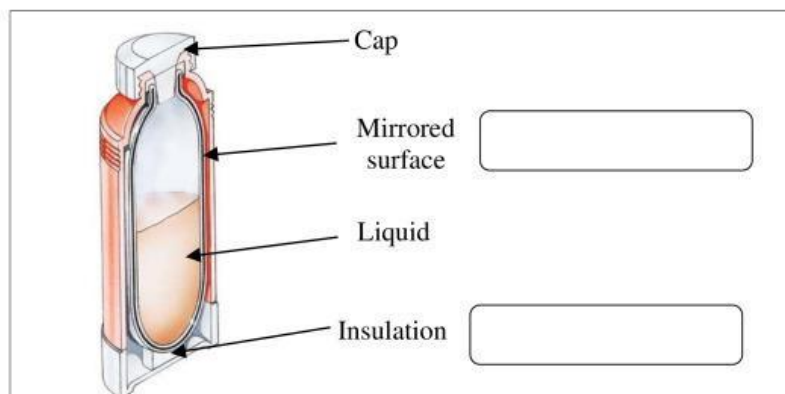


13. Three children looked into the night sky on different days. They drew how the Moon looked in the sky. These are their drawings.



Which pattern do the children observe?

- The Moon is hard to see at night
 - The Moon seems to change from night to night
 - The moon appears to change as it moves across the sky
 - The Moon is in the sky when the Sun is also in the sky
14. An insulated flask keeps liquids hotter or cooler than the surrounding temperature for longer than a non-insulated flask. The diagram shows an insulated flask. The flask's inside portion has glass walls coated with a mirror-like paint. Which parts of the insulated flask reduce each type of heat transfer?
Write conduction, convection, or radiation in the boxes that reduce that type of heat transfer.

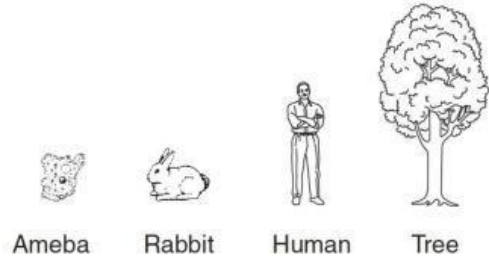


MAP practice 2

Directions: Read each question carefully and answer

1. Four different living organisms are shown on the right.
Which statement is true for all of the organisms shown?

- a. They carry out photosynthesis.
- b. They are multicellular.
- c. They contain at least one cell.
- d. They are consumers.



2. Running to escape danger is an action that requires the nervous system to coordinate the interaction of which two body systems?
- a. digestive and endocrine
 - b. muscular and skeletal
 - c. reproductive and excretory
 - d. circulatory and digestive

3. The diagrams on the right show two organisms. How are these two organisms classified?

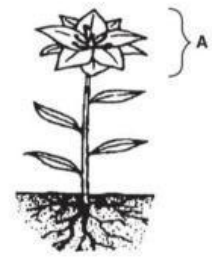
- a. same kingdom, different species
- b. same kingdom, same species
- c. different kingdoms, same species
- d. different kingdoms, different species



4. Which system produces most of the hormones in the human body?
- a. Circulatory
 - b. Endocrine
 - c. Digestive
 - d. Respiratory
5. Which unit expresses the amount of energy in food?
- a. Calorie
 - b. Milliliter
 - c. Degree Celsius
 - d. Gram

6. The diagram on the right shows a green plant. What is the main function of the plant structure labeled A?

- a. Reproduction
- b. release of minerals, absorption of water
- c. , support



7. Many cars today are designed to get better gas mileage than those made in the past. This change resulted from a need to

- a. recycle materials
- b. improve safety
- c. produce chemicals
- d. conserve resources

8. Which event is the best example of **competition** between species in a pond environment?

- a. dragonflies landing on lily pads
- b. frogs and toads eating flies
- c. lizards and snakes lying in the sun
- d. hawks eating mice

9. The diagram below shows a cross-section of a bean seed. The function of part X in the bean seed is to

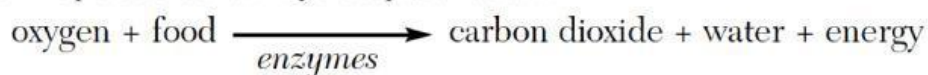
- a. protector the embryo
- b. and provide nutrients for the embryo
- c. prevent mutations in the plant
- d. fight off infections in the plant



10. A broken bone heals through the process of

- a. adaptation
- b. cell division
- c. mutation
- d. chemical digestion

11. Which life process is shown by the equation below?



- a. Circulation
- b. Reproduction
- c. Respiration
- d. Photosynthesis

12. Which process is shown in the diagram on the right?

- a. Evolution
- b. Migration
- c. Photosynthesis
- d. Metamorphosis



13. Studies of earthquake waves have helped scientists determine the

- a. structure of Earth's interior
- b. depth of the oceans
- c. cause of dinosaur extinction
- d. age of Earth

14. Which statement would most likely be included in a news report about an approaching hurricane?

- a. Open the windows to equalize air pressure.
- b. Install snow tires and check the antifreeze in the car radiator.
- c. Evacuate low-lying areas near the coast.
- d. Expect wind speed to decrease for the next several hours.

15. Part of South America's east coast and Africa's west coast have matching fossils within the same series of rock layers. This provides evidence that these two continents were once

- a. separated by a much larger ocean
- b. joined together as one landmass
- c. located near the North Pole
- d. in a different hemisphere

16. In which type of rock is the fossil imprint of a fern leaf most likely to be found?

- a. igneous
- b. sedimentary
- c. metamorphic
- d. volcanic

17. Which process is an example of a **physical change**?

- a. Wood burning
- b. Iron rusting
- c. Ice melting
- d. Milk souring

18. Which statement best describes the energy changes that occur while a child rides on a sled down a steep, snow-covered hill?

- a. Kinetic energy decreases, and potential energy increases.
- b. Kinetic energy increases and potential energy decreases.
- c. Both potential energy and kinetic energy decrease.
- d. Both potential energy and kinetic energy increase.

19. Which example best demonstrates the process of **conduction**?

- a. A piece of paper is torn in half.
- b. Warmed air rises above a lit candle.
- c. A metal spoon gets warm when used to stir hot soup.
- d. Sunlight brightens a dark room.

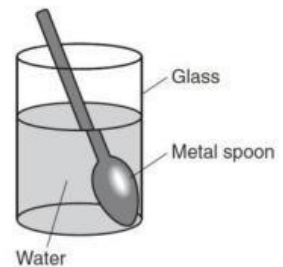
20. All **matter** is made up of

- a. cells
- b. molecules
- c. atoms
- d. compounds

21. The diagram on the right shows a metal spoon in a glass of water.

Which process causes the metal spoon to appear split or broken?

- a. absorption
- b. convection
- c. refraction
- d. reflection



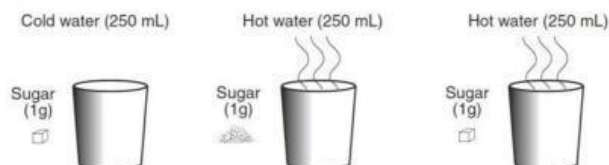
22. The data table below shows changes in four measurements as a human develops from birth to adulthood. Each measurement is expressed as a percentage of the adult value.

Measurement	Data Table Percentage of Adult Value (%)		
	Birth	5 Years	Adult
brain weight	25	90	100
head size	60	90	100
height	30	65	100
total body weight	5	30	100

According to the table, which measurement shows the greatest percentage increase from birth to age 5?

- a. brain weight
- b. height
- c. head size
- d. total body weight

23. The diagrams below show three situations where sugar will dissolve in water.



Identify two variables that affect the rate at which the sugar will dissolve in the water.

- a. _____
- b. _____

Base your answers to questions 24 and 25 on the information about blood groups below. Human blood is classified into four blood types: A, B, AB, and O. Genes passed on from the offspring's parents determine an offspring's blood type. Each parent gives an offspring one gene for blood type. The combination of the two genes determines the offspring's blood type. Three genes, A, B, and o, are responsible for the four blood types. The table below shows how these three genes interact to produce the four blood types.

Determination of Blood Type			
Genes from Parents		Genes of Offspring	Blood Type of Offspring
Mother	Father		
A	A	AA	A
A	o	Ao	A
A	B	AB	AB
B	B	BB	B
o	B	Bo	B
o	o	oo	O

The Punnett square below shows the probability of blood types in the offspring of two parents. One parent's blood type genes are AB, and the other parent's are Ao.

	A	B
A	AA	AB
o	Ao	Bo

24. Based on this Punnett Square, identify the expected percentage of offspring in each of the four blood types.

- Blood type A: _____%
- Blood type AB: _____%
- Blood type B: _____%
- Blood type O: _____%

25. Complete the Punnett Square below, which shows a cross between two parents whose genes for blood type are AB.

	A	B
A		
B		

26. The beaker shown below contains four liquids of different densities. The blocks shown in the beaker represent four different solid materials. The table below shows the densities of the four solid materials.

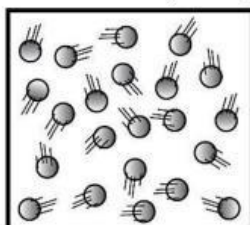
Density of Solid Materials	
Solid Material	Density (g/cm^3)
copper	8.90
plastic	1.17
rubber	1.34
wood	0.71

Write the name of each of the four solid materials in the space provided to indicate where they would be located.

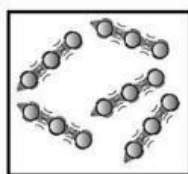
Name of Liquid (density)		Name of Solid Material

Corn oil (0.925 g/cm^3)		
Water (1.00 g/cm^3)		
Glycerol (1.26 g/cm^3)		
Corn syrup (1.38 g/cm^3)		

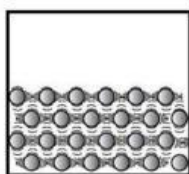
27. The diagram below shows a model of a sample of gas particles at room temperature



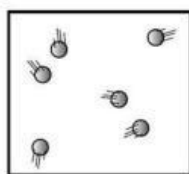
Which diagram best shows the results of removing heat from this sample until it freezes?



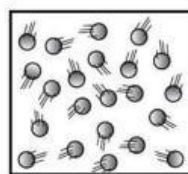
(1)



(2)



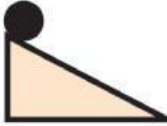
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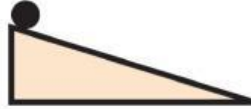
(4)

28. Solid steel balls are located on ramps, as shown. ^[1]_{SEP} Which ball has the greatest gravitational potential energy?

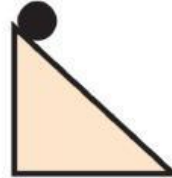
a.



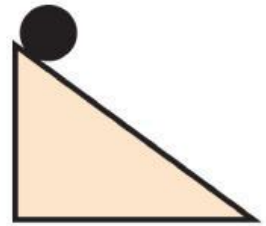
b.



c.



d.

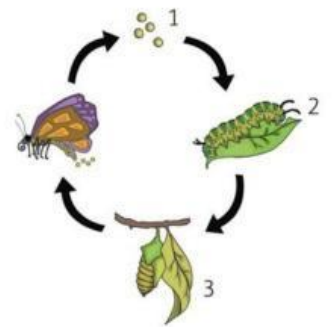


29. Students are comparing animals in an environment. They need to describe all predators. Which phrase describes all predators?

- a. animals that eat plants and fungi
- b. animals that hibernate in the winter ^[1]_{SEP}
- c. animals that hunt other animals for food
- d. animals that live in herds with other animals

30. Students made this model of the life cycle of a butterfly. How should they label stages 1, 2, and 3?

- a. egg, pupa, and larva
- b. larva, egg, and pupa
- c. egg, larva, and pupa
- d. Pupa, larva, and egg



31. Which action is an example of melting?

- a. heating a block of ice until the ice turns to water
- b. warming a pan of water until the water is all gone ^[1]_{SEP}
- c. stirring some sugar in water until the sugar is invisible ^[1]_{SEP}
- d. cooling water in the freezer until the water becomes solid ^[1]_{SEP}

32. A student experiments with magnets. Which group of magnets has attractive forces between all 3 magnets?

- a.

S	N
---	---

S	N
---	---

S	N
---	---
- b.

S	N
---	---

N	S
---	---

S	N
---	---
- c.

N	S
---	---

S	N
---	---

S	N
---	---
- d.

S	N
---	---

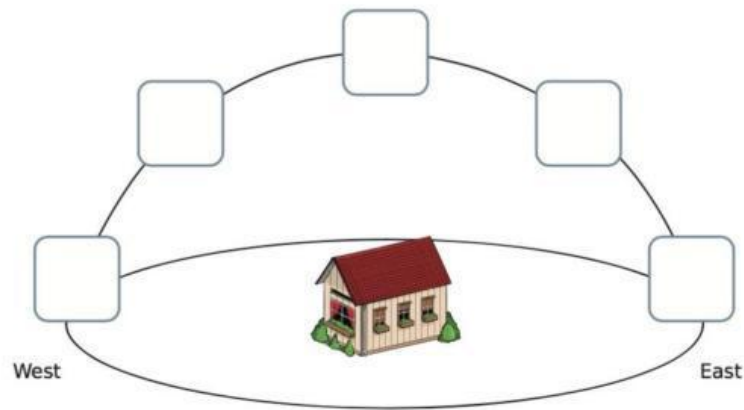
S	N
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N	S
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33. What is the function of the respiratory system in animals?

- a. to move blood
- b. to detect sound
- c. to obtain oxygen
- d. to break apart food

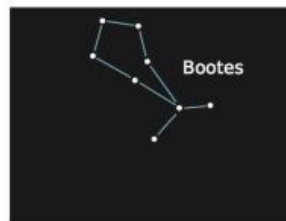
34. A student plans to cross 2 purebred guinea pigs. One will have black fur and the other will have white fur. The color of guinea pig's fur depends on single gene pair. Black fur is dominant to white fur. If there are 6 guinea pigs in spring, what fur color will they most likely have?
- a. 3 with black fur and 3 with white fur
 - b. 4 with black fur and 2 with white fur
 - c. 5 with black fur and 1 with white fur
 - d. 6 with black fur and 0 with white fur
35. Show the position of the Sun in the sky at 6 a.m., 12 noon, and 6 p.m. in March by writing "6 am," "6 pm," or 12 noon in the correct box. (note: not all boxes have to be complete)



36. In May, a student observes Virgo's constellation in one area of the sky. One month later, the student observed the constellation Bootes in the same sky area.



May 10:00 P.M.



June 10:00 P.M.

Why does the student observe Virgo's constellation in May and Bootes in June?

- a. Stars fade in and out.
- b. Earth rotates on its axis.
- c. Stars revolve around the Sun.
- d. Earth revolves around the Sun.

MAP practice 3

Directions: Read each question carefully and answer

1. When a substance's energy decreases, its molecules' motion changes. A substance has these 4 characteristics:
 - a. Molecules moving freely start to slow down
 - b. Collisions between molecules are less energetic
 - c. Intermolecular forces have more effect as molecules become closer
 - d. Molecules start vibrating in fixed positions

What process did the substance experience?

- a. Condensation
 - b. Evaporation
 - c. Freezing
 - d. Melting
2. What body system controls the brain, spinal cord, nerves, and sense organs?
 - a. Circulatory system
 - b. Digestive system
 - c. Muscular system
 - d. Nervous system
 - e. Skeletal system

3. Penguins live in colonies and crows together during a winter storm. Students think adult penguins crowd to protect their young from the cold.

Choose **TWO** evidence statements that support their claim.

- a. The younger, smaller penguins are standing closely together.
 - b. The younger, smaller penguins are in the center, away from the wind
 - c. The older, larger penguins stand around the younger, smaller penguins
 - d. The older, larger penguins keep the younger, smaller penguins safe from the other animals
 - e. The younger, smaller penguins are in the center and cannot be seen outside the group.



4. A group of students walk by a lake daily on their way to school. They observe a large group of geese at the lake during winter. They observe that the group of geese is gone in the summer. Why are there more geese at the lake in the winter compared to the summer?
- The geese do not fly in the winter
 - The geese like cooler water in the winter.
 - The geese need to hibernate in the winter
 - The geese migrate to the lake in the winter
5. What causes the different colors of a rainbow to form?
- The density of raindrops and air is the same
 - Light gets trapped in raindrops and is not transmitted
 - Light rays bend when entering raindrops
 - The speed of light remains the same in raindrops and air
6. Squirrels and beavers both have tails. The squirrel's tail is long and thin with thick fur, and the beaver's tail is broad and flat. What is the main advantage of the beaver's tail in a pond environment?
- To swim
 - To Climb
 - To run fast
 - To stay warm
7. In one ecosystem, sharks eat large fish, the large fish eat small fish, the small fish eat shrimp, and the shrimp eat plankton. This keeps the animal population balanced. Which event could happen if the large fish population was greatly reduced by overfishing?
- The shark population would decrease
 - The shrimp population would decrease
 - The plankton population would decrease
 - The small fish population would decrease
8. Four student teams produce physical changes inside four open containers. The students measure the mass of the material in each container before and after the physical change. Which team will observe a decrease in mass after the physical change?
- Team 1
 - Team 2
 - Team 3
 - Team 4
- | Team | Physical Change |
|------|--------------------|
| 1 | Tear up paper |
| 2 | Crush potato chips |
| 3 | Freeze milk |
| 4 | Boil tea |
9. A car with a mass of 2000kg and a boat with a mass of 500 kg are moving at the same speed. What is the ratio of the car's kinetic energy to the boat's kinetic energy?
- 2:1
 - 4:1
 - 9:1
 - 16:1

10. A student wants to answer the question, “What happens to energy when two objects collide?” She decides to conduct an investigation to find out. She rolls one ball down the ramp and measures its speed. Then, she rolls a ball with a greater mass along her backyard lawn and measures the speed. Why will this investigation fail to answer her question?
- The balls are different masses
 - She rolls the balls on different surfaces
 - She measures the speed of the rolling balls
 - The balls never make contact with each other
11. Which statement best describes scientists' concern about the carbon cycle?
- The environment adds carbon faster than humans add carbon
 - . n
 - The environment adds more carbon slowly than humans add carbon
 - . n
 - Humans add carbon faster than the environment can take up and store carbon
 - Humans are adding carbon slower than the environment can take up and store carbon
12. How does freezing water cause the weathering of rocks?
- Hold them in place
 - It makes them longer
 - Cracks them
 - Makes them thicker
 - , Makes them heavier
13. What causes the different seasons to occur on Earth?
- The movement of the air
 - The daily rotation of earth
 - The tilt of the earth on its axis
 - The distance between Earth and the Sun
14. The cactus plant is called a prickly pear. It does not have leaves. Instead, it has flat green pads with spines. Which helps the plant survive in hot, dry conditions?
- The thick pads store water
 - The green pads absorb sunlight
 - The flowers attract insect pollinators
 - The sharp spines protect against animals
15. Monotremes are a unique type of mammal because they lay eggs. They are only found in Australia and the nearby island of New Guinea. How do geologic processes help explain the limited spread of monotremes?
- Volcanoes on the cost cause other mammal groups to move away
 - Earthquakes caused other animals to spread out and live on larger areas of land
 - The tectonic plates with Australia and New Guinea moved towards the equator, and the climate changed
 - A spreading ridge separated Australia and New Guinea from other continents and isolated the mammals