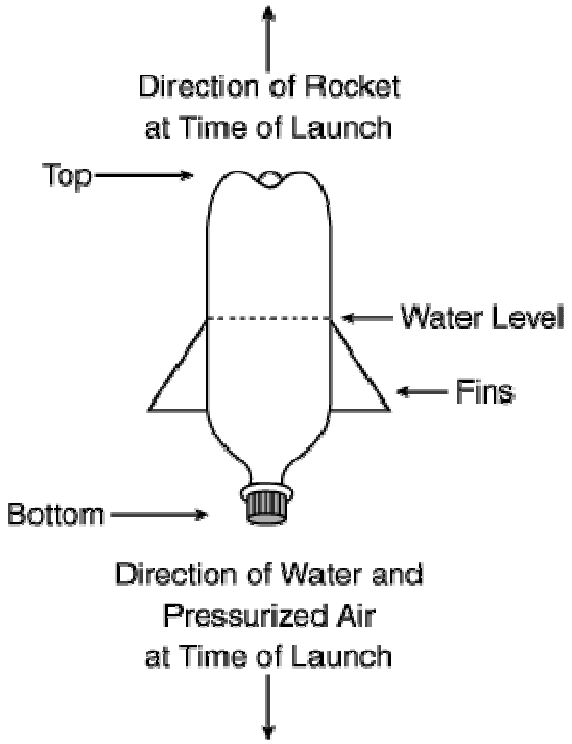
Test Name: TAKS Review 8.5 8.6 and 8.7 **Your Name:** _____

ReviewScan™ Test Code: 9476203 **Teacher:** _____

Date: _____ **Class Name:** _____

1. Betsy builds a model rocket from an empty 2-liter soda bottle. She attaches some fins to stabilize it in flight. She fills it halfway with water and attaches it to the launch pad. At the launch pad, additional air is forced into the bottle. This pressurizes the air inside the bottle so that when it is released, it will push the water out with a downward force that, in turn, launches the rocket upward. After she launches the rocket, she is disappointed in its flight. What can she do to increase the height the rocket achieves at launch?



A She can add more fins to the rocket's body to help it slice through the air more easily.

B She can cut some holes in the body of the rocket to remove some of the rocket's mass that is pulled downward by gravity.

C She can fill the bottle all the way with water so that there is more water pushing out of the bottle when it is launched.

D She can smooth out the shape of the top end of the rocket to reduce air resistance.

2. Laura designed an experiment to see if plants grew better when given tap water or bottled water. She put two plants in the sun and watered one with tap water and the other with bottled water. What could Laura do to improve the design of this experiment?

- **A** Laura could conduct the experiment in a lab.
- **B** Laura could ask a scientist to make the observations.
- **C** Laura could make the experiment more complicated.
- **D** Laura could increase the number of plants in each category.

3. John used baseballs, softballs, and soccer balls to demonstrate the solar system. Which of the following statements is true of this model?

- **A** The different types of planets are clearly shown.
- **B** The distances between the planets can be realistically shown.
- **C** The order of the planets can be demonstrated using this design.
- **D** The relative sizes of the planets can be shown using these balls.

4. Marsha placed 10 plants in each window of her house to find out whether different types of soil will affect how tall bean plants grow. The windows faced north, south, and east. A major flaw in her experimental design is that

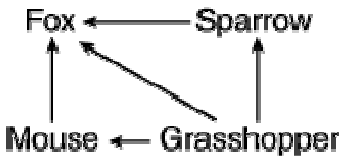
- **A** it will be too hard to measure the plants, if they are sitting in the windows.
- **B** it will be too hard to water the plants, if they are sitting in the windows.
- **C** the light will be different, if the plants are on different sides of the house.
- **D** the plants will look different colors, if they are in different parts of the house.

5. Jonathan plans to use modeling clay to show faulting and folding of rock masses. A design flaw using this model is that

- **A** the clay will be too soft to work with and cannot be made into enough layers.
- **B** the colors of the clay will be confusing to others who do not already understand the concept.
- **C** the layers of clay are all of the same consistency, but the Earth's layers are not all the same.
- **D** the layers of rock on the Earth contain oil which cannot be shown with clay.

6. Which of the following food web diagrams most likely represents the relationships in a grassland habitat that supports grasshoppers, mice, sparrows, and foxes?

A



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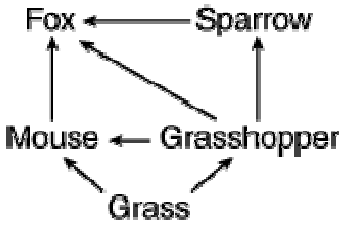

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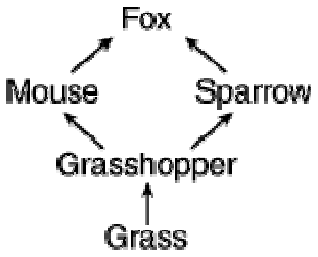

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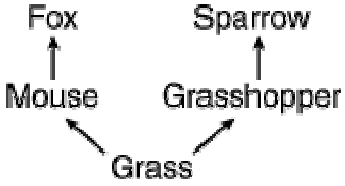
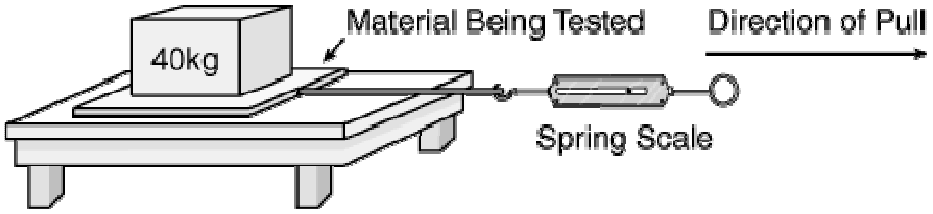


7. Ivan dislikes his athletic shoes, because the material the soles are made from is slippery on a grassy soccer field. He wants to test another material to see if it might be better to use for the soles of athletic shoes. He thinks this new material may provide more friction. Since it is difficult to construct a shoe, he decides to try to test the friction of the material in a different way. Which of the following would best model the friction of the material if used on his shoes?

A



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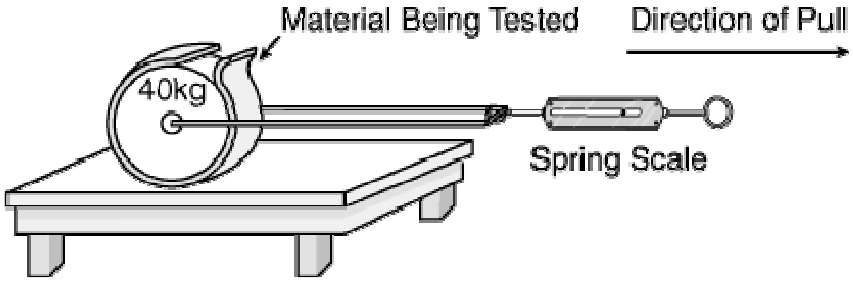

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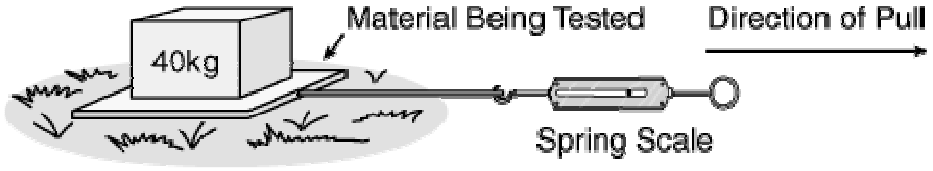
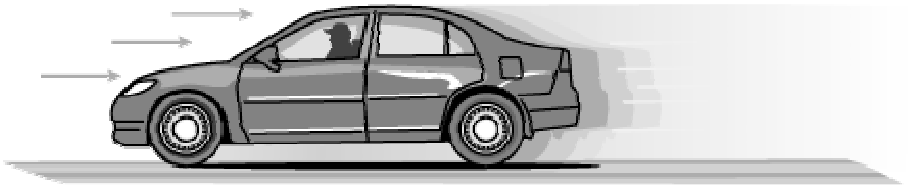


8. Automobile engineers are trying to design a car that will provide less wind resistance than previous models. What is the **best** way to test the preliminary designs?



A observe the resistance of designs that already exist

B use computer simulations to evaluate the designs

C build large fleets of each design and survey people who drive them

D observe and compare objects with different shapes in wind tunnels

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9. Marsha placed 10 plants in each window of her house to find out whether different types of soil will affect how tall bean plants grow. After Marsha finished her plant experiment, she realized that she did not control all the variables. She decided to repeat the experiment and change the focus. Soil tests showed that the soil in her yard was the same on all sides of the house. Which of the following will improve her experiment and perhaps provide information for the real garden she plans to plant in the spring?

A She could use soil from her yard on all the plants and place them in the windows as before.

B She could use soil from her yard and give them varying amounts of water to simulate rainfall amounts.

C She could use soil from her yard and change the time of day when she waters the plants.

D She could keep the experiment the same as before, but put them all on the same side of the house.

10. Truman built three plastic model DC9 jets that he bought at the toy store. He wanted to figure out whether changing the angle of the wing would improve fuel efficiency. A major problem with this idea is that

A the shape of the model airplanes is not like a real DC9.

B the glue on the airplanes will affect the fuel efficiency.

C Truman has no way to measure fuel efficiency with model airplanes.

D Truman cannot find the paint he needs in order to paint the models.

11. Which of the following is **not** the best way to evaluate the accuracy of a model of the feeding relationships among grassland species?

A Examine the waste of the animals to find what each consumes.

B Observe the organisms in their habitat to determine what they eat.

C Conduct a library search to discover the known diets of each species.

D Remove one of the species from the habitat to see what happens.

12. A chef wants to see how adding salt to water will affect how fast it boils. He gathers together a small, a medium, and a large pot from his kitchen, fills them with water, and puts salt in each one. The first pot gets no salt, the second pot gets 20g of salt, and the third pot gets 30g of salt. As he heats the pots, he watches the time to see which one boils first. How can he change this experiment to get more accurate results?

A He can add cooking oil to each of the pots with the salt.

B He can add salt to all three pots instead of just two of them.

C He can heat the water first, so it won't take so long to boil.

D He can use three identical pots with the same amount of water.

13. What is the first thing you should do when considering building a model to simulate something real?

A Test to make sure that the model works like the real thing.

B Study and learn about the real thing being modelled.

C Make the model as much like the real object as possible.

D Just start building and fix any problems as they come up.

14. Sarah's teacher drew a picture of a carbon atom on the board to teach her students how many electrons go in each shell. What is one way she could improve this model of carbon?

A She could build a three-dimensional model, since a drawing only shows two dimensions.

B She could have her students copy the electron configuration out of the book.

C She could have her students find carbon on the periodic chart and write the information.

D She could use different color markers on each shell so the students can see them.

15. The integumentary system is composed of the skin, hair, and nails. In addition to protecting the inner body and sensory reception, the integumentary system has another role that is crucial to the body. What is the most important role of the integumentary system?

A waste removal

B temperature regulation

C oxygenation

D circulation

16. Which of the following organs is **not** part of the digestive system?

A pancreas

B stomach

C heart

D gall bladder

17. Which of the following **best** describes what the thyroid, adrenal glands, and pancreas have in common?

A They all work together as part of the endocrine system.

B They all work together as part of the nervous system.

C They all work together as part of the reproductive system.

D They all work together as part of the respiratory system.

18. Sometimes when you get sick you come down with a fever. A fever is a higher-than-normal body temperature. It is a sign that your body is hard at work defending itself against infection. Why does a fever indicate that your immune system is at work?

A A fever is a sign that your immune system is failing to destroy the infection.

B An elevated body temperature suggests that the growth of microorganisms is being slowed.

C An inflammatory response by the lymphatic system produces swollen glands.

D Proteins destroy invading microbes and result in a higher body temperature.

19. Which of the following processes of temperature regulation serve to decrease body temperature?

A Vessels constrict to reduce blood flow to the skin.

B Glands in the skin produce sweat.

C Muscles in the body begin to shiver.

D Metabolic rate is increased by secreting hormones.

20. Which of the following processes most directly helps the body maintain a stable temperature?

A sweating when it is hot out

B oxygen diffusing into the cells

C coughing when dust is in the throat

D breaking down of food in the stomach

21. Plants need to maintain turgor, a rigid condition created by the fluids contained within each cell which allow non-woody plants to stand upright. Which of the following processes would contribute to the maintenance of turgor?

A As the plant grows, it extends toward a light source.

B Pores in the surface of leaves close keeping water vapor in.

C Sugar is broken down within the cell to release energy.

D Sugar is transported through tubes in the plant called phloem.

22. When Kayla and Matt played basketball at break, they both began to sweat. The purpose of sweating is to

A maintain the correct body temperature.

B remind you to get a drink of water.

C remove extra salt from the kidneys.

D repel insects away from the body.

23. After eating a lot of carbohydrates at break time, your body releases

A carbon dioxide so that your heart will beat normally.

B insulin in order to control high blood glucose (sugar).

C oxygen so that you can continue to breathe normally.

D protein to make sure your kidneys are functioning.

24. Ecosystems around the world depend on trees for food and shade. When trees are no longer living, they are still important parts of their ecosystems. How are dead trees beneficial to woodland ecosystems?

A Microorganisms break down dead plant matter and release simple sugars into the soil.

B Microorganisms break down dead plant matter and release carbon dioxide into the atmosphere.

C Microorganisms break down dead plant matter and release oxygen into the atmosphere.

D Microorganisms break down dead plant matter and release nitrogen and phosphorus into the soil.

25. How do plants affect the abiotic factors of an ecosystem?

A Plants provide food and shelter for other organisms.

B Plants produce oxygen for animals to breathe.

C Plants pull nutrients out of the water supply and provide food for animals.

D Plants provide lots of organic material for soils.

26. Which of the following lists includes abiotic environmental factors **only**?

A rocks, nutrients, grass, air

B bacteria, water, soil, sand

C tree, insect, fruit, worm

D temperature, light, moisture, pebbles

27. Botanists can determine how much trees grow each year by examining their rings. A botanist is looking at a cross-section of a tree trunk. She observes that during a six-year period, the tree's annual rings are less wide than the rings before and after the six-year period. What change in the environment can explain this change?

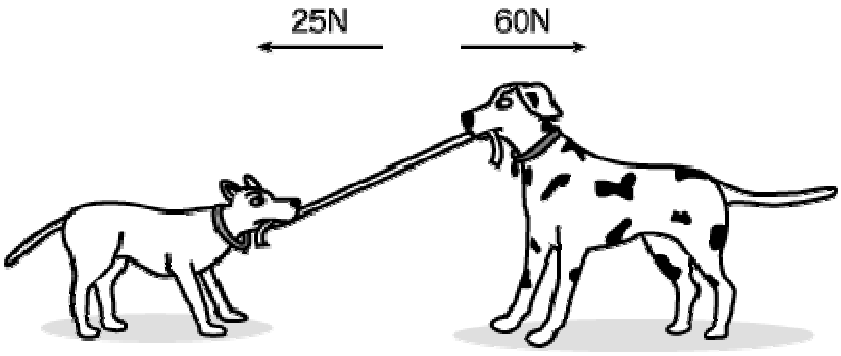
A Annual precipitation decreased.

B Annual precipitation increased.

C The number of herbivores decreased.

D The number of herbivores increased.

28. Two dogs are pulling on opposite ends of a rope. The dog on the left is pulling with a force of 25 newtons. The dog on the right is pulling with a force of 60 newtons. What will be the resulting motion?



A The dogs will not move.

B The dogs will move toward the left.

C The dogs will move toward the right.

D Both dogs will move in the direction that they are pulling.

29. A boat is traveling north along a river at 10 kilometers per hour (km/hr) relative to the river. The speed of the boat relative to the ground is 16 km/hr. A strong gust of wind comes up from behind the boat. What is the **most likely** effect that the gust of wind will have?

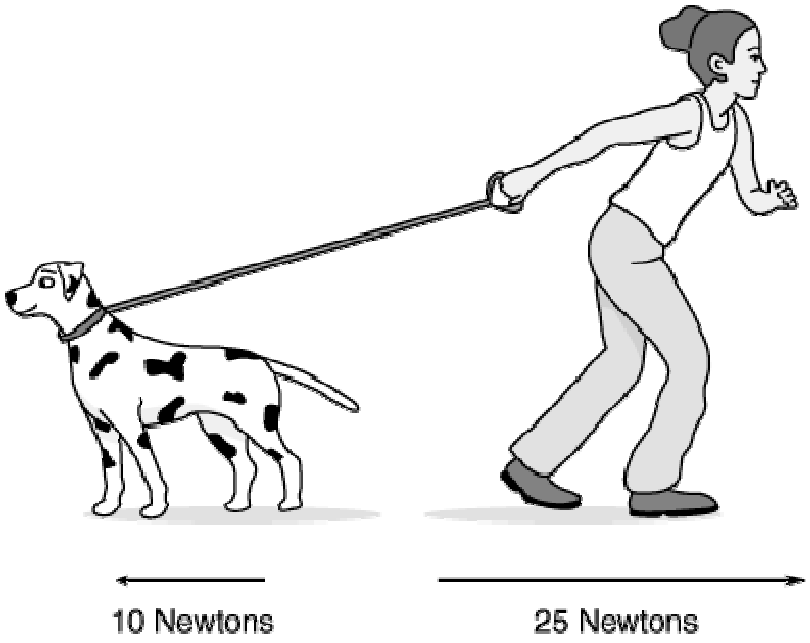
A The speed of the boat relative to the water will increase, while the speed of the boat relative to the land will decrease.

B The speed of the boat relative to the water will decrease, while the speed of the boat relative to the land will increase.

C The speed of the boat relative to both the water and the land will increase.

D The speed of the boat relative to both the water and the land will decrease.

30.



Thandie is pulling her dog on a leash. The dog exerts a force of 10 newtons to the left. Thandie exerts a force of 25 newtons to the right. What is the net force on the leash?

A 10 newtons to the left

B 15 newtons to the right

C 25 newtons to the right

D 35 newtons

31. What is required to change the direction of a moving object?

A an unbalanced net force on the object

B a balanced net force on the object

C several forces acting in the same direction

D no force on the object

32. When an object has unbalanced forces acting on it, it might do all of the following EXCEPT

A move at a constant speed in a circle.

B move at constant speed in a straight line.

C move faster and faster.

D move slower and slower.

33. What happens to light when it passes from air to water?

A The light bends because the speed of the wave changes.

B There is a change in the color of the light.

C All light reflects off the water and doesn't pass through.

D Nothing happens to the light.

34. Judy observes that the drain at the bottom of the pool appears to be about one foot from the side of the pool. When all the water is removed from the pool, she observes that the drain appears to be about two feet from the side of the pool. What property of waves would **best** explain this difference?

A Waves constructively and destructively interfere when they pass through each other.

B Waves bend when they pass from one medium to another.

C Waves are reflected from boundaries and edges.

D Waves bend around barriers and edges.

35. A sound wave travels toward a solid brick wall. What happens to the sound wave when it reaches the wall?

A It is absorbed by the wall.

B It travels into the wall and slows down.

C It is reflected off the wall.

D It is destroyed by the wall.