

Science Break Packet Pride 2025

Directions: Complete each of the questions in your Spring Break packet with strong and meticulous work habits.

Work Habits Checklist Strategies for Multiple Choice Questions:



- Key words are circled.
- I wrote out my equation and showed all work
- I clearly EXPLAINED my answer if needed
- My answer is clearly circled

1. Faith has a rose garden in her backyard. When she goes to pick one of her roses, a thorn pricks her finger and she immediately pulls her hand away. Which of the following systems is responsible for helping Jenny appropriately pulling her hand away?

- A. Digestive system
- B. Sensory neuron
- C. Muscle cell
- D. Motor neuron

2. "B" is used to describe the trait for eye color. Brown eyes (B) are dominant to blue eyes (b). First, define your alleles in the box below. Then, using the Punnett square to the right, decide which of the following best describes the offspring from this cross.

- A. 100% brown eyes
- B. 100% blue eyes
- C. 50% brown eyes and 50% blue eyes
- D. 75% brown eyes and 25% blue eyes

	B	b
B	BB	Bb
b	Bb	bb

List the phenotype each alleles codes for:

B _____

b _____

3. Which two systems work together to add nutrients through the body and then transport these nutrients within the body?

- A. Circulatory and digestive
- B. Urinary and digestive
- C. Respiratory and circulatory
- D. Circulatory and urinary

4. Which of the following most accurately describes the function of the circulatory system?

- A. To control the blood flow throughout our bodies
- B. To carry oxygen-poor blood to the lungs to be oxygenated
- C. To help us breathe
- D. To carry white blood cells throughout blood vessels.

Work Habits Checklist

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5. At the end of meiosis, four gametes are produced; each with half the DNA of the parent cell. Why does each gamete at the end of meiosis only have half the amount of DNA as the parent cell?

- A. To ensure that the offspring will be identical
- B. So that when two gametes come together, the offspring will have half its DNA from its mom and half from its dad
- C. Because DNA will replicate and give the gamete as much DNA as it needs
- D. So that chromosomal crossover can occur to create identical offspring

6. Which of the following is a difference between mitosis and meiosis?

- A. Both produce daughter cells with the same amount of DNA as the parent
- B. Mitosis produces 2 identical daughter cells and meiosis produces 4 varied daughter cells
- C. In meiosis, the DNA in each daughter cell is identical, while in mitosis the DNA is varied in each cell.
- D. Meiosis I begins with 2 cells while mitosis begins with only one cell

7. In the 20th century, the earth's temperature rose 1 degree Fahrenheit due to too much carbon dioxide being released into the air. This is beginning to lead to animals not being able to survive in their habitats. What seems to be the most likely cause of this rise in temperature?

- A. inefficient energy released by fossil fuels
- B. renewable energy sources releasing gas
- C. Heat energy that is used to warm houses
- D. population growth

8. Which of the following accurately depicts the shape and name of the structure of DNA?

a. Single helix



b. Ladder Structure



c. Double Helix



d. Coil structure



9. Miss Lindsey had two light bulbs on in two different lamps at her apartment this weekend. After an hour of burning, she felt each light bulb. The light bulb on the left was much warmer than the light bulb on the right. Based on what you know about efficient energy transfer, which light bulb is more energy efficient?



- A. The left light bulb, because much of the electrical energy was transferred to heat
- B. The right light bulb, because most of its electrical energy was transferred into light energy
- C. The left light bulb, because it still created light
- D. The right light bulb, because a little heat was still produced

10. What is the formula to Newton's 2nd law?

- A. $F = \text{Speed} \times \text{Distance}$
- B. $F = \text{Velocity} \times \text{Time}$
- C. $F = \text{Acceleration} \times \text{Mass}$
- D. $F = \text{Mass} \times \text{Speed}$

11. Alexander sees a soccer ball coming towards him. His eyes sending a signal to his brain is done by which structure in the nervous system?

- A. Motor neuron
- B. Sensory neuron
- C. Dendrites
- D. Cell

12. Which gland is often referred to as the master gland because many of its hormones stimulate the activities of other glands?

- A. Adrenal
- B. Pituitary
- C. Pancreas
- D. Parathyroid

13. What characteristic does a paramecium and amoeba have in common?

- A. Both perform photosynthesis to eat
- B. Both use organelles to eat
- C. Both have cilia to move and eat
- D. Changes shape as they eat and move

14. A juggler tosses a ball into the air as he juggles. Which form of energy is increasing as the ball travels up into the air?

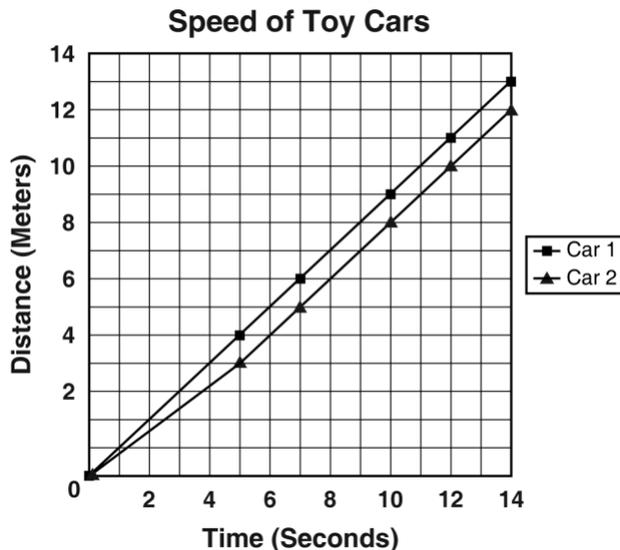
- A. Kinetic Energy
- B. Thermal Energy
- C. Potential Energy
- D. Chemical Energy



15. If the ribosomes of a cell were destroyed, what affect would this most likely have on the cell?

- A. The cell would reproduce faster.
- B. The cell would be unable to make proteins.
- C. The cell would be unable to transport proteins to different parts of the cell.
- D. The cell would not be able to package proteins to leave the cell.

Use the diagram below to answer question 16.



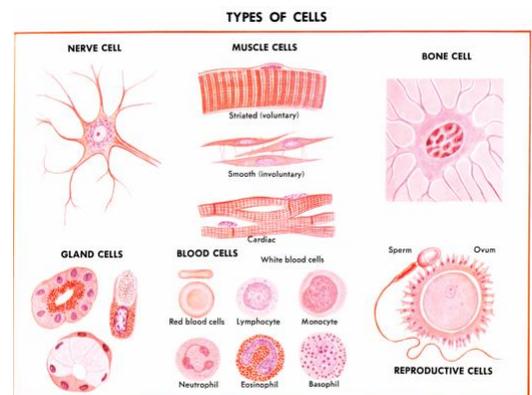
16. For the first thirteen minutes of the race, how do the speeds of the cars compare?

- A. Both cars are traveling at the same speed
- B. Both cars have stopped moving on the track
- C. Car 1 is moving faster.
- D. Car 2 is moving faster.

Use the diagram below to answer question 17.

17. What is one reason that the muscle cells look so different from the nerve cell?

- A. They are part of two different organisms
- B. They perform different functions in the body
- C. They work independently of each other
- D. They are part of the same organism

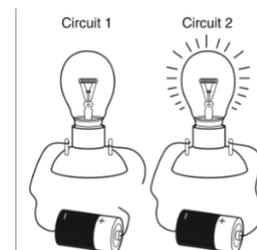


18. What do unicellular and multicellular organisms have in common?

- A. They both are made up of more than one cell
- B. They both are made up of at least one cell
- C. They are not considered living
- D. The cells in each organism have many different functions

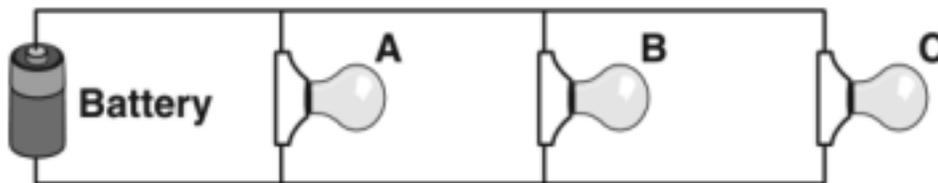
19. Two circuits are shown below. The light bulb of circuit one does not glow. The light bulb of circuit 2 glows. Which statement best describes why the light bulb of circuit one does not glow?

- a. Circuit 1 is a closed circuit
- b. Circuit 1 is an open circuit
- c. The positive terminal of circuit 1 is connected to the battery
- d. The negative terminal of circuit 1 is connected to the battery



20. Look at the circuit in the picture below. How would disconnecting bulb C affect the circuit?

- a. Two of the bulbs would remain lit
- b. Three of the bulbs would produce light
- c. The battery would lose energy to the bulbs
- d. None of the bulbs would light



Above & Beyond

These problems are above and beyond questions to sharpen your skills when we return on April 7th. If we were to be out longer than through April 7th for any reason, these are no longer Above and Beyond and should be completed by all students.

21. Which of the following is NEVER true for recessive alleles?

- a. They are always overpowered by dominant alleles when put together
- b. They are only expressed when they occur along with another recessive allele
- c. They always show up physically no matter which other allele they are paired with
- d. They are written scientifically with a lowercase letter

22. What is the function of an eye-spot in a single celled organism?

- A. Helps propel the organism from one spot to another
- B. The eyespot has no function
- C. Allows the organism to detect light in order to perform photosynthesis
- D. Helps the organism sweep food into its mouth

23. Which of the following does NOT describe the function of a cell wall?

- A. Allows the plant to grow taller towards the sun
- B. Allows the cell to perform photosynthesis
- C. Creates rigid boundaries around the cell
- D. Provides support for the rest of the cell

24. You are looking at your pet horse and notice that it has curly hair. You know that the gene for curly hair in horses (c) is recessive, while the gene for straight hair in horses (C) is dominant. What are the chances your horse will pass on a straight haired gene to its offspring?

- a. Very likely, because dominant always overpowers recessive
- b. Very unlikely, because dominant always overpowers recessive
- c. Very likely, because he only has the gene for straight here
- d. Very unlikely, because your horse has the recessive gene, for curly hair

25. What is the function of the lysosome?

- A. To move proteins around the cell
- B. To digest waste in the cell using digestive enzymes
- C. To control the cell
- D. To perform photosynthesis