

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## **Sizzling Super-Nutrient Challenge: Hard 5th Grade Nutrition Mastery**

Analyze complex food labels, evaluate micronutrient interactions, and synthesize meal plans to solve high-level physiological puzzles and sustain peak physical performance.

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**1. A marathon runner experiences 'bonking' or hitting a wall when their muscles run out of stored glycogen. Which biochemical process are they trying to optimize by consuming complex polysaccharides 48 hours before a race?**

- A. Rapid insulin spiking for immediate energy
- B. Loading long-term glucose chains for sustained release
- C. Converting dietary fiber into muscle tissue
- D. Neutralizing stomach acid before physical exertion

**2. Vitamins A, D, E, and K are fat-soluble, meaning your body requires dietary lipids to transport and absorb them efficiently.**

- A. True
- B. False

**3. If a food label indicates 0g of Trans Fat but lists 'partially hydrogenated soybean oil' in the ingredients, the food actually contains \_\_\_\_.**

- A. Healthy unsaturated Omega-3s
- B. Strictly natural saturated fats
- C. Small amounts of synthetic fats
- D. No fat at all

**4. Consider a case where a student is feeling unusually fatigued and pale. An evaluation of their diet shows high calcium intake but very little iron. Why might the calcium be a factor in their fatigue?**

- A. Calcium turns into lead in the bloodstream
- B. Excessive calcium can inhibit the absorption of iron
- C. Calcium speeds up the heart rate too much
- D. Iron and calcium together create toxic sugar

**5. To ensure a 'complete protein' intake, a vegetarian who does not eat soy must combine specific foods, such as beans and rice, to obtain all nine \_\_\_\_.**

- A. Essential amino acids
- B. Primary fatty acids
- C. Trace minerals
- D. Simple glucose molecules

**6. A scientist is studying 'Bioavailability.' In nutrition, what does this term most likely evaluate?**

- A. The price of organic vegetables at the market

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- B. How many calories are burned during sleep
- C. The amount of a nutrient that is actually absorbed and used
- D. The speed at which food spoils in the sun

**7. Electrolytes like magnesium and potassium are technically minerals that carry an electric charge to help your muscles contract and your brain send signals.**

- A. True
- B. False

**8. Eating a diet very high in 'Simple Carbohydrates' (refined sugars) causes a rapid rise in blood sugar, which triggers the pancreas to release a large amount of \_\_\_\_.**

- A. Adrenaline
- B. Insulin
- C. Pepsin
- D. Bile

**9. Analyze the role of Dietary Fiber. Since humans cannot digest fiber, why is it considered a critical component of a healthy diet?**

- A. It provides the most calories per gram of any nutrient
- B. It builds strong tooth enamel through chewing
- C. It regulates digestion and slows glucose absorption
- D. It replaces the need for drinking water

**10. Phytochemicals are 'hidden' compounds found in colorful plants that, while not essential for life like vitamins, help protect cells from damage and disease.**

- A. True
- B. False