

Name: _____

Date: _____

Answer Key: Nail the Nutrients: Investigating 4th Grade Fuel

Moving past basic food groups to evaluate complex nutrient interactions and analyze food labels for optimal physiological performance.

1. Imagine you are an athlete preparing for a long-distance race tomorrow. Why might a sports nutritionist suggest a dinner rich in complex carbohydrates like barley or wild rice rather than simple sugars?

Answer: B) Complex carbohydrates break down slowly, providing a sustained energy release.

Complex carbohydrates are made of long chains of sugar molecules, which take the body longer to break down, offering a steady supply of glucose for endurance.

2. Iron is a trace mineral that helps red blood cells transport oxygen throughout your body.

Answer: A) True

Iron is an essential mineral used to create hemoglobin, the protein in red blood cells that carries oxygen from the lungs to the rest of the body.

3. Amaya is checking a food label. She sees 'Partially Hydrogenated Oil' in the ingredients. This indicates the presence of ___ fats, which are generally linked to heart health risks.

Answer: C) Trans

Trans fats are created through hydrogenation and are considered harmful to cardiovascular health compared to naturally occurring fats.

4. Which of these scenarios best demonstrates the concept of 'nutrient density'?

Answer: B) A cup of kale that provides high levels of Vitamin K and A with very few calories.

Nutrient density refers to foods that supply a high amount of vitamins and minerals relative to their calorie count.

5. While fats are often viewed negatively, they are actually necessary for absorbing certain vitamins (A, D, E, and K) and protecting organs.

Answer: A) True

Fat-soluble vitamins require dietary fat to be absorbed by the intestines and used by the body.

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6. If a person is a strict vegetarian, they must carefully combine plant-based foods like beans and sunflower seeds to ensure they get all 'Essential ___', which are the building blocks of protein.

Answer: B) Amino Acids

There are nine essential amino acids that the body cannot make itself; combining different plant proteins helps vegetarians obtain a 'complete' protein profile.

7. Consider the role of fiber in the digestive system. How does insoluble fiber, found in wheat bran or the skins of fruit, assist the body?

Answer: C) It adds bulk to stool and helps food pass more quickly through the stomach and intestines.

Insoluble fiber does not dissolve in water; it remains intact and helps maintain regular bowel movements by moving waste through the system.

8. A student notices they are feeling very sluggish and having trouble concentrating in the afternoon. After analyzing their lunch of plain white pasta and apple juice, a scientist might suggest adding ___ to help stabilize their blood sugar levels.

Answer: B) Lean protein

Protein and fiber slow down the digestion of carbohydrates, preventing the 'sugar crash' that happens after eating refined grains and juices.

9. Sodium is completely bad for the body and should be eliminated from the human diet entirely to prevent high blood pressure.

Answer: B) False

While many people eat too much sodium, the body actually needs small amounts of it to conduct nerve impulses and maintain proper fluid balance.

10. A food label lists 'Total Sugars: 24g' and 'Added Sugars: 20g'. What does this tell you about the nutritional value of the food?

Answer: C) The majority of the sugar was added during processing rather than coming from whole food sources.

Added sugars are those put into the food during preparation. If 20g out of 24g are 'Added', it indicates the food is processed and likely less healthy than a whole food.