

Nutrition – Class 1

The Body's Energy System

Quiz Answer Key

1. According to the Nutrition Part 1 lesson, food is more than just fuel because it also provides:

- A. Exercise instructions for muscles only
- B. Information and signals that help guide the body
- C. Extra calories for long-term storage
- D. Heat for maintaining body temperature

(Answer: B)

2. Which macronutrient is primarily described as the body's building and repair material?

- A. Protein
- B. Fat
- C. Carbohydrates
- D. Water

(Answer: A)

3. Which statement best describes metabolic flexibility?

- A. The body only uses carbohydrates for energy
- B. The body stores nutrients permanently
- C. The body can adjust and use different fuel sources based on needs
- D. The body works best with one perfect diet

(Answer: C)

4. Glycogen is stored primarily in which two locations in the body?

- A. The stomach and pancreas
- B. The brain and the skeletal muscles
- C. The heart and liver
- D. The liver and skeletal muscles

(Answer: D)

5. Which structure helps maintain stable blood sugar overnight by releasing stored glucose?

- A. Pancreas
- B. Stomach
- C. Liver
- D. Gallbladder

(Answer: C)

6. Which of the following foods would likely provide the most fiber?

- A. Soda
- B. Candy
- C. White sugar
- D. Beans

(Answer: D)

7. According to the lesson, why are micronutrients important?

- A. They provide all of the body's calories
- B. They replace proteins during exercise

- C. They are tiny helpers that keep body systems working properly
D. They only affect bones and muscles
(Answer: C)

8. Which statement is True?

- A. Glycogen that is stored in the muscles can be shared and used all over the body
B. Glycogen that is stored in the liver can be shared and used all over the body
C. Glycogen stored in the muscles helps keep blood glucose stable while we sleep
D. The brain directly uses glycogen as its main fuel source
(Answer: B)

9. Which food would most likely provide both energy and helpful "information" such as fiber, vitamins, and plant nutrients?

- A. Soda
B. An apple
C. Candy
D. White sugar
(Answer: B)

10. According to the lesson, which question can help someone think about food quality?

- A. Does it have the most calories?
B. Does it cost more money?
C. Does it come from another country?
D. Would your great-great-grandparents recognize it as food?
(Answer: D)

Home Activities – Answer Key

Activity 1 – Food Information Detective

There are many possible correct answers because students will choose different foods. The goal is not perfect nutrition labeling. The goal is helping students think like "Food Information Detectives" and recognize that food is more than calories.

Students should look for ideas such as:

- Foods often contain a blend of carbohydrates, protein, and fat
- Less processed foods often bring more vitamins, minerals, water, fiber, and helpful nutrients
- Highly processed foods may still contain calories and energy, but often provide fewer helpful "instructions"
- Foods with shorter ingredient lists are often closer to real food
- Students should think about whether food looks recognizable and closer to nature

Example responses:

Apple

Main macronutrient: Mostly carbohydrates

Processed: Real food

Ingredients: One (apple)

Would great-great-grandparents recognize it?: Yes

Helpful information: Fiber, water, vitamins, plant nutrients

Cheese Stick

Main macronutrients: Protein and fat
 Processed?: Moderately processed
 Ingredients: A few ingredients
 Would great-great-grandparents recognize it?: Probably yes
 Helpful information: Protein, calcium, minerals

Brightly Colored Snack Cake

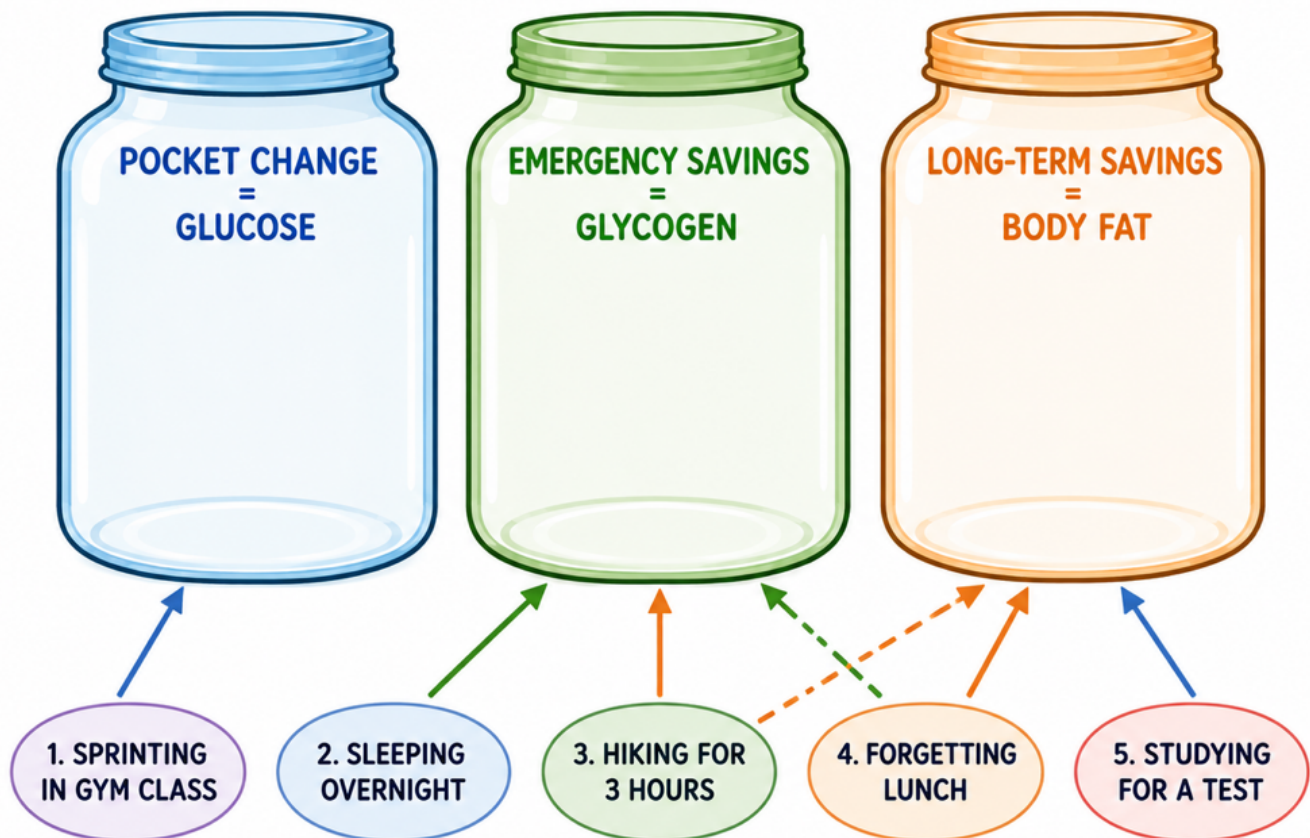
Main macronutrients: Mostly carbohydrates and fat
 Processed?: Highly processed
 Ingredients: Long ingredient list
 Would great-great-grandparents recognize it?: Maybe not
 Helpful information: Mostly calories and energy, fewer helpful nutrients

Sample paragraph response:

The apple seemed to bring the most helpful information because it contained fiber, water, vitamins, and nutrients along with energy. It also looked very close to how food appears in nature. Foods closer to real food often bring more helpful instructions for the body.

Teaching Note: Students are not expected to decide whether foods are "good" or "bad." The goal is recognizing patterns and understanding that food is usually a package containing energy plus information.

Activity #2: The Energy Economy Game



There may be more than one reasonable answer for some situations because the body often uses several fuel systems together. The body is flexible. It does not use only one fuel source all the time. The body is constantly switching, blending, storing, and adjusting based on what is happening.

The goal is to help students think about which fuel system might be used **most** in each situation.

1. Sprinting in gym class → Pocket Change (Glucose)

Short bursts of activity need fast energy right away. Glucose is quick-access fuel that the body can use immediately.

2. Sleeping overnight → Emergency Savings (Glycogen)

While sleeping, you are not eating, but your brain and body still need fuel. The liver slowly releases stored glycogen during the night.

3. Hiking for 3 hours → Emergency Savings (Glycogen) and Long-Term Savings (Body Fat)

Longer activities often begin using glycogen and gradually rely more on body fat as time passes.

4. Forgetting lunch → Emergency Savings (Glycogen), then possibly Long-Term Savings (Body Fat)

The body first uses stored fuel that is easy to access. If enough time passes without food, the body may increasingly use stored fat.

5. Studying for a test → Pocket Change (Glucose)

The brain uses a lot of glucose, especially during thinking, learning, and concentration.