

## Nova's Guide to Fueling the Body

*Learning objective: To understand the importance of a balanced diet and the specific roles of different food groups in maintaining human health.*

Read the passage carefully and answer the questions. Use full sentences to explain your reasoning, ensuring your answers reflect the scientific principles discussed.

Nova the barn owl has been observing humans to understand how they maintain such high levels of energy. She discovered that a balanced diet is essential for human health. Humans require a variety of nutrients to function effectively. Carbohydrates are the body's primary fuel source, providing the energy needed for movement and concentration during maths lessons. Proteins are equally vital; they act as the building blocks for growth and the repair of muscles after active play. Meanwhile, fats are stored to provide a secondary energy reserve and to protect delicate organs. To keep their internal systems running smoothly, humans must consume plenty of vitamins and minerals found in colourful fruits and vegetables. These micronutrients bolster the immune system and assist in complex chemical processes within the body. If a person consumes an excess of sugar or saturated fats, their body may store the surplus energy, which can lead to health complications over time. Nova notes that for a human to thrive, they must select a diverse range of foods, ensuring they receive the correct proportion of each nutrient group to support their physical and cognitive development.

*Word bank: nutrients · carbohydrates · proteins · vitamins · minerals · balanced diet · energy · metabolism*

**1. According to the text, which two food groups are primarily responsible for energy and muscle repair? (2 marks)**

---

**2. What is the specific role of vitamins and minerals in the human body? (2 marks)**

---

**3. Explain why it is disadvantageous for a human to consume an excess of sugar or saturated fats. (3 marks)**

---

---

**4. In what way does the author suggest that the human body acts like a sophisticated machine? (3 marks)**

---

---

---

**5. Justify your answer: If a child only ate carbohydrates, would they be able to grow and stay healthy? Use evidence from the text to support your opinion. (4 marks)**

---

---

---

**Draw: Draw a 'Balanced Plate' featuring a variety of foods. Label each item with its primary nutrient group (e.g., Protein, Carbohydrate, Vitamin) and add a small speech bubble for Nova the owl giving a healthy eating tip.**



*Extension challenge: Research the 'Eatwell Guide'. Compare and contrast the proportions of food groups recommended in the guide with the information provided in the passage. What might happen if a person strictly ignored one entire food group for a month? Justify your prediction using your scientific knowledge.*