



Lesson: Electricity and Energy

Name:

Teacher:

Date:

## Lemon Battery Concepts Worksheet

**Instructions:** Read each question carefully and choose the best answer.

1. What type of energy is stored in the lemon before the battery is made?
  - A. Electrical energy
  - B. Chemical energy
  - C. Kinetic energy
  - D. Thermal energy
2. The flow of electrons from the zinc to the copper is called:
  - A. Voltage
  - B. Current
  - C. Resistance
  - D. Power
3. In the lemon battery, which process occurs at the zinc metal?
  - A. Reduction
  - B. Oxidation
  - C. Photosynthesis
  - D. Combustion
4. Which of the following best describes an electrolyte?
  - A. A metal that produces electricity
  - B. A substance that allows ions to move and conduct electricity
  - C. A source of light
  - D. A solid insulator
5. Why does connecting more lemon cells in series increase the LED's brightness?
  - A. It increases the resistance
  - B. It increases the voltage
  - C. It decreases the chemical reaction
  - D. It cools the lemon
6. Which of the following is an example of energy conversion in the lemon battery?
  - A. Electrical → chemical
  - B. Chemical → electrical
  - C. Thermal → chemical
  - D. Light → mechanical
7. Which safety precaution is important during this experiment?
  - A. Tasting the lemon juice
  - B. Keeping the metals clean and not touching wires with wet hands



- C. Connecting the LED directly to a knife
  - D. Inserting metals too close to each other
8. What would happen if the zinc and copper electrodes touched each other directly?
- A. The battery would work better
  - B. The chemical reaction would stop producing current
  - C. The LED would be brighter
  - D. The lemon would produce more acid
9. Which property of lemon juice makes it suitable for this experiment?
- A. Its sweetness
  - B. Its acidity (citric acid)
  - C. Its color
  - D. Its volume
10. How is a lemon battery similar to a commercial battery?
- A. Both use chemical reactions to produce electricity
  - B. Both are edible
  - C. Both produce heat instead of electricity
  - D. Both require sunlight to work



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### Answer Key – Lemon Battery Concepts Worksheet

1. B
2. B
3. B
4. B
5. B
6. B
7. B
8. B
9. B
10. A