Name _____

## Systems in Thermodynamics: Open, Closed, and Isolated

**Open-Ended Response Questions**

1. Imagine you are designing a self-sustaining ecosystem inside a glass jar. Describe whether this system would be open, closed, or isolated and explain your choice. Consider the exchanges of energy and matter.

2. Reflect on the role of thermodynamics in the development of energy-efficient technologies like solar panels. How do these technologies relate to the principles of energy conservation in closed systems?

3. Think about the challenges scientists face when studying isolated systems in laboratory settings. What precautions must be taken to minimize interactions with the outside environment, and why is this necessary?

4. Consider the potential applications of closed systems in chemistry experiments. How might chemists benefit from using closed systems to study chemical reactions and transformations?