

Name _____

Unlocking the Mystery of Absolute Zero and Entropy: The Third Law of Thermodynamics

Short Answer Key

1. Entropy measures the disorder or randomness of particles in a system. As particles become more ordered, entropy decreases, and as they become more chaotic, entropy increases.
2. The third law of thermodynamics states that as a system approaches absolute zero, its entropy approaches a minimum or constant value. This means that at very low temperatures, particles become highly ordered, and entropy reaches its lowest possible value.
3. Achieving absolute zero is challenging because it requires removing all heat energy from a substance, which becomes increasingly difficult as the temperature gets closer to absolute zero. Additionally, achieving perfect insulation is practically impossible.
4. Cryogenics is a field that applies the third law of thermodynamics to study and utilize extremely low temperatures. It has applications in superconductivity, liquefied gases, and quantum mechanics.
5. Absolute zero is measured in the Kelvin scale and is at 0 Kelvin.

