

CHAPTER OVERVIEW

4: The Second Law of Thermodynamics

In the chapter covering the first law of thermodynamics, we started our discussion with a joke by C. P. **Snow** stating that the first law means “you can’t win.” He paraphrased the second law as “you can’t break even, except on a very cold day.” Unless you are at zero kelvin, you cannot convert 100% of thermal energy into work. We start by discussing spontaneous processes and explain why some processes require work to occur even if energy would have been conserved.

- [4.1: Prelude to The Second Law of Thermodynamics](#)
- [4.2: Reversible and Irreversible Processes](#)
- [4.3: Heat Engines](#)
- [4.4: Refrigerators and Heat Pumps](#)
- [4.5: Statements of the Second Law of Thermodynamics](#)
- [4.6: The Carnot Cycle](#)
- [4.7: Entropy](#)
- [4.8: Entropy on a Microscopic Scale](#)
- [4.9: The Second Law of Thermodynamics \(Summary\)](#)
- [4.10: The Second Law of Thermodynamics \(Exercise\)](#)
- [4.11: The Second Law of Thermodynamics \(Answer\)](#)

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