

CHAPTER OVERVIEW

8: Energy Physics and Chemistry

8.1: Introduction and Learning Objectives

8.2: The Basics of Energy

8.2.1: Practice Problems- The Basics of Energy

8.3: Thermochemical Equations

8.3.1: Biology- Weight of Food and Energy Production

8.3.2: Environment- Gas

8.3.3: Foods- Energy from Fats and Sugars

8.3.4: Geology- Heat Engine at Lost City

8.4: Work and Energy

8.4.1: Potential Energy- Gravity and Springs

8.4.1.1: Spring Potential Energy

8.4.2: Forms of Energy

8.4.3: Simple Machines

8.4.4: Power

8.4.5: Energy and Momentum

8.5: Chemistry in Physics

8.6: Kinetic Energy and the Work-Energy Theorem

8.7: Thermal Physics

8.7.1: Introduction to Thermal Physics

8.7.2: Temperature

8.7.3: The Ideal Gas Law

8.7.4: Heat

8.7.5: Heat Transfer Methods

8.7.6: Temperature Change and Heat Capacity

8.7.7: Phase Change and Latent Heat

8.7.8: The First Law of Thermodynamics

8.7.9: The First Law of Thermodynamics and Heat Engine Processes

8.7.10: Introduction to the Second Law of Thermodynamics- Heat Engines and Their Efficiency

8.7.11: Carnot's Perfect Heat Engine- The Second Law of Thermodynamics Restated

8.7.12: Applications of Thermodynamics- Heat Pumps and Refrigerators

8.7.13: Entropy and the Second Law of Thermodynamics- Disorder and the Unavailability of Energy

8.7.14: Statistical Interpretation of Entropy and the Second Law of Thermodynamics- The Underlying Explanation

8.7.E: Thermal Physics (Exercises)

8.8: Conservation of Energy

8.9: End of Chapter Activity

8.10: End of Chapter Key Terms

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