Automotive Technology 7th Edition
Chapter 12 – Scientific Principles and Materials
Lesson Plan

CHAPTER SUMMARY:

1. Scientific Method, Energy Principles, Torque, Work, Power, Horsepower, and Newton's Laws of Motion
2. Kinetic Energy, Inertia, Mechanical Principles, Heat and Temperature, and Acids and Basis
3. Gas Laws, Sound and Acoustics, Iron and Steel, and SAE Steel Designations
4. Aluminum and Aluminum Alloys

OBJECTIVES:

1. Discuss the use of scientific methods and energy principles in solving problems.
2. Explain the relationship between torque, work, power, and horsepower.
3. Explain the importance of Newton's laws of motion in brake design.
4. Explain the importance of kinetic energy in brake design.
5. Explain the importance of inertia in brake design.
6. Explain the importance of mechanical principles in brake design.
7. Discuss the concepts of heat and temperature.
8. Discuss the concepts of acids and bases.
9. Discuss gas laws.
10. Discuss sound and acoustics.
11. Discuss iron and steel.
12. Describe SAE steel designations.
13. Describe aluminum and aluminum alloys.

RESOURCES: (All resources may be found at jameshalderman.com)

1. Task Sheet: Water Boil Experiment
2. Chapter PowerPoint
3. Crossword Puzzle and Word Search
4. Videos: (A0) Automotive Fundamentals Videos
5. Animations: (A0) Automotive Fundamentals Animations

ACTIVITIES:

1. Task Sheet: Water Boil Experiment
2. Crossword Puzzle and Word Search

ASSIGNMENTS:

1. Chapter crossword and word search puzzles from the website.
2. Complete end of chapter quiz from the textbook.
3. Complete multiple choice and short answer quizzes downloaded from the website.

CLASS DISCUSSION:

1. Review and group discussion chapter Frequently Asked Questions and Tech Tips sections.
2. Review and group discussion of the five (5) chapter Review Questions.

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NOTES AND EVALUATION:

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