

ENERGY AND TRANSPORTATION SYSTEMS
GRADES 9-10
(1 Semester – Recommended: Exploring Technology)

COURSE OVERVIEW:

This class is an Introduction to Energy and Transportation Systems. Students will learn the importance of energy and transportation and its relationship to each other utilizing a variety of hands-on activities and project work. Students will work in the electricity, auto, CAD drafting and manufacturing labs while working on projects such as aircraft, CO₂ powered cars, rockets, four cycle gasoline engines, and electric motors.

UNITS OF INSTRUCTION:

- UNIT I - Introduction to Energy
- UNIT II - Energy and Transportation Systems
- UNIT III - Power Systems
- UNIT IV - Transportation Systems
- UNIT V - Propulsion Systems
- UNIT VI - Four Cycle Engine Operation
- UNIT VII - Modern Vehicles

STUDENT OUTCOMES:

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| <ol style="list-style-type: none">1.2.3.4.5. | <p>Acquaint students with the different types of transportation systems.</p> <p>Familiarize students with different types of energy and how we use and conserve it.</p> <p>Acquaint students with the vocabulary that is used in energy and transportation systems.</p> <p>Provide students with the opportunity for hands on exploration of energy and transportation systems.</p> <p>Acquaint students with the automobile and how it plays a major role in our lives.</p> |
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MAJOR LEARNING EXPERIENCES TO ACHIEVE OUTCOMES:

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| <ol style="list-style-type: none">1.2.3.4.5.6.7. | <p>Students will design a CO₂ racecar using a computer.</p> <p>Students will build a CO₂ powered car, test it in a wind tunnel, and race against other students in their class.</p> <p>Students will build a rubber band powered aircraft.</p> <p>Students will build an electric motor.</p> <p>Students will learn about four-cycle engines by disassembling and assembling a four-cycle engine. Students will build and fly a model rocket.</p> <p>Students will discover and evaluate fuel efficiency, economy, and consumption through the use of go-carts.</p> |
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ADOPTED TEXT OR PRINCIPAL MATERIALS USED:

<p>Johnson, Stephen R. <i>Exploring Transportation</i>. South Holland, IL: Goodheart-Wilcox Company, 1993.</p> <p>Roth, Alfred C. <i>Small Engines</i>. South Holland, IL: Goodheart-Wilcox Company, 1975.</p>
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(04/25/00)