



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2004 Volume IV: Energy, Engines, and the Environment

Energy and Work: Transformation through Engines

Guide for Curriculum Unit 04.04.06
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This unit is intended to be used during the Integrated Science Curriculum for ninth graders, but could be adjusted for use during the sixth grade physics curriculum or for an upper level physics elective. It is meant as an introduction to the physical concepts of energy and work, and gives a broad overview of this content. It uses the four-stroke engine as an in-depth analysis of energy conversion to achieve work. The unit was written with both state and district standards in mind and has as its central philosophy, teacher-as-guide and student-as-learner. This unit also emphasizes hands on instruction and assessment by exhibition.

Key terms: energy, work, heat, conduction, thermodynamics, potential energy, kinetic energy, chemical energy, mechanical energy, thermal energy, combustion, electrical energy, reactants, products, transformation, conversion, conservation, temperature, mass, speed, gravity, motor, engine.

(Recommended for Physical Science, grades 6-12; Integrated Science, grades 7-9.)

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