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Helping students relate work and changes in energy¹ BETH A. LINDSEY, PAULA R.L. HERON, PETER S. SHAFFER, LILLIAN C. MCDERMOTT, University of Washington — The first law of thermodynamics states that doing work on an otherwise isolated system will cause its energy to change. Student performance in introductory mechanics on pretest and post-test questions suggests that traditional instruction is insufficient to develop a functional understanding of this principle. At the University of Washington, the Physics Education Group has been developing research-based materials² on these topics. We will discuss common student difficulties in applying the relationship between work and energy, and implications these have for instruction on energy conservation.

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²*Tutorials in Introductory Physics*, L.C. McDermott, P.S. Shaffer and the Physics Education Group at the University of Washington, Prentice Hall (2002).

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