Department: Science | Unit: Energy, Work, and Power | Course: Physics

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ELO #7: Students will be able to analyze energy transformations and work done on systems, using mathematical and conceptual models to explain the conservation of energy and its implications in physical systems.

Standard(s) ELO is based upon: 9P.3.1.1.1 & 9P.2.2.1.3

Learning Targets

1. Students will define and explain the relationships between work, energy, and power in physical systems.

2. Students will apply the work-energy theorem to solve problems involving changes in kinetic and potential energy.

3. Students will calculate work done by a force, including the effects of varying force magnitudes and directions.

4. Students will analyze energy transformations, such as between kinetic, potential, and thermal energy, in closed and open systems.

5. Students will use conservation of energy principles to solve problems involving mechanical energy and external work.

6. Students will evaluate experimental data to verify the conservation of energy and refine computational models for predicting energy changes in real-world scenarios.