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| Desired Results for:Physics Energy**DRAFT** |
| Essential Understanding: There are different forms of energy, and those forms of energy can be changed from one form to another – but total energy is conservedEstablished Goals:Students will demonstrate the law of conservation of energy showing that the total energy in the mousetrap car before is all used as the car travels**. FIX WORDING****State Standards:****Inquiry Questions:** |
| Understandings:Students will understand . . .1. Gather, analyze, and interpret data to describe the different forms of energy and energy transfer
2. Develop a research-based analysis of different forms of energy and energy transfer

Use research-based models to describe energy transfer mechanisms, and predict amounts of energy transferred  | Essential Questions:1. Which forms of energy can be directly observed, and which forms of energy must be inferred?
2. What evidence supports the existence of potential and kinetic energy?
3. Is there a limit to how many times energy can be transferred? Explain your answer.
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| Essential Vocabulary:kinetic energy, potential energy, joule, work, power, machine, mechanicaladvantage, efficiency, electromagnetic wave, radiant energy, radio wave, microwave,Infrared wave, visible light, ultraviolet wave, X ray, gamma ray |
| Resultant Knowledge:Students will know…1. Photos and measurements of accident investigation provide evidence of energy transfers during such events.
2. Kinetic energy often is turned into heat such as when brakes are applied to a vehicle or when space vehicles re-enter Earth’s atmosphere.
3. Energy transfers convert electricity to light, heat, or kinetic energy in motors.
4. There are ways of producing electricity using both nonrenewable resources such as such as coal or natural gas and renewable sources such as hydroelectricity or solar, wind, and nuclear power.
 | Resultant Skills:Students will be able to . . .1. measure and calculate problems associatedwith work, power, mechanical advantage,and efficiency.2. name and describe the various forms ofelectromagnetic radiation.3. name and describe uses of electromagneticwaves. |
| Stage 2 – Assessment Evidence |
| Performance tasks.Calculate relationships between kineticenergy and potential energy.􀂾 Compute work, power, mechanicaladvantage, and efficiency of varioussystems/machines. | Other Evidence.Assessment on formula use andunderstanding, critical vocabulary,and science processes.􀂾 Teacher observation, class* discussion, and homework.
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| Stage 3 Learning Plan |
| Activities |
| Newton's Cradle/Momentum activity |
| Specifics---Law of Conservation of Momentum and energyRoller Coaster simulation on <http://phet.colorado.edu/en/simulations/category/by-level/middle-school> |
| Labs Hot Wheels LabKE vs GPEChemical Potential Energy in a Peanut Lab |
| Specific ActivitiespHet simulation Skate Park and Ramp |
| Lessons/homeworkEssential Key TermsKinetic EnergyGravitational Potential EnergyElastic Potential EnergyChemical Potential EnergyMechanical EnergyNuclear EnergyEnergy ConversionLaw of Conservation of EnergyRenewable EnergyNon-renewable EnergyCh 5 Prentice hall Sections 1-4 Notes and discussionsSection Reviews |
| NotesOn Line at mryoast.weebly.com |
| Pre AssessmentsKeyterms QuizAnd ;1. Which forms of energy can be directly observed, and which forms of energy must be inferred?
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