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| M. Angileri11-13-17 | **6th grade science** |  **Lesson Plans: Kinetic Energy #4** |
| NGSS Standard | **MS-PS3-1.**[**PS3.A:**](http://www.nap.edu/openbook.php?record_id=13165&page=120) S & ECCC | **Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.**Definitions of Energy: [Motion energy is properly called kinetic energy; it is proportional to the mass of the moving object and grows with the square of its speed.](http://www.nap.edu/openbook.php?record_id=13165&page=120)[Construct and interpret graphical displays of data to identify linear and nonlinear relationships.](http://www.nap.edu/openbook.php?record_id=13165&page=61)[Scale, Proportion, and Quantity](http://www.nap.edu/openbook.php?record_id=13165&page=89)[Proportional relationships (e.g. speed as the ratio of distance traveled to time taken) among different types of quantities provide information about the magnitude of properties and processes.](http://www.nap.edu/openbook.php?record_id=13165&page=89)  |
| Vocabulary: | **Energy:** The ability to work or cause change.**Kinetic Energy:** The energy an object has due to its motion. Motion energy that is proportional to the mass of the moving object and grows with the square of its velocity. KE=1/2m x v squared**Mass:** The amount of matter in an object.**Motion:** The state in which one object’s distance from another is changing.**Proportional relationship:** When two values exist in a constant ratio.**Speed:** The Ratio of change of position with respect to time.**Mechanical Energy:** Kinetic or potential energy associated with the motion or position of an object.**Thermal Energy:** The total energy of the particles in a substance or material.**Chemical Energy:** The potential energy stored in chemical bonds.**Electrical; Energy:** The energy of moving electric charges.**Electromagnetic Energy:** The energy of light and other forms of radiation.**Nuclear Energy:** The potential energy stored in the nucleus of an atom. |
|  | **MONDAY** | **TUESDAY** | **WEDNESDAY**  | **THURSDAY**  | **FRIDAY****½ Day** |
| Content Objective: | SW demonstrate application how mass and speed impact energy by solving problems and interpreting graphs. | SW demonstrateEvaluation of how mass and speed impact energy by solving problems by taking a quiz. | SW demonstrate Evaluation of how mass and speed impact energy by solving problems by taking a common assessment | SW demonstrate analysis of how speed impacts energy by finding connections among graph on a CER writing assessment. | SW demonstrate application of energy transfer by modeling using penny hockey in the Do I activity |
| Language objective | SW orally make connections among graphs and calculations related to kinetic energy using review material. | SW write to justify their calculations of speed and kinetic energy on the quiz using details discussed in class. | SW write to draw conclusions about kinetic energy using the common assessment. | SW write to defend graphical displays of kinetic energy using complete sentences. | SW orally discuss energy transfer between object using sentence frames. |
| **Essential Question:** | **How does mass and speed impact energy?** | **How does mass and speed impact energy?** | **How does mass and speed impact energy?** | **How does Mass and speed impact energy?** | **What energy changes occur while swinging?** |
| In class today | Discuss graphing Kinetic EnergyCalculating Kinetic Energy practiceStudy Guide for test | Quiz Calculating Kinetic EnergyWkst: Independent PracticeCorrect Study Guide | Test Kinetic EnergyAPK: Energy Transfer in Motion | Test CorrectionsCER (Type 3) Kinetic EnergyHook Activity: Energy Transfer | Do 1: Penny Hockey and Marble bowling |
| Learning Target |  |  |  |  |  |

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