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| M. Angileri  11-13-17 | **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 & E  CCC | | **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 demonstrate  Evaluation 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 Energy  Calculating Kinetic Energy practice  Study Guide for test | | Quiz Calculating Kinetic Energy  Wkst: Independent Practice  Correct Study Guide | Test Kinetic Energy  APK: Energy Transfer in Motion | Test Corrections  CER (Type 3) Kinetic Energy  Hook Activity: Energy Transfer | Do 1: Penny Hockey and Marble bowling |
| Learning Target | |  | |  |  |  |  |

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