**Pequea Valley School District**

**STEM Department**

**Unit: Maglev Vehicle Course: STEM 9 Conceptual Physics Grade: 9**

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| **Planning the Focus Based on the Desired Result**  **What do you want all students to know, understand and do by the end of the unit?** |
| **Unit Essential Question(s)**  Why is it important for engineers to describe accelerated motion differently than constant motion? |
| **Keystone Eligible Content/PA Core Standard**  **3.1.12.A** Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.  **3.1.12.B** Apply concepts of models as a method to predict and understand science and technology.  **3.1.12.C** Assess and apply patterns in science and technology.  **3.4.10.C** Distinguish among the principles of force and motion.  **3.1.10.C** Apply patterns and repeated processes or recurring elements in science and technology.  **3.1.12.C** Assess and apply patterns in science and technology |
| **Pacing: Approximate number of class sessions per unit**  23 days |
| **Tier 3 Vocabulary (Content specific vocabulary)**  change in velocity, acceleration, rate, slope, speed, velocity, distance, displacement, time, instantaneous speed, average speed, relative, |
| **Know -** What do students need to **know** in order to be able to do and understand? ***List concepts, such as facts, formulas, key vocabulary and knowledge “nuggets”.***  How to calculate acceleration  How to find the velocity and starting location from a position versus time graph.  How to determine the acceleration and starting velocity from a velocity versus time graph. |
| **Understand -** What do students need to **understand**? What is the **big idea**? ***List broad concepts or “big ideas” in a statement of enduring understanding.***    The difference between constant, instantaneous and average speed.  The difference between velocity and acceleration.  What kind of information can be obtained from a velocity vs time and position vs time graph.  The differences between constant velocity and accelerated motion |
| **Learning Outcome -** What do students need to be able to **accomplish** by the unit’s end? ***List skills and competencies.***  Learners will be able to recreate or interpret an object's motion based on position and velocity graphs. |
| **Assessments:**   * Quiz: Speed, Velocity, Acceleration * Motion Matchup Lab Completion * Exam: How can motion be described? |
| **Software/Resources:**   * Schoology * Google Drive * EdPuzzle * Vernier LabPro & Motion Detectors |