Course Content by Unit

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| **Grade Level: 9-12** | | | | | | | | |
| **Subject: Physics** | | | | | | | | |
| **Unit: 1-D/2-D Kinematics** | | | | | | | | |
| **Time Allotment: 3 weeks** | | | | | | | | |
| **Instructional Objectives** | **Content** | | | | **Biblical Integration** | | |
| At the end of this unit students will be able to:   1. Describe motion in terms of position, velocity, and acceleration 2. Identify the factors involved during free fall and their effects on the motion of the falling object 3. Express motion in terms of a vector and combinations of vectors 4. Predict the motion of projectiles | In this unit I will teach lessons on:   1. Relative motion 2. Speed vs. velocity 3. Instantaneous velocity vs. average velocity 4. Acceleration 5. Free fall: distance, velocity, and acceleration 6. Vectors vs. scalars, vector addition, components of vectors 7. Projectile motion: horizontal and vertical components | | | | 1. Students will learn and discover the order and predictability of how things move in our everyday lives and how it points to a creator.   Romans 1:20 | | |  | |
| **Activities and Methods** | | **Evaluation/Assessment** | | **Texts and References** | | |
| I will use these methods to teach this unit:   1. Lecture 2. Powerpoint 3. Note taking 4. Discussion 5. Modeling 6. Demonstration   Activities/Projects   1. Linear Motion Lab – Calculate and graph the velocity and acceleration of cars driving down the street 2. Car Race Project – Estimate the time it would take a car, initially at rest, to finish a race. 3. Projectile Motion Lab – Calculate the velocity of a horizontal throw and an angled throw | | I will know my objective has been met because I will assign and assess:   1. Homework Assignment 2. Course Text Outlines 3. Labs 4. Quizzes 5. Chapter Tests 6. Notebook checks 7. Projects | | Textbook: Conceptual Physics, Paul G. Hewitt, 2002, Chapters 2-3  Additional texts: Physics, Serway & Vaughn, 2002, Ch 2-3  Physics, Giancoli 6th ed, 2005, Ch 2-3 | | |
| **NGSS Standards** | | | **ESLR** | | |
|  | | | **Scholars**  Students will demonstrate that they are scholars by applying the knowledge and skills that they learn in class in order to approach and solve problems based on real life situations, thus preparing them to be key assets in their future careers. | | |  | | | |