**Physics 20 with Mr. Standring**

**Course Outline 2016 - 2017 Semester I**

Unit A consists of an in-depth study of the concepts of motion introduced in Science 10, extending the concepts of Velocity and Acceleration to include Vectors. Students then proceed to master the concepts in Units B and C by applying their knowledge to Forces, Circular Motion and Gravitation, using satellite motion to show the interaction between these concepts. Unit D looks at Energy types, Conservation of Energy as well as Waves.

**Text:** Pearson, *Physics* (Replacement Cost $130.00)

**Supplies:** iDevice, Binder, paper, graph paper, pen, pencil and data sheet

**Equipment:** Scientific calculator and ruler

***(It is expected that all of the above be brought to class each day.)***

\*\*\*Graphing calculators must be cleared before and after exams

* If it is possible to accelerate the pace of this course in order to increase review time we will do so.

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| **Unit** | **Approximate Unit Value (% of Final Grade)** | **Relevant Text Sections** |
| **Unit 0: Orientation and Required**  **Skills** | 5 | Appendix  Pages 872-880 |
| **Unit A: Kinematics** | 25 | Chapters 1 & 2 |
| **Unit B: Forces - Newton's Laws** | 25 | Chapter 3 |
| **Unit C: Gravity& Circular Motion** | 15 | Chapters 4 & 5 |
| **Unit D: Work, Energy and Waves** | 20 | Chapters 6, 7 & 8 |
| **Final Exam** | 10 | All of the above |

*Students are responsible for all material covered in class and in the text book (Exceptions in the text will be noted).*

**Student Assessment**

Coursework 90% - Unit Exams & Quizzes – 70%

- Assignments/Labs & Reports – 20 %

Final Exam 10%

Each report card mark is a cumulative mark from the beginning of the semester.

Daniel Standring High School Science Department

**School Schedule/Course Outline – Semester I – 2016-2017**

Course: Physics 20

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| **WEEK** | **Topics Taught** |
| Sept 6 – 9  Mon - No School  Sept 1 – Classes Begin  Days 1 – 4 | •Math Review •Displacement |
| Sept 12 – 16  Days 5 – 9 | •Kinematics – Velocity in 1D, 2D |
| Sept 19 – 23  Days 10 – 14 | •Kinematics – 2D Velocity & Rivers  •Horizontal Acceleration a = ∆v/∆t, vf2 = vi2 + 2ad, d =vit +1/2at2 |
| Sept 26 – 29  Friday - Sept 25 – PD Day #3 – No School  Days 15 – 18 | •Gravitational Acceleration / Projectile Motion |
| Oct 3 - 7  Days 19 – 23 | •Projectile Motion •Dynamics - Forces  **Unit A Exam Oct 7 Day 23** |
| Oct 11 – 14  Mon - Oct 10 – Thanksgiving Day – No School  Days 24 – 27 | •Newton’s Laws •2D Forces |
| Oct 17 – 20  Friday – Oct 21 – PD Day #4– No School  Days 28 –31 | •2D Analysis •Inclines |
| Oct 24 – 28  Days 32 – 36 | •Inclines •Static Objects |
| Oct 31 – Nov 4  Days 37 – 41 | •Statics  **Unit B Exam Nov 4 Day 41** |
| Nov 7 – 10  Fri - Nov 11 – Remembrance Day – No School  Days 42 – 45 | •Gravitation & Fields |
| Nov 15 – 18  Mon - Nov 14 – Day in Lieu of PTI – No School  Days 46 – 49 | •Gravity Fields •Cavendish’s Experiment •Circular motion |
| Nov 21 – 24  Friday – Nov 25 – PD Day #5 – No School  Days 50 – 53 | •Vertical Circular Motion •Gravity & Circular Motion •Satellites |
| Nov 28 – Dec 2  Days 54 – 58 | •Kepler •Work  **Unit C Exam Dec 2 Day 58** |
| Dec 5 - 9  Days 59 – 63 | •Potential & Kinetic Energy •Isolated Systems •Conservation of Energy |
| Dec 12 – 16  Days 64 – 68 | •Non-isolated Systems •Periodic Motion – Displacement, Acceleration, Energy |
| Dec 19 – 22  Days 69 – 72 | •Waves & Sound •Interference & Superposition •Doppler |
| Dec 23 – Jan 6 | **Christmas Holidays ☺** |
| Jan 9 – 13  Days 73 – 77 | **Unit D Exam Jan 13 Day 77** |
| Jan 16 – 19  Friday – Jan 20 – PD Day #6 – No School  Days 78 – 81 | **Review Week** |
| Jan. 23 – 27 | **Exam Week** |
| Jan 25 – 28  **Feb 1st Second semester begins**  Friday - Feb 3 –Faith Day – No School | ***Jan ? (?day) Physics 20 final*** |