Window Rock High School
Mr.Nielsen- Physics
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Course Overview

By the end of tenth grade, students will explore the principles of physics, focusing on motion, forces, energy, and waves. They will investigate how forces influence motion, the conservation of energy and momentum, and the behavior of waves. Students will gain a deeper understanding of light, sound, electricity, and magnetism through hands-on experiments and data analysis. Emphasizing patterns, cause and effect, and structure and function, the curriculum integrates crosscutting concepts, enhancing students' comprehension of natural phenomena and their scientific and engineering skills.

Attendance

This course is tailored to optimize your subject matter comprehension and skill development through diverse activities. Accordingly, our attendance policy is aligned with our educational objectives. Assignments aimed at preparing you for class, such as online quizzes, discussions, or in-class/section homework, must be submitted on time. Lab activities are integral to your learning and overall success in written lab assignments and future exams. In the event of missed lab activities, you should consult your teacher, but please be aware that making up labs may not be possible due to space and equipment limitations.

Assessments

Throughout the course, exams will be scheduled either at the end of the quarter or at the beginning, depending on the class pacing. Additionally, quizzes may be conducted at the end of each week. Apart from these class assessments, the school will also administer State and District Assessments, which will have an impact on your overall grade.

Assignments: Students will have daily assignments. These assignments may vary in difficulty and may have different deadlines, but one assignment will be issued each day.

Extra Credit: There will be opportunities given to gain extra credit throughout the quarter, usually these involve going beyond the normal expectations on assignments

Late/Make-up/Missing Assignments will be accepted up to the end of the quarter exam day, with a valid excused absence. Without a valid excuse assignments will lose 10% per week they are late.

Course Units

Unit #	Standard	Topic
0	Intro to Physics	Measurements, Unit Conversion, Scientific Notation
1	Essential HS.P3U1.6	**Collect, analyze, and interpret data** regarding the change in motion of an object or system in one dimension, to construct an explanation using Newton's Laws.
2	Plus HS+Phy.P3U1.2	**Develop and use** mathematical **models** of Newton's law of gravitation and Coulomb's law to describe and predict the gravitational and electrostatic forces between objects.
3	Plus HS+Phy.P3U1.3	**Develop** a mathematical **model**, using Newton's Laws, to predict the motion of objects or system in two dimensions (projectile and circular motion)
4	Plus HS+Phy.P3U1.4	**Engage in argument from evidence** regarding the claim that the total momentum of a system is conserved when there is no net force on the system
5	Essential HS.P3U2.7	**Use mathematics and computational thinking** to explain how Newton's laws are used in engineering and technologies to create products to serve human ends
6	Plus HS+Phy.P3U2.5	**Design, evaluate, and refine a device** that minimizes or maximizes the force on a macroscopic object during a collision.
7	Essential HS. P2U1.5	**Construct an explanation** for a field's strength and influence on an object (electric, gravitational, magnetic)
8	Plus HS+Phy.P4U1.8	**Use mathematics and computational thinking** to explain the relationships between power, current, voltage, and resistance.
9	Essential HS.P4U1.8	**Engage in argument from evidence** that the net change of energy in a system is always equal to the total energy exchange between the system and the surroundings.
10	Plus HS+Phys. P2U1.1	**Plan and carry out investigations** to **design, build, and refine a device** that works within given constraints to demonstrate that an electrical current can produce a magnetic field and that changing magnetic magnetic field can produce an electric current.
11	Essential HS.P4U3.9	**Engage in argument from evidence** regarding the ethical, social, economic and/or political benefits and liabilities of the energy usage and transfer.
12	Plus HS+Phy.P4U1.6	**Analyze and interpret data** to quantitatively describe changes in the energy within a system and/or energy flows in and out of a system.
13	Plus HS+Phy.P4U2.7	**Design, evaluate, and refine** a device that works within given constraints to transfer energy within a system.
14	Essential HS.P4U1.10	**Construct an explanation** about the relationships among the frequency, wavelength, and the speed of waves traveling in various media, and their applications to modern technologies.

Grading:

A – 90% - 100%, B – 80% - 89%, C – 70% - 79%, D – 60% - 69%, F - 0% - 59%

Grades will be calculated as an average of total points earned over points possible.
Progress Report and Quarterly grades are determined by points earned on the following assignments.

Assignment	
Projects	40%
Assessments (Tests, Quizzes)	30%
RACES	15%
Student Participation	15%

Recommended Materials and Supplies:
Students will need to have the following:

1) A Scientific Calculator
2) Ruler
3) Protractor
4) Color Pencils
5) Gmail
6) Paper (Graph and Line)

General Classroom Rules
• Be Safe: follow lab, fire drills, lockdown, assemblies expectations as outlined in the handbook
• Be Respectful: language, peers and teacher, classroom materials, online…etc.
• Be Responsible: materials, school activities, assignments…etc.
• Be Prepared: science journal, pencils, homework

Consequences
I understand if I cannot follow the rules I will face the consequences.

- 1st Warning- Verbal
- 2nd warning- Buddy Classroom
- 3rd Write-Up: Call Parents
- 4th- Referral to the office/Principal

ALL BEHAVIOR WILL BE DOCUMENTED