MTCHS | Technical, Professional, and Academic Excellence

Bandlamudi: Junior Physics Syllabus

Classroom 105 Email: sarah.bandlamudi@mtchs.org Building Hours: M-F 6:45 am -2:45 pm

Course Overview

This course is a comprehensive, year-long exploration of the fundamental principles of physics, designed to engage students in the study of motion, forces, energy, waves, electricity, magnetism, and real-world applications of physical science. Students will build a deep understanding of physical phenomena through inquiry-based learning, hands-on activities, and a digital interactive notebook that serves as a portfolio/lab notebook of their work and progress.

Throughout the course, students will investigate real-world problems, develop critical thinking and problem-solving skills, and apply mathematical models to explain and predict physical behavior. The course is aligned with Idaho State Physics Standards and prepares students for further study in STEM fields. Emphasis is placed on scientific reasoning, data analysis, lab investigation, and the engineering design process.

Textbook/Resources:
CK-12 Online Physics FlexBook 2.0

MTCHS Grading Scale

A = 90-100
B = 80-89
C = 70-79
WP = 0-69

Grading Categories

Category	*Weight*
Classwork/Labs	30%
Projects	20%
Portfolio	20%
Exams	30%

Course Units

Fall Semester

Unit 1: Introduction to Physics
- What is physics?
- Units, Measurement, and Problem Solving

Unit 2: Motion
- Linear Motion
- Acceleration
- Two-Dimensional Motion

Unit 3: Forces and Newton's Laws
- Newton's Laws of Motion
- Forces in One Dimension
- Gravitation and Circular Motion

Unit 4: Momentum and Energy
- Momentum
- Work and Energy
- Energy Flow in Systems

Unit 5: Thermal Physics
- Thermal Energy
- Thermodynamics

Spring Semester

Unit 6: Waves and Optics
- Mechanical Waves and Sound
- Electromagnetic Waves
- Light and Optics

Unit 7: Electricity and Magnetism
- Electric Forces and Fields
- Electric Current and Circuits
- Magnetism
- Electromagnetism

Unit 8: Applications of Physics
- Physics in Technology and Engineering

As juniors, students will be required to take the Idaho Standards Achievement Test (ISAT) at the end of this year.

This is only a general outline of the semester activities and may be changed to better suit the needs of the students, teacher or school.

Late Work Policy

Time management and adherence to due dates is expected and necessary to do well in this course. Students may receive no more than 70% for any late assignment. Any missing or late assignment may be submitted up to two (2) school business days after the assignment due date in PowerSchool. If life circumstances interfere with your ability to complete assignments and tests on time, please communicate with your instructor immediately.

• **TESTS**: If you miss a test without prior arrangements, you must contact the instructor within 24 hours to arrange for a make-up test. If you do not, you will receive a score of zero for the test. There will be a 10% deduction on any late test. In other words, the highest score you can get on a late test is a B.

• **CLASSWORK/HOMEWORK**: Assignments will be assigned each week through Moodle with clearly posted due dates. Late homework will be accepted for 70%, but only if you turn it in within 2 business days of its due date.

• **LABS**: Labs are due within 2-3 days from when they are performed.

Academic integrity expectations:

At MTCHS, students are expected to uphold the highest standards of academic integrity. Academic dishonesty, including but not limited to cheating, plagiarism, unauthorized collaboration, fabrication of data, and other forms of misconduct, will not be tolerated.

Guidelines:

- All work submitted must be the student's original work unless collaboration is specifically authorized.
- Proper citation must be used when incorporating external sources.
- Students are responsible for maintaining the security of their own work.
- Using unauthorized aids during assessments is prohibited.

Consequences:

- First offense: Parent contact and assignment redo for partial credit.
- Repeated offenses: Referral to administration and possible loss of course credit.

Students are encouraged to seek clarification if they are unsure whether an action might constitute a violation of academic integrity.

Classroom Expectations

- Be respectful to all students and staff.
- Be prepared and participate actively; you will need your computer every day.
- Follow all safety protocols, especially during labs.
- Seek help when needed and support each other.