



**Phone: 713-688-1361**

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Montessori Physics Course Syllabus 2021-22

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### **Waltrip Mission**

Waltrip High School fosters a safe and challenging learning environment, preparing students for post-secondary education and a competitive global workforce through rigorous core academic instruction, comprehensive social-emotional supports, an array of quality fine arts programs, and comprehensive career and technology education.

### **Montessori Pathway Mission**

The Montessori Pathway design is an integration of the current research in human development, the trends and issues in education, and the Montessori philosophy. The mission of the pathway is to provide opportunities for adolescents to be self-confident and gain self-knowledge, to belong to a community, to learn to be adaptable, to be academically competent and challenged, and to create a vision for their personal future; thus, to empower young adults.

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### **Montessori Physics**

Students enrolled in Montessori Physics are expected to:

- use the class study guide to plan work
- ask for help if they have questions
- come to class on time
- participate in lessons and synthesis
- work cooperatively with their small group to complete assignments

### **Course Content**

In Physics, students conduct laboratory and field investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include: laws of motion; changes within physical systems and conservation of energy and momentum; forces; thermodynamics; characteristics and behavior of waves; and atomic, nuclear, and quantum physics. Students who successfully complete Physics will acquire factual knowledge within a conceptual framework, practice experimental design and interpretation, work collaboratively with colleagues, and develop critical-thinking skills.

### **Text**

The textbooks for the course are as follows:

- High School Physics – located at <https://openstax.org/details/books/physics>
- Weekly lesson organizers on the HUB

### **About the Teacher**

This is my 25<sup>th</sup> year as a teacher. I love teaching math and science. I have a bachelor's degree in Engineering from Texas A&M University and a master's degree in Education from Endicott College. I believe Montessori education is a way to teach not just academics but to address the needs of the whole person.

## Ongoing Objectives

- By the end of this course, the student will have mastered the reading, writing, speaking, and listening skills as written in the Texas Essential Knowledge and Skills for Physics.
- Students will conduct laboratory and field investigations using safe, environmentally appropriate, and ethical practices.
- Student will use scientific practices and equipment during laboratory and field investigations.
- Students will use critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.

## Grading Scale

Grades are based on points earned on tests, quizzes, problems sets. Each category is weighted as follows:

*Lessons/Class engagement* – **20%**.

- Students earn points in this category by participating in weekly lessons. Lessons will be posted on the HUB for viewing on Monday.
- Students earn points in the category by completing the weekly synthesis posted on the HUB.

*Exams/projects*- **30%**

- Students earn points in this category by completing the assessments and projects located on the HUB under Plans.

*Classwork/group work* – **50%**

- Students earn points in the category by completing the weekly assignments posted on the HUB. Individual work will be completed on the class OneNote Notebook and group work will be completed on the HUB.

**A** = 90%- 100% **B** = 80% - 89% **C** = 75% - 79% **D**= 70% - 74% **F**= 69% & below

## Class Schedule

Students will attend class each day the class meets. On Mondays we will review the weekly lesson and go over the weekly expectations. On Wednesday/Friday we will meet to go over guided practice and then students will be responsible for completing assignments on their own. \

## Attendance and Participation

Attendance and participation are required; it is difficult to learn the content if you are not present in class. You class participation and attendance can be a deciding factor if your class average straddles two grades.

## Make-Up Work

1. It is the student's responsibility to obtain and make up work missed due to excused absences.
2. Make-up work is due one day after the student returns to school following an absence: If you miss school on Monday but return to school on Tuesday then your work is due Wednesday. If you are in school Monday but miss Monday's class, your work is still due on Monday; come see me before you leave early.

## Retake Policy

1. You are permitted a maximum of **2** retakes for exams only.
2. The highest grade between the original and the retake is counted.
3. Semester Exams are not eligible for retake.

## Handing in Assignments/Late Work

1. Always turn in your assignments to receive feedback.
2. All assignments are due **ON TIME**. Late assignments receive a maximum score of **90%** and are not permitted for extra credit points or retake/correction points.

## Daily Required Materials (provided)

1. laptop
2. Pencil/pen

## **Unit Overviews**

### **Unit One – Forces**

The study of motion, acceleration and Newton's Laws.

### **Unit Two – Motion**

The study of angular, circular, rotational and projectile motion.

### **Unit Three – Work and Energy**

The study of simple machines, work, energy and momentum.

### **Unit Four – Waves and Sound**

The study of heat, waves, and sound.

### **Unit Five – Light**

The study of light, reflection, and refraction.

### **Unit Six – Electricity and Magnetism**

The study of the electromagnetic spectrum, circuits and magnets.