



# PATTISON HIGH SCHOOL

*We don't teach a class, we teach individual students in a class*

## Physics 12

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Fall 2024

### Basic Information

Email: timothy.chan@pattisonhighschool.ca  
Location: Room 109  
Session: 2:15pm - 3:45pm (Short: 1:30pm - 2:45pm)  
Office Hour: 8:15am - 4:15pm

### Course Description

This course is designed to equip high school students with a deep understanding of the fundamental principles governing the physical world. This course provides a comprehensive exploration of classical and modern physics concepts, empowering students with the knowledge and skills required to succeed in both academic and real-world contexts. Physics is a discipline that encourages critical thinking and problem-solving skills. Through the study of the physical world, students learn to analyze, synthesize, and solve problems. They will develop their scientific curiosity and inquiry, encouraging students to ask questions and explore the world through a scientific point of view.

### Big Ideas

- Measurement of motion depends on our frame of reference
- Forces can cause linear and circular motion
- Forces and energy interactions occur within fields
- Momentum is conserved within a closed and isolated system

### Resources

Textbook: BC Science: Physics 12 (Edvantage)

## Topics

Chapter	Content
1. Vectors and Static Equilibrium	Vectors in Two dimensions Statics - Forces in Equilibrium
2. Kinematics	Uniform Acceleration
3. Momentum and Energy	Dynamics Momentum and Impulse Momentum in Two-Dimensional Situations Energy The Law of Conservation of Mechanical Energy
4. Special Relativity	Einstein's Theory of Special Relativity
5. Circular Motion and Gravitation	Motion in a Circle Gravity and Kepler's Solar System Newton's Law of Universal Gravitation
6. Electrostatics	Static Electric Charges The Electric Force Electric Field Strength Electric Potential Energy, Electric Potential, and Electric Potential Difference Electric Field and Voltage - Uniform field
7. Magnetic Forces	Basic Ideas about Magnets Magnetic Field Strength, B Magnetic Fields and the Electron
8. Electromagnetic Induction	Induced Emf Magnetic Flux and Faraday's Law of Induction

## Expectations

### Attendance

Students are expected to attend each class and notify the school if and when they have to be absent, giving a suitable reason for the absence.

Students should arrive at their classes on time and be prepared to study. They should not normally expect to leave the classroom near the beginning or end of class.

## **Clothing and Appearance**

School clothing must be evident as the outer layer while in the classroom.

Body modification, in any of its forms, may not be suitable for the school community and may require a return to an original presentation.

## **Electronic Devices**

Students must turn off their cell phones during class, and put them in their locker.

Ear buds and headphones are prohibited in the classroom, unless specifically allowed.

## **Attitude**

In order to succeed, it is important that students pay close attention in every class, attend and participate in all class activities, do all homework assignments on time, and bring materials to class such as a printed English language dictionary, a binder in which to keep notes and papers, and stationary.

## **Language**

The use of the English language at all times when in the classroom.

## **Classroom Environment**

It is important to keep the classroom clean and tidy. Other than water, no food or drink is permitted in the classroom.

## **Honesty**

Students always present work that is their own, original work - and not the result of cheating or plagiarism; the course is founded upon the trust in academic honesty.

## **Evaluation**

<b>Course Work</b>	<b>Percentage</b>
Homework	15%
Laboratory	10%
Quizzes	15%
Midterm	20%
Final Exam	40%
<b>Total</b>	<b>100%</b>