



Dominican International School

Course Syllabus

School Year 2026–27



Subject	AP Physics 1
Grade Level	11 and 12
Teacher	Ms. Victoria Santiago
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COURSE DESCRIPTION:

AP Physics 1 is equivalent to a first-semester college course in algebra-based physics.

The course covers Newtonian Mechanics (including rotational dynamics and angular momentum); Work, Energy, and Power, Impulse and Momentum, Simple Harmonic Motion, and Fluids.

This course provides students with opportunities to apply their knowledge of physics principles to real-world questions or scenarios (including societal issues or technological innovations) to help them become scientifically literate citizens.

This also provides an opportunity for students to spend 25 percent of their class time engaging in hands-on laboratory work with an emphasis on inquiry-based investigations.

A good problem-solving technique does not begin with equations. It starts with a firm grasp of physics concepts and how they fit together to provide a coherent description of natural phenomena. The ability to reason in an organized manner is essential for problem solving. A strong reasoning ability combined with firm conceptual understanding helps students solve problems.

Course goals include developing each student's intuition, creativity and investigative skills to do the following.

- Read, understand, and interpret physical information.
- Use the scientific method to analyze a particular physical phenomenon or problem.
- Use basic mathematical reasoning in a physical situation or problem.
- Perform experiments, interpret the results of observations, and communicate results.

COURSE OBJECTIVES:

The course is based on six big ideas, which encompass core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the physical world.

The following are the **big ideas**:

Big Idea 1: Objects and systems have properties such as mass and charge. Systems may have internal structure.

Big Idea 2: Fields existing in space can be used to explain interactions.

Big Idea 3: The interactions of an object with other objects can be described by forces.

Big Idea 4: Interactions between systems can result in changes in those systems.

Big Idea 5: Changes that occur as a result of interactions are constrained by conservation laws.

PRIMARY TEXTBOOKS AND OTHER RESOURCES:

Cutnell & Johnson Physics, 12th Edition (International Adaptation)

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<https://www.khanacademy.org/science/physics>

AP Classroom

GRADING SYSTEM/ASSESSMENT:

Students will be given a chapter test after the completion of every chapter.

Quarter exams will be conducted at the end of each quarter.

Khan Academy practices will be assessed for each chapter.

Homework from AP Classroom will be assessed for each chapter.

Projects, Lab Activities, Seatwork, and Homework will also be assessed.

This course will be assessed on the following four categories:

- Tests and Quizzes (30%)
- Seatwork, Homework and Participation (30%)
- Quarter Exam (30%)
- Deportment (10%)

ADDITIONAL INFORMATION:

Please see Google Classroom for more information. Class code: 6hjdcfuk

ACADEMIC DISHONESTY:

Academic Dishonesty means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at DIS.

Academic dishonesty includes but is not limited to the following:

- Purposely incorporating the ideas, words of sentences, paragraphs, or parts thereof without appropriate acknowledgment and representing the product as one's work;
- Representing another's intellectual work, such as photographs, paintings, drawings, sculpture, research, or the like, as one's own, including failure to attribute content to an AI.
- Employing a tutor, using Artificial Intelligence without acknowledgment, getting a parent to write a paper or do an assignment, and paying for an essay to be written by someone else and presented as the student's work.
- Committing any act that a reasonable person would conclude, when informed of the evidence, to be a dishonest means of obtaining or attempting to obtain credit for academic work.

Any act of academic dishonesty will result in an automatic zero on the entire assignment/learning task.

WEEKLY SCHEDULE

First Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 Aug 10 – 14 Monday Class Preparation ~ Student Holiday Tuesday Morning Assembly Friday Opening Mass & Assumption of Our Lady 8:00	General Discussion about AP Physics 1 Discussion of class rules, collecting textbooks from the library. Significant Digits
Week 2 Aug 17 - 21	<u>Chapter 2: Kinematics in One Dimension</u> Displacement Speed and Velocity Average Velocity Instantaneous Velocity Acceleration Equations of Kinematics for Constant Acceleration
Week 3 Aug 24 - 28	Applications of the Equations of Kinematics Freely Falling Bodies Graphical Analysis of Velocity and Acceleration
Week 4 Aug 31 - Sep 4	Discussing answers for Check Your Understanding questions from Chapter 2 <u>Chapter 3: Kinematics in Two Dimensions</u> Vectors- Introduction Displacement, Velocity and Acceleration Equations of Kinematics in Two Dimensions Projectile Motion Chapter 2 Test

Week 5 Sep 7 - 11	Discussing answers for Check Your Understanding questions from Chapter 3 <u>Chapter 4: Forces and Newton's Laws of Motion</u> The Concepts of Force and Mass Newton's First Law of Motion Inertia and Mass Newton's Second Law of Motion One- Dimensional Motion- Khan Academy Assessment Completion
Week 6 Sep 14 - 18	The Vector Nature of Newton's Second Law of Motion Newton's Third Law of Motion Types of Forces- An Overview The Gravitational Force Two- Dimensional Motion- Khan Academy Assessment Completion Chapter 3 Test
Week 7 Sep 21 – 25 T-W-Th Pre-Exam Days Friday Moon Festival ~ Public Holiday	Relation Between Mass and Weight The Normal Force Apparent Weight Static and Kinetic Frictional Force The Tension Force Equilibrium Applications of Newton's Laws of Motion Non-Equilibrium Applications of Newton's Laws of Motion Forces and Newton's Laws of Motion- Khan Academy Assessment Completion
Week 8 Sep 28 - Oct 2 Monday Confucius' Birthday ~ Public Holiday Thursday Major Exams Day 1 Friday Major Exams Day 2	Review for the Quarter Exam First Quarter Examination
Week 9 Oct 5 - 9	Monday Record Day ~ Student Holiday T-W-Th Teachers Conference ~ Student Holiday

Second Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (10) Oct 12 - 16	<u>Chapter 5: Dynamics of Uniform Circular Motion</u> Uniform Circular Motion Centripetal Acceleration Centripetal Force Banked Curves
Week 2 (11) Oct 19 - 23	Satellites in Circular Orbits Apparent Weightlessness and Artificial Gravity <u>Chapter 6: Work and Energy</u> Work done by a constant force The Work-Energy Theorem and Kinetic Energy Gravitational Potential Energy
Week 3 (12) Oct 26 - 30 Monday Retrocession Day ~ Public Holiday	Conservative Versus Non-Conservative Forces The Conservation of Mechanical Energy Non-conservative Forces and the Work-Energy Theorem Discussing answers for Check Your Understanding questions from Chapter 5 Uniform Circular Motion and Gravitation- Khan Academy Assessment Completion Chapter 5 Test
Week 4 (13) Nov 2 - 6	Power Other Forms of Energy and the Conservation of Energy Work done by a Variable Force <u>Chapter 7: Impulse and Momentum</u> The Impulse-Momentum Theorem The principle of Conservation of Linear Momentum Discussing answers for Check Your Understanding questions from Chapter 6
Week 5 (14)	Collisions in One Dimension

Nov 9 - 13	Collisions in Two Dimensions Center of Mass Work and Energy- Khan Academy Assessment Completion Chapter 6 Test
Week 6 (15) Nov 16 - 20	Discussing answers for Check Your Understanding questions from Chapter 7 <u>Chapter 8: Rotational Kinematics</u> Rotational Motion and Angular Displacement. Angular Velocity and Angular Acceleration The Equations of Rotational Kinematics. Angular Variables and Tangential Variables Centripetal Acceleration and Tangential Acceleration. Rolling Motion The Vector Nature of Angular Variables.
Week 7 (16) Nov 23 – 27 T-W-Th Pre-Exam Days Friday Grade 12 Exams	Review for the Quarter Exam Second Quarter Exam
Week 8 (17) Nov 30 - Dec 4 Monday Grade 12 Exams	Discussing answers for Check Your Understanding questions from Chapter 8 <u>Chapter 9: Rotational Dynamics</u> The Action of Forces and Torques on Rigid Objects Rigid Objects in Equilibrium Center of Gravity
Week 9 (18) Dec 7 - Dec 11	Monday TBD Tuesday Foundation Day Mass 9:00, Cutting of the Cake Ceremony, Christmas Fair, (Whole day) Wednesday TBD Thursday Major Final Exams half day Friday Major Final Exams half day
<i>Dec 14 to Jan 1 Christmas Break</i>	

Third Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (19) Jan 4 - Jan 8 Monday Record Day ~ Student Holiday Friday New Year Mass at 8:00	Newton's Second Law for Rotational Motion About a Fixed Axis. Rotational Work and Energy Angular Momentum Linear Momentum and Collisions- Khan Academy Assessment Completion Chapter 7 Test
Week 2 (20) Jan 11 - Jan 15	<u>Chapter 10: Simple Harmonic Motion and Elasticity</u> The Ideal Spring and Simple Harmonic Motion Simple Harmonic Motion and the Reference Circle Displacement, Velocity, Acceleration and Frequency of Vibration Chapter 8 & 9 Test
Week 3 (21) Jan 18 - Jan 22	Energy and Simple Harmonic Motion The Pendulum Damped Harmonic Motion Driven Harmonic Motion and Resonance Elastic deformation Stress, Strain, and Hooke's Law
Week 4 (22) Jan 25 - Jan 29	Discussing answers for Check Your Understanding questions from Chapter 10 Lab Activity: Investigation of dependence of the period on the mass, length, and angle and determination of acceleration due to gravity. Lab Activity: Verify Hooke's Law and find the Spring Constant of a spring Chapter 10 Test
Week 5 (23) Feb 1 - Feb 5 Thursday Little New Year's Eve ~ Public Holiday Friday	Chapter 11: Fluids Mass Density Pressure Pressure and Depth in a static fluid Pressure Gauges Pascal's Principle

Lunar New Year ~ Public Holiday	
<i>February 8 to 12 Chinese New Year Holiday</i>	
Week 6 (24) Feb 15 - Feb 19	Archimedes' Principle Fluids in Motion The Equation of Continuity Bernoulli's Equation Applications of Bernoulli's Equation
Week 7 (25) Feb 22 - Feb 26 22-26 IOWA Assessments	Lab Activity: Determine the unknown mass using translational and rotational equilibrium Lab Activity: Estimate the average friction force on a car as it negotiates one "trough" of a U- Rollercoaster Chapter 11 Test
Week 8 (26) Mar 1 - Mar 5 Monday Memorial Day ~ Public Holiday T-W-Th Pre-Exam Days	Lab Activity: Verify Newton's 2 nd Law using a modified Atwood setup Review for the Quarter Exam Lab Activity: Determine coefficients of Static and Kinetic friction. Review for the Final Exam
Week 9 (27) Mar 8 - Mar 12	Lab Activity: Determine acceleration due to gravity g using a car on an incline. Lab Activity: Determine the velocity and acceleration of a uniformly accelerating object. Review for the Final Exam
Week 10 (28) Mar 15 - Mar 19	Revision. Third Quarter Examination.
Week 11 (29) Mar 22- Mar 26	Tuesday Major Final Exams half day Wednesday Major Final Exams half day Thurs - Fri Easter Break (Spring Break) ~ Public Holiday
<i>March 25 to April 2 Easter & Spring Break</i>	

Fourth Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (30) Apr 5 - Apr 9 Monday Tomb Sweeping Day ~ Public Holiday Tuesday Children's Day ~ Public Holiday	Do Practice Exam 1 MCQ Discuss the answers for MCQ Exam
Week 2 (31) Apr 12 - Apr 16	Do Practice Exam 1 Free Response Discuss the answers to Free Response Questions Do Practice Exam 2 MCQ Discuss the answers for MCQ Exam
Week 3 (32) Apr 19 - Apr 23 19 - 23 AP Mock Exams	Do Practice Exam 2 Free Response Discuss the answers to Free Response Questions Review for the Final Exam
Week 4 (33) Apr 26 - Apr 30 T-W-Th Pre-Exam Days Friday Labor Day ~ Public Holiday	Review for the Final Exam
Week 5 (34) May 3 - May 7	AP Physics 1, College Board Exam (May 5th)

3 - 7 Final Exams (K, Gr. 5, 8, & 12 Only) 3 - 14 AP Exams	
Week 6 (35) May 10 - May 14	3 - 14 AP Exams Wednesday Major Final Exams Undergraduates half day Thursday Major Final Exams Undergraduates half day Friday Record Day ~ Student Holiday
Week 7 (36) May 17 - May 21	Monday Gr. 12 Recollection (Morning) Monday Baccalaureate Mass (Afternoon, Schoolwide) Wednesday House Sports Day Thursday High School Field Trip Friday House Culminating Activity All Week Student Clearance Days & Special Events
Week 8 (37) May 24 - May 28	Monday Middle & High School Sports Day Monday LS Field Trip Tuesday Kindergarten Graduation/Gr. 5 Promotion Wednesday Gr. 8 Graduation and Gr. 12 Graduation Thursday Pre-Kindergarten & Gr. 1 - 4, 6 & 7, 9-11 Recognition Friday Last Day of School for Students