



Dominican International School

Course Syllabus

School Year 2026–27



Subject	Physics
Grade Level	11
Teacher	Ms. Victoria Santiago
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COURSE DESCRIPTION:

Physics is the branch of knowledge that studies the physical world. This course is based on concepts-before- computation and provides comprehensive content which builds conceptual understanding and offers computational reinforcement. Examples make powerful connections to students' real lives. More hands-on activities are carried out to allow students to explore concepts and bring the concepts of physics to life. Throughout this course, the emphasis is on the teaching of concepts and the development of creative problem-solving and higher-order thinking skills.

Physics contributes to the development of chemistry, computing, engineering, environmental science, life sciences, materials science, mathematics, medicine, physics education, and statistics.

The physics course is classified into three categories: Forces and Interactions, Energy, and Waves and Their Applications in Technologies for Information Transfer.

This course best prepares students for college-level physics and nurtures a scientific outlook for everyday life.

COURSE OBJECTIVES:

Physics curriculum is aligned to the Next Generation Science Standards (NGSS).

Forces and Interactions

- HS-PS2-1:** Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
- HS-PS2-2:** Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
- HS-PS2-3:** Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
- HS-PS2-4:** Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
- HS-PS2-5:** Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

Energy

- HS-PS3-1:** Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and every flow in and out of the system are known.
- HS-PS3-2:** Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as either motions of particles or energy stored in fields.
- HS-PS3-3:** Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
- HS-PS3-4:** Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).
- HS-PS3-5:** Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Waves and Electromagnetic Radiation

HS-PS4-1: Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-2: Evaluate questions about the advantages of using a digital transmission and storage of information.

HS-PS4-3: Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other.

HS-PS4-4: Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5: Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

PRIMARY TEXTBOOKS AND OTHER RESOURCES:

Pearson Physics by James S. Walker

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<https://www.khanacademy.org>

<https://quizizz.com/>

GRADING SYSTEM/ASSESSMENT:

Pop Quizzes will be conducted every now and then.

A chapter test will be given after the completion of every chapter.

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

Projects, Lab Activities, Homework, and Seatwork 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%)
- Department (10%)

ADDITIONAL INFORMATION:

Please see Google Classroom for more information. Class code: vgnxpqqy

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	Orientation

Monday Class Preparation ~ Student Holiday Tuesday Morning Assembly Friday Opening Mass & Assumption of Our Lady 8:00	Discussion of class rules, collecting textbooks from the library. Register online textbook <u>Chapter 2: Introduction to Motion</u>
Week 2 Aug 17 - 21	<u>Chapter 2: Introduction to Motion</u> 2.1: Describing Motion 2.2: Speed and Velocity 2.3: Position- Time Graphs
Week 3 Aug 24 - 28	<u>Chapter 3: Acceleration and Accelerated Motion</u> 3.1: Acceleration Lab Activity: Position versus Time for a constant velocity car (TB, Page 64)
Week 4 Aug 31 - Sep 4	<u>Chapter 5: Newton's Laws of Motion</u> 5.1: Newton's Laws of Motion Lab Activity: Determine the variation of the acceleration of a dynamics cart in two scenarios: (1) the total mass of the system is kept constant while the net force varies, and (2) the net force is kept constant while the total mass of the system varies Chapter 2 & 3 Test
Week 5 Sep 7 - 11	5.2: Applying Newton's Laws 5.3: Friction Lab Activity: Static and Kinetic Friction (TB, Page 178)
Week 6 Sep 14 - 18	<u>Chapter 7: Linear Momentum and Collisions</u> 7.2: Impulse

	7.3: Conservation of momentum
Week 7 Sep 21 – 25 T-W-Th Pre-Exam Days Friday Moon Festival ~ Public Holiday	7.4: Collisions Chapter 5 Test
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 Friday Double 10 Day ~ Public Holiday

Second Quarter Tentative Course Content

Week & Date	Topics / Projects / Assessments
Week 1 (10) Oct 12 - 16	Give out First Quarter Exam papers and discuss the answers. <u>Chapter 9: Gravity and Circular Motion</u> 9.1: Newton's Law of Universal Gravity
Week 2 (11) Oct 19 - 23	9.2: Applications of Gravity <u>Chapter 19: Electric Charges and Forces</u> 19.1: Electric Charge
Week 3 (12) Oct 26 - 30	19.2: Electric Force 19.3: Combining Electric Forces

	Chapter 9 Test
Week 4 (13) Nov 2 - 6 Monday Retrocession Day ~ Public Holiday	<u>Chapter 21: Electric Current and Electric Circuits</u> 21.1: Electric Current, Resistance, and Semiconductors Chapter 19 Test
Week 5 (14) Nov 9 - 13	21.2: Electric Circuits Lab Activity: Ohm's Law (TB, Page 773) Quiz: 21.1
Week 6 (15) Nov 16 - 20	21.3: Power and Energy in Electric Circuits Quiz: 21.2
Week 7 (16) Nov 23 – 27 T-W-Th Pre-Exam Days Friday Grade 12 Exams	22.2: Magnetism and Electric Currents
Week 8 (17) Nov 30 - Dec 4 Monday Grade 12 Exams	22.3: The Magnetic Force Lab Activity: Mapping Magnetic Fields (TB, Page 808)
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
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Week 1 (19) Jan 4 - Jan 8 Monday Record Day ~ Student Holiday Friday New Year Mass at 8:00	Give out Second Quarter Exam papers and discuss the answers. <u>Chapter 6: Work and Energy</u> Introduction: 6.1: Work
Week 2 (20) Jan 11 - Jan 15	6.3: Conservation of Energy 6.4: Power Lab Activity: Investigating Work on Inclined Planes (TB, Page 218).
Week 3 (21) Jan 18 - Jan 22	<u>Chapter 10: Temperature and Heat</u> 10.1: Temperature, Energy and Heat 10.3: Heat Capacity Lab Activity: Investigating Specific Heat Capacity (TB, Page 376)
Week 4 (22) Jan 25 - Jan 29	10.4: Phase Changes and Latent Heat Chapter 6 Test
Week 5 (23) Feb 1 - Feb 5 Thursday Little New Year's Eve ~ Public Holiday Friday Lunar New Year ~ Public Holiday	<u>Chapter 11: Thermodynamics</u> 11.1: The First Law of Thermodynamics 11.2: Thermal Processes
<i>February 8 to 12: Chinese New Year Holiday</i>	
Week 6 (24) Feb 15 - Feb 19	11.3: The Second and Third Laws of Thermodynamics Chapter 10 Test

Week 7 (25) Feb 22 - Feb 26 22-26 IOWA Assessments	<u>Chapter 20: Electric Fields and Electric Energy</u> 20.1: The Electric Field Lab Activity: Mapping an Electric Field (TB, Page 736).
Week 8 (26) Mar 1 - Mar 5 Monday Memorial Day ~ Public Holiday T-W-Th Pre-Exam Days	20.2: Electric Potential Energy and Electric Potential Chapter 11 Test
Week 9 (27) Mar 8 - Mar 12	20.3: Capacitance and Energy Storage
Week 10 (28) Mar 15 - Mar 19	Revision for the 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	Give out Third Quarter Exam papers and discuss the answers. <u>Chapter 13: Oscillations and Waves</u> 13.3: Waves and Wave Properties.
Week 2 (31) Apr 12 - Apr 16	<u>Chapter 14: Sound</u> 14.1: Sound Waves and Beats 14.3: The Doppler Effect

Week 3 (32) Apr 19 - Apr 23 19 - 23 AP Mock Exams	<u>Chapter 17: Refraction and Lenses</u> 17.1: Refraction Lab Activity: Refraction through a glass slab Chapter 13 & 14 Test
Week 4 (33) Apr 26 - Apr 30 T-W-Th Pre-Exam Days Friday Labor Day ~ Public Holiday	<u>Chapter 17: Refraction and Lenses</u> 17.2: Applications of Refraction 17.4: Applications of Lenses
Week 5 (34) May 3 - May 7 3 - 7 Final Exams (K, Gr. 5, 8, & 12 Only) 3 - 14 AP Exams	Lab Activity: Find the focal length of a given convex lens. Chapter 17 Test
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
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