



**Academia Santa Rosa**

**Bayamón, Puerto Rico**

**[academiasantarosa@srpr.org](mailto:academiasantarosa@srpr.org)**

**Physics Syllabus 2023-2024**

**Course Title: Physics**

**Teacher: Miss Lisa M. Dillon**

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**Platform : Grades Garden, Google Classroom and Edusystem**

**Credit: 1**

**Office Hours: By appointment.**

### **I. Course Description:**

Course aimed at presenting the general foundations on the study of Physics. Designed with the purpose of providing an overview of the topics of study; using interactive educational platforms, laboratory activities and appraisals according to the demands of the student of the XXI century. The main focus of the course is aimed at an analytical education, developing scientific and critical thinking.

### **II. Objectives of the Course**

#### **A. General Objectives:**

Develop critical thinking by understanding the basic fundamentals of Physics, through varied learning strategies.

#### **B. Specific objectives:**

1. Develop the scientific culture in the student.
2. Develop analytical scientific thinking and problem-solving skills.
3. Integration of STEM in the classroom.
4. Contribute to the holistic knowledge of the student.
5. Integrate the use of technology as a tool in the development of learning.
6. Integrate teaching techniques that satisfy the multiple intelligences of the student.

### **III. Course Content:**

#### **A. Introduction to course (Unit 0)**

- Scientific Knowledge
- Scientific Method
- Unit System

## **B. The Science of Matter and Energy (Unit 1)**

- Physics -the search for knowledge
- History of physics and basic concepts

## **C. Description of movement (Unit 2)**

- Representation of the movement
- Coordinate systems
- Speed and acceleration
- Property and components of vectors
- Motion plots in one dimension
- Acceleration
- Free fall

## **D. Force (Unit 3)**

- Strength and movement
- Newton's laws
- Interaction forces
- Projectile, circular, and in the heavens and earth.
- Use of the law of universal gravitation
- Impulse and Momentum
- The conversion of momentum

## **E. Energy, work and simple machines (Unit 4)**

- Energy and work
- Forms of Energy
- Conservation of energy
- Simple and complex machines

## **F. States of matter (Unit 5)**

- Temperature and thermal energy
- Changes of states and laws of thermodynamics
- The liquid state
- The solid state

## **G. Waves and Light (Unit 6)**

- Wave properties
- Sound properties
- The physics of music
- Fundamentals of Light and Matter

## **H. Electricity (Unit 7)**

- Electrical charges
- Electrical forces
- Creation and measurement of electric fields
- Applications of electric fields
- Current and circuits
- Uses of electrical energy
- Simple circuits
- Application of circuits
- Magnets
- Magnetic fields
- Electric and magnetic fields in space

## **I. Modern Physics (Unit 8)**

- Waves behave like particles
- Particles behave like waves
- Bohr's atomic model
- The quantum model of the atom
- Conduction in solids
- Electronic devices
- Radioactivity
- The components of matter
- Use of nuclear energy

## **IV. Evaluations:**

- a) Exams (2/quarter)
- b) Assessments (2/quarter) **Pop Quizzes will be given**
- c) Special work
- d) Homework
- e) Notebook (100 pts/ Semester)
- f) Oral report (100 pts)
- g) Research work (100 pts)
- h) Scientific Fair (100 pts.)
- i) Daily class
- j) Laboratory (100 pts.)

## **V. Distribution of grades:**

- (a) 100-90 A
- (b) 89-80 B
- (c) 79-70 C
- (d) 60-69 D
- (e) 59-0 F

## **VI. Course materials:**

- 1 large notebooks (daily class)
- 1 regular notebook (Laboratory)
- Pencils (write), eraser and Blue pen.
- Pencils (Colors)
- Scissors and Glue
- "Highlighter" colors
- Folder (save documents)
- Computer ("Laptop")
- Scientific Calculator (Grades: 11/12)
- Rule
- Sharpener

## **VII. Reasonable accommodations:**

Any reasonable accommodation must be worked through the office and will be consistent with the American with Disability Act (ADA); such accommodation shall be enforced in the classroom effectively in the school year.

### **VIII. Cell Phone Policy**

Students are not allowed to use cell phones during class unless the teacher explicitly approves it on a specific day for instructional purposes. When entering the classroom, all students must place their cell phone in their assigned area of the classroom or another assigned location specified in the front of the room by the teacher. Once placed in the cell phone holder area, students cannot access their phones during class hours, unless they leave early from the school facilities.

### **IX. Necessary in class resources**

According to the school's policy, personal computers must be fully charged and taken to each class period. Students will not ask to charge school devices in the classroom and do not have the right to recover tasks lost due to depleted batteries. The lack of load of the devices constitutes an interruption of class procedures and can lead to disciplinary measures.

### **X. Plagiarism**

Plagiarism is to present another person's words or ideas as if they were completely own. Plagiarism is a violation of the Code of Honor. The acts of plagiarism may include, but are not limited to: 1. Use words or ideas from a source published or from the Internet without the appropriate permission; 2. Use someone else's work (e.g., copying another student's assignment, composition or project into theirs in whole or in part; 3. Through the excessive use of editing suggestions from another student, teacher, parent, guardian or paid author.

### **XI. Teaching strategies:**

- a) Exploitation, Conceptualization and Application (ECA)
- b) Cooperative (peer-to-peer) learning
- c) Strategies; Constructivists, Pragmatics and Cognitive
- d) Problematization-Awareness through Scientific Research (PROCIC).
- e) "United Nations Educational, Scientific and Cultural Organization" (UNESCO)
- f) Strategies; Whirlwind of ideas, concept maps, among others.
- g) Bloom's taxonomy

### **XII. Course requirement:**

1. The student must keep their uniform clean, complete and in accordance with the established rules of the Student Manual of the institution.
2. The student must arrive at the time established by the institution, if not, must have a valid excuse provided by their guardian (Regulation of Academia Santa Rosa de Lima).
3. The student must promote an adequate and respectful vocabulary in their school environment. (classmates, teachers and faculty)
4. The student must provide a valid medical excuse when absent. This excuse should be evaluated primarily by the director, then the teacher. (Regulation of Academia Santa Rosa de Lima).
5. It is the responsibility of the student to cover any material that they have not obtained in the days of absence. (Regulation of Academia Santa Rosa de Lima).
6. It is the student's responsibility to ensure that they do not lose their credentials from the platforms used.
7. The student must make up any formative/summative assessment no more than **2 days after their absence.**
8. The student must bring all their materials daily.

9. The student must communicate any personal situation that is related to any technical failure that is presented to him with his electronic device (computer / internet) in advance. (Regulation of Academia Santa Rosa de Lima).
11. The student must turn in all work on time, if not fulfilled, the student will be deducted 5 points for each day late. On the third day no work will be accepted and your grade will be 0- F automatically if no valid excuse is turned in on time.

**\*\* This syllabus is SUBJECT TO CHANGE**



## **Regulations for Parents and Students General Criteria**

- Once given the passwords, it is the responsibility of the student to enter daily to ALL platforms.
- The emails assigned by the institution as well as the passwords to enter the platforms and / or video-audio conferences are for academic purposes so it is not allowed to disclose such information.
- For all types of communication you must make use of your first and last name.
- The student will be responsible for the material, for staying informed, for verifying the assigned tasks daily and for maintaining direct communication with the teacher at all *times*. **The teacher is not responsible for reminding the student of overdue tasks.**
- Respect the school schedule (**schedule 7:30 am – 3:00 pm**). All communication will be during school hours; messages received after this time will be **replied to the next day.**
- All tasks and/or jobs must be received through the platforms designated by the administration.
- Assigned assignments must be delivered on time and within school hours, otherwise the first two days of arrears will lose points. After the two days you will get zero at work.
- The assigned jobs and/or tasks must be original to the student. Plagiarism will be sanctioned by the administration.
- The student must remember and keep their credentials up to date in order to attend the video conferences and be able to enter the platform.
- To avoid confusion, the student must register only once in them.
- The student must write emails using the rules of courtesy and respect for each teacher.

**\*The administration and/or institution reserves the right to establish new rules or to make changes to those already established as it deems appropriate.**

**Santa Rosa de Lima Academy**  
**Bayamón, Puerto Rico**  
**Science Syllabus Reading Certification**



**Student Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Grade and group :** \_\_\_\_\_

I hereby certify that I received and read my child's record for the course of higher level sciences, Earth and Space Science, Biology, Chemistry or Physics (Mark the corresponding course) for this school year 2022-23.

\_\_\_\_\_  
**Student's Name**

\_\_\_\_\_  
**Student's Signature**

\_\_\_\_\_  
**Guardian's Name**

\_\_\_\_\_  
**Guardian's Signature**

\_\_\_\_\_  
**Teacher's initials**

**\*This document must be signed and returned during the first week of classes.**