# *Physical science Course Syllabus 2024-25*

# *Instructor: Mrs. MEENA MALLIGAARJUNAN*

# *Room #615*

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*Course Description:*

*The High School Physical Science curriculum continues students’ investigations of the physical sciences that began in Grades K-8. The course is designed to provide students with the necessary knowledge and skills to become literate, knowledgeable, and proficient in Physical Science at a deeper detail and depth than on level coursework. The course includes more abstract concepts such as structure of atoms, motion and forces, conservation of matter and energy, action reaction principle, and the behavior of waves. These concepts are investigated through laboratory experiences and fieldwork designed for students to develop appropriate knowledge and skills in science as inquiry. The first semester will be based on Chemistry and will include such concepts as the structure and reactivity of atoms and compounds, the relationship of matter and energy, the periodic table and elements, chemical naming, acids and bases, and radioactivity. The second semester will focus on Physics and will cover motion and forces, Newton’s laws, work as related to energy, temperature and heat, waves and wave properties, electricity, magnetism, communication technology, relativity, and introductory Earth and space sciences.*

*● See the Georgia Standards of Excellence*

[*https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Physical-Science-GeorgiaStandards.pdf*](https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Physical-Science-GeorgiaStandards.pdf)

*● The Literacy Standards for science at:*

*http://www.doe.k12.ga.us/Curriculum-Instruction-and-Assessment/Curriculum-andInstruction/Pages/CCGPS.aspx.*

*Unit Topics Standards*

*Unit 1-- Matter and States of Matter-- SPS5. Obtain, evaluate, and communicate information to compare the phases of matter as they relate to atomic and molecular motion.*

*Unit 2-- Acids/Bases and Solubility --SPS6. Obtain, evaluate, and communicate information to explain the properties of solutions!*

*Unit 3-- Atomic Structure and the Periodic Table: Reactivity ---SPS1. Obtain, evaluate, and communicate information from the Periodic Table to explain the relative properties of elements based on patterns of atomic structure.*

*Unit 4--- Bonding, Nomenclature and Chemical Reactions ---SPS2. Obtain, evaluate, and communicate information to explain how atoms bond to form stable compounds SPS3. Obtain, evaluate, and communicate information to support the Law of Conservation of Matter.*

*Unit 5--- Radioactivity ----SPS4. Obtain, evaluate, and communicate information to explain the changes in nuclear structure because of fission, fusion, and radioactive decay.*

*Unit 6--- Heat, Temperature, and Energy ---SPS7. Obtain, evaluate, and communicate information to explain transformations and flow of energy within a system.*

*Unit 7 ---Force, Motion and Work ---SPS8. Obtain, evaluate, and communicate information to explain the relationships among force, mass, and motion.*

*Unit 8 ---Electricity and Magnetism--- SPS10. Obtain, evaluate, and communicate information to explain the properties of and relationships between electricity and magnetism.*

*Unit 9 ---Waves ----SPS9. Obtain, evaluate, and communicate information to explain the properties of waves.*

*Course Objectives:*

*Course objectives are aimed at encouraging students to articulate the core principles of science and technology, their historical evolution, and their interconnection. Students will delve into the major branches of natural science, emphasizing the critical role of precise measurement and error analysis in scientific endeavors. Additionally, the course invites learners to assess the seminal contributions of key historical figures to the scientific field. Through engaging virtual labs and problem-solving exercises, students will enhance their critical thinking skills, applying theoretical knowledge to practical scenarios.*

## *Course Format:*

*Classes are structured flexibly to accommodate different learning styles and teaching methods. Most classes will be organized to encourage group discussion, problem solving, web quests, and other activities. Laboratory exercises, team-based projects, and presentations will also be emphasized. In addition, culminating activities will be conducted throughout the school year.*

## *Attendance and Participation:*

*You are expected to attend and participate in all class sessions and assignments. You should complete assigned reading and exercises before the date they are due, and you are expected to participate fully in labs and other exercises, whether they be individual, or team based.*

*Grading Policy:*

*A student’s grade is a weighted average of the following:*

1. *Minor grades –60%*
2. *Quizzes 2. Labs 3. Learning activities*
3. *Major grades – 40%*
4. *Summative assessments /unit and posttests 2. Projects 3. Lab reports/ research paper.*

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| *Final exam --10%* | |  |
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*Physical science :ASSESSMENT PLAN*

## *Pre/Post Tests*

*Students will take pre- and post-tests for each unit during the school year to access their progress on environmental science standards.*

## *Test and Quizzes:*

*Objective tests/quizzes will be given throughout the semester. All Test and quizzes will be announced and graded.*

## *Laboratory:*

*Laboratory investigations will be assigned throughout the year. Lab investigations/experiments allow for “hands on learning”, and it reinforces concepts taught in the classroom. (Students must pass a lab safety test before participating in laboratory investigations). If a laboratory is missing due to absence, a 3-page research paper will be assigned for the lab grade, unless other.*

*Lab Safety: Safety in the science classroom and labs is an important part of the scientific process. Students will be asked to follow the lab safety guidelines set in the Flinn Scientific Student Safety Contract (https://www.flinnsci.com/high-school-student-safety-contract---English/dc10494/). Failure to comply with lab safety rules will result in removal from the lab. Further action may be necessary based on the behavior displayed by the student.*

## *Learning activities/Classwork:*

*Classwork activities are structured to enable students to get most of their work done during class time. Classwork is not to be taken home unless given permission. Adhere to the timelines for submission. If you are absent, it is our responsibility to get them on the day of your return.*

*Make-Up and Reassessment of Learning Activities:*

*Students will be given opportunities to make-up and reassess assessments. A reassessment plan must be created by the student. This may involve a relearning process, completion of minor assessments, and revisiting the understanding of learning activities. The plan is then presented to and agreed upon by the parent and teacher. A timeline to complete the plan will also be established to maintain student accountability. Failure to fulfill the reassessment plan's requirements may result in revisions and a new plan being established.*

## *Notebook:*

*Everyone must keep a well-organized and accurate notebook to be arranged by date and in logical order. This notebook needs to be a composition notebook which contains only ENVIRONMENTAL SCIENCE information. Students will need their notes and formulas throughout the year.*

## *Responsibilities:*

*When you are absent from class or laboratory, it is your responsibility to get the work that you missed. You are provided with the opportunity to make up work when absent due to a legal excuse. All tests will be announced ahead of time, so being absent the day before the test does not excuse you from taking the test. If you are absent on the test day, you must make up upon returning to school. (Please refer to Student Code of Conduct)*

# *Late Work:*

# *Except for lab reports, assignments may be turned in late within two weeks. Assignments turned in after this timeline may be considered on teacher’s discretion or condition.*

*Extra Help and tutoring:*

*I am available immediately after school several afternoons a week. You will be able to make up assignments or get tutored.*

*My specific tutoring days and hours: Monday-Wednesday and Friday – 3.10 p.m. to 3.50 p.m.*

*Please make an appointment in advance so I can focus on your needs.*

*Behavior Expectations:*

*You are expected to arrive at class on time and bring your materials every day. Each student is expected to act seriously and responsibly during class and activities. Mature behavior will increase the level of learning for all students. Disruptions will be dealt with accordingly. I expect my students to respect themselves, each other, me, and the classroom as a learning environment. Specific rules and procedures are listed below:*

* *Come to class and be on time.*
* *No Cell phones during instruction. Electronic devices on silent and out of sight, unless otherwise directed by the teacher. \*\*\*\*\*\**
* *Bring all your materials to class every day.*
* *You can talk only when the teacher says it is okay.*
* *Do all the work asked of you and turn it in on time.*
* *If you don’t understand something, ask.*
* *Food, candy, and drinks (except for water) should be left outside the classroom.*
* *The teacher dismisses you from class – not the bell. Every student must be in their seat before dismissal.*
* *Leave all the negative attitudes outside of this classroom.*

*Do the best you can and enjoy learning!!!!*

*SUPPLY LIST:*

1. *Laptop/ iPad---required.*
2. *Textbook --- must be brought daily to class.*
3. *Composition notebook – 1 (for lab maintained throughout the year)*
4. *Interactive notebook –2 (one for each semester)*
5. *Scientific calculator such as the Texas instruments TI-30Xa calculator --must be brought on daily basis*
6. *Loose-leaf papers*
7. *Pens, pencils, and erasers.*
8. *Colored pencils, markers, high lighters, glue sticks, invisible tapes, scissors – needed for activities.*
9. *Flash drive.*
10. *Teacher wish list – Hand sanitizer and tissues.*

*Electronic Devices:*

*Laptops and tablets are permitted in class for academic activities only. Devices such as cell phones, headphones, earbuds, charging cords are not to be used in the classroom/lab for any reason. Unless directed otherwise by the teacher, students should turn these items off and stow them in their backpacks upon entry into the classroom. If students are found using cellphones, they will be secured in cellphone jail for the rest of the class. Also, recording any activities in class without the permission of the teacher and other students is prohibited.*

*Classroom Conduct: Any behavior that interferes with others' learning will not be tolerated in the classroom. Students are asked to follow the ARC Student Code of Conduct and Discipline Plan. Consequences for inappropriate behavior can include a verbal warning, intervention meeting, removal from the classroom, parent notification, parent/student/instructor conference, and/or discipline referral.*

*Communication:*

*Students are expected to stay current with information regarding this class. Announcements will primarily be presented during scheduled class time. Students can also anticipate announcements being posted on Canvas, sent to their student email, canvas email, or through the Remind app. Parents may also be contacted by phone, text, or email to discuss matters pertaining to their student. Students and parents are welcome to contact the teacher using any of the methods mentioned above. It is also recommended that parents/guardians monitor student progress through Infinite Campus. If revisions are made to this syllabus or the course to ensure quality instruction, students and parents will be notified.*

## *TEXTBOOK:*

*YOU WILL BE ISSUED A TEXTBOOK FOR THIS CLASS AND ONCE YOU SIGNED THAT YOU HAVE RECEIVED THE TEXTBOOK, YOU WILL BE SOLELY RESPONSIBLE FOR THE TEXTBOOK, IF THE TEXTBOOK IS LOST or IF DAMAGES TO THE TEXTBOOK OCCUR DURING THE YEAR, THE COST OF DAMAGES WILL BE ACCESSED AND WILL NEED TO BE PAID.*

***Academy of Richmond County***

***Syllabus Confirmation – Mrs. Meena***

***Please sign and return this form:***

***I have read, understand, and accept the policies and procedures outlined in the class syllabus. I also acknowledge that it is my responsibility to contact my teacher if I have any questions or concerns. I am not allowed to use cell phones during instruction. I require a laptop to access the resources through canvas.***

***Course Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Academic Year: 20\_\_\_\_\_\_\_\_ 20\_\_\_\_\_\_\_\_***

***Student’s Printed Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Student’s Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Parent/Guardian’s Printed Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Parent/Guardian’s Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Parent/Guardian’s Phone Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Parent/Guardian’s E-mail: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***