



SCHOLÉ ACADEMY
CLASSICAL ACADEMIC PRESS

Physical Science

Mrs. Christa Maldonado

Yearlong Course

2023-2024

PHYSICAL SCIENCE (YEARLONG) M/W/F FROM 12:30 P.M. ET TO 1:45 P.M. ET

ELIGIBLE STUDENT:

Grades: 6-8th graders, 9th graders welcome. Students must be able to read independently and to create notes that are organized and easy to follow. Students should be able to express themselves effectively through writing, and must be capable of reviewing information and concepts on their own throughout the year outside of class. A foundation in arithmetic, including integer, fraction, and decimals would be a plus.

Please note: Course includes multiple laboratory exercises in addition to in-class coursework.

Lab reports will require time outside of class to complete.

REQUIRED TEXTS:*

- ☐ Novare *Physical Science*, 3rd Edition, by John Mays
- ☐ 3-ring binder dedicated to the course
- ☐ Graph paper, preferably 4 square per inch
- ☐ Ruler
- ☐ Index cards
- ☐ Household materials required for labs.

COURSE SCHEDULE

ORIENTATION SESSION:

The date and time of the student/parent orientation will depend on the particular section in which you are enrolled, but all orientation sessions will be scheduled during the week prior to the start of the class.

CLASS SESSION DATES: The dates of your class depend on the particular section in which you are enrolled. Consult the Scholé Academy [academic calendar](#) for details concerning scheduled, school-wide breaks.

Physical Science (Yearlong) M/W/F from 12:30 p.m. ET to 1:45 p.m. ET

OFFICE HOURS: Your teachers are available outside of scheduled class times! During “Office Hours” students may raise questions, seek assistance, or review class material. This can happen via email or a meeting in the Zoom classroom. Your teacher will do their best to respond within 24-48 hours; please keep in mind that they likely will not respond immediately to messages after 5 p.m. EST.

COURSE DESCRIPTION

“The heavens are telling the glory of God; and the firmament proclaims his handiwork.” (Psalm 19:1)

In Physical Science, our minds turn to the orders that govern physical phenomena. We study the properties and behaviors of matter and energy, knowing that there is intelligence behind their design. Because of that intelligence, we can explore their intelligibility through experience, as well as through reason, reading, lecture, discussion, and questioning. Wonder and awe are kindled alongside the ability to analyze, explain, and predict.

After an introduction to the three constituents of the cosmos (matter, energy, and intelligence), we will explore how we measure, observe, and document as natural philosophers before digging into our study of the atom. From the order of the periodic table to the nature of chemical reactions, we will show how the basic architecture of the atom influences and shapes every connected phenomenon. This naturally leads us to energy, and the study of the myriad ways in which it is stored, released and changed in form. Along the way, we explore magnets, electricity, sound, nuclear reactions, and other phenomena that involve the interplay of matter and energy.

The course is designed to engage both the arts of language and the arts of mathematics. Reading and note-taking beforehand, plus the framing of questions associated with readings, leads to Socratic discussion and gateway lab experiences during class. Labs are part of the class on the micro and the macro scale: we will be running small experiments together during most sessions, ones that explain the topics at hand, and simple at-home labs involving common household items will be part of the experience, as well.

Mathematics enters as students learn to analyze what they observe. As we discern relationships between factors and variables in a given situation, we can then distill a mathematical description and expression from the patterns we observe. A solid foundation in arithmetic operations involving whole numbers, integers, fractions, and decimals, plus some experience in basic algebra would be an asset in this course.

In addition to the standard course sessions and labs, video clips and other links will be provided periodically to review, reinforce, and extend the learning in new directions. An important part of learning physical science is to see what you learn in the world all around, from the living room to the sports field to the night sky. With that in mind, many of these video experiences will be geared towards putting physics into context and helping students gain a vision of just how wide their study can be in the world.

The goal is for a student to leave the course with a firm, technical foundation in physical science, a sense of awe and wonder at God's handiwork that tempers as well as situates that foundation, and a list of questions worthy of further exploration!

COURSE MAP

QUARTER 1

1. Matter and Atoms
2. Sources of Energy
3. Conservation of Energy

QUARTER 2

1. Order and Design in Nature
2. Forces and Fields
3. Substances
4. Science, Theories, and Truth

QUARTER 3

1. Measurement and Units
2. Properties of Substances
3. Force and Motion

QUARTER 4

1. Compounds and Chemical Reactions
2. Waves, Sound, and Light
3. Electricity
4. Magnetism and Electromagnetism

STUDENT EXPECTATIONS: EXECUTIVE FUNCTION SKILLS

Students enrolled in this course will be expected to show development and eagerness in the skills needed to be successful in their current and future courses. These skills include a student who:

1. Engages in Learning. Students will strive for mastery of the concepts learned and reviewed in the class. Students should be prepared to actively participate in class and thoroughly complete assignments. Students should show virtue through their diligence, and when necessary, willingness to ask questions.

2. Pay Attention to Detail. Students will thoughtfully complete their assignments. They will carefully review their work prior to submitting it. They will ensure that their work is legible and coherent prior to submitting for grading. Students will also ensure that assignments include their name and the date.

3. Prepares and Exhibits Responsibility. Students will arrive at class on time and complete all of their assignments. The instructor will facilitate learning and provide support, but the student will be expected to attend class, participate in learning, and complete assignments within their due dates.

4. Practice Self-Control. Students will practice self-control through their respect of themselves, their classmates, and their instructor. They will practice hand-raising, listening to others, thoughtful responses, and focusing on the task. Students will participate in classes by paying attention, speaking when called upon, and consistently completing coursework as assigned.

5. Solves Problems and Receives Feedback. Students will work independently, together, and with their instructor to solve problems and master concepts being learned. Students will practice giving and receiving feedback on their problem solving skills and their answers through regular interaction with the classmates and their instructor.

STUDENT EXPECTATIONS IN ACTION

Students enrolled in this course will be expected to exhibit the skills and virtues associated with a scholar of goodness, truth, and beauty. Students enrolled in this course are expected to respectfully participate in classroom discussions and activities. They will also be assigned activities to support their learning.

In this class, students will be expected to listen attentively, participate actively in class discussions and practices. Students are expected to arrive at class on time and with all assigned material completed. The instructor will facilitate learning for the student, but the responsibility for staying up-to-date with classwork and assignments ultimately falls to the student.

All assignments will be due into the appropriate Assignment folder prior to the start of class each day. Students will submit their work by scanning their homework pages and uploading it into the Schoology assignment window. Photographs of completed assignments will not be accepted as they are incredibly difficult to read.

STUDENT GRADING AND EVALUATION

While pursuing the *Physical Science* through Scholé Academy will be “restful, we also recognize the need to provide grades for students who will be using this course as part of their prepared college transcript. It’s a delicate balance to achieve both restful learning and excellent academic performance. Earning a specific grade should not overshadow achievement goals for mastery of this discipline. I can assign the following grades to your student’s level of achievement: *magna cum laude* (with great praise); *cum laude* (with praise); *satis* (sufficient, satisfactory) and *non satis* (not sufficient).

Ideally, every average student working diligently should do praiseworthy work (*cum laude*). Those who excel beyond this expectation will be the *magna cum laude* students. Students who do adequate but not praiseworthy work are designated *satis*. *Non satis* means lacking sufficiency or adequacy.

Inasmuch as you might be fully on board with this grading method in theory, there will undoubtedly be the need to complete a college transcript with either a numeric or traditional letter grade. Traditional percentage grades will be provided and will be readily accessed on the *Physical Science* Schoology page. Additionally, Mrs. Maldonado will provide a transcript of that grade to the requesting parent at the end of the year.

STUDENT EVALUATION : MASTERY PORTRAIT

Mastery portrait: Students who take this course are building the foundations they need to understand the world around them and prepare for future science courses. The student will be expected to gain mastery of the concepts in the course. The student who shows mastery will approach problems with reflection and thoughtfulness.

At the completion of this course, students will be able to do the following:

- Understand the metric system, scientific notation, and significant figures
- Understand atoms and elements, how they interact, and their place on the periodic table
- Understand solutions, ions, combustion, oxidation and acid-base-chemistry reactions
- Understand types of energy and sources of energy
- Understand the relationship between electricity and magnetism
- Understand the four forces and three fields found in nature
- Understand the behavior of sound and light waves
- Understand the role of notable figures in physical science history and learn about the wonder which caused their investigation of science

- Understand order and design in nature that shows the intricate design of Our Creator while increasing in the development of virtue

STUDENT EVALUATION: ASSIGNMENTS, TYPES & WEIGHTS

Mrs. Maldonado will communicate with students regarding assignment feedback and grading through the free online grading system, Schoology. The teacher will provide students with more detailed information and access to the Physical Science course page.

Student's grades will be comprised of:

1. Exams: 40% of the grade
2. Quizzes: 20% of the grade.
3. Homework Assignments: 20% of the grade
4. Laboratory: 10% of the grade
5. Class Participation: 10% of the grade

STUDENT EVALUATION: ACADEMIC INTEGRITY

Students will often take tests and/or quizzes privately at home. Students are on their honor to abide by Scholé Academy's Learning Philosophy which assumes the personal cultivation of Student-Virtues described in the Student-Parent Handbook. **We ask that parents proctor quizzes and tests to help keep their children accountable.**

Specifically, cheating and plagiarism are punishable offenses. Copying the work of other students is prohibited and proper citation of all sources is essential.

THE VIRTUAL CLASSROOM:

We will be using the free online "virtual classroom" software provided by Zoom. The live, interactive nature of our courses is foundational and we require cameras to be on during all class sessions. The virtual classroom will provide students with interactive audio and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom. Courses will be managed through our learning management system, Canvas.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the [Technology in the Classroom](#) section of the Student Parent Handbook.

ABOUT THE INSTRUCTOR



Christa Maldonado has a love for learning and a deep enjoyment of puzzles and patterns. She enjoys identifying the patterns in nature, mathematics, and language that can lead the restless mind to contemplate the good and the beautiful. She has a Bachelor of Science in Natural Sciences from Excelsior College and a Bachelor of Science in Healthcare Management from Western Governor University. She is

currently enrolled in a Master of Science in Instructional Design from Western Governor University. Although she has a great love for the patterns found in courses that give foundational structure, such as grammar and mathematics, she also enjoys learning more about the arts and sciences.

Christa is married and has three children. Her family enjoys discovering nature through hiking and camping. They live a restful life, full of good books and good food. Christa loves to read, sew, and bake. She has tutored professionally since 2017. Christa is excited to help facilitate your child's learning about goodness, beauty, and truth.

Please note: While this syllabus addresses details specific to this course, it is not extensive. Parents should also read the Student-Parent Handbook located on scholeacademy.com and be familiar with the ideas, policies, and procedures outlined.