



## Required Coursework- Academy 9

1. **Academy CAD H (5 Credits):** Students use computer-aided drafting to complete finished hard-copy drawings and construct models used to illustrate mechanical, electrical, and architectural concepts. AutoCAD software is used in a solid modeling approach.
2. **Academy Geometry H (5 Credits):** Students will use definitions, postulates, theorems, and problem solving strategies to solve problems involving congruence, similarity, parallel and perpendicular lines, polygons, and circles integrating plane geometry with algebra.
3. **Academy Physics H (5 Credits):** Students will use geometric, algebraic, or physical models to explain or predict outcomes for systems in the content proficiencies while examining the interrelationship, synthesis, and historical context of major breakthroughs in physics and engineering.
4. **English/Humanities 1H (5 Credits):** Students will focus on the writing process as well as research while studying an array of literature genres including short stories, poetry, drama, novels, essays, biographies and autobiographies. Instruction is approached in an interdisciplinary fashion and coordinated with the Social Studies I/Humanities I course.
5. **Mathematical Analysis 1H (5 Credits):** Students will utilize functions, patterns, graphing, mathematical modeling, deductive reasoning, data analysis, and the latest software and technology while exploring topics in advanced algebra and pre-calculus.
6. **Social Studies/Humanities 1H (5 Credits):** Students will examine ideas, individuals, and movements from the Paleolithic Era through the 19th Century which have been significant in shaping today's world. Students will also explore the complexity of major issues prominent in the contemporary world. Instruction is approached in an interdisciplinary fashion and coordinated with the English/Humanities I course.

## Required Coursework- Academy 10

1. **Academy Chemistry H (5 Credits):** Students will explore such topics as atomic theory, nature of matter, periodicity, mole concept, chemical bonding, energy, chemical reactions, acid base behavior, organic chemistry, and some aspects of chemical engineering in an advanced approach structured around laboratory work.
2. **English/Humanities 2 H (5 Credits):** Students will continue to develop skills in advanced literature study while continuing to specialize in a variety of writing styles. The literature will be approached thematically by examining the many voices in the American Literary Tradition. Instruction is designed in an interdisciplinary fashion with the Social Studies II/Humanities II course.
3. **Fundamentals of Engineering H (5 Credits):** Students will emphasize various types of engineering in this introductory course including architectural, civil, electrical, and industrial through hands-on, problem-solving exercises and the use of real-world equipment and software.
4. **Mathematical Analysis 2H (5 Credits):** This course is the second year of a two year mathematics program of advanced algebra and pre-calculus topics designed to prepare students to take advanced placement A/B or B/C in the third year.
5. **Science Inquiry and Technology I H (5 Credits):** Students will develop and use a design-making procedure where the basic science, mathematics and engineering sciences are applied to utilize resources to meet a stated objective. Fundamental elements of a design process including the establishment of objectives and criteria, synthesis, analysis, construction, testing and evaluation are utilized.
6. **Social Studies/Humanities 2H (5 Credits):** Students will investigate the various historical, political, economic, social and cultural forces which have been significant in shaping modern America spanning the time period of the early settlers to the 1920's. Instruction is designed in an interdisciplinary fashion with the English/Humanities II course.

## Required Coursework- Academy 11

1. **Academy Biology H (5 Credits):** Students will explore topics including population dynamics, ecosystems, chemical evolution, energy, metabolism, genetics and the structure and function of living things. They will also be challenged to reach logical conclusions by critically evaluating and interpreting experimental data.
2. **Academy Business Strategies H (5 Credits):** Students will examine diverse environments, management concerns, financial issues, and marketing questions faced by entrepreneurs and business firms. The students will participate in a simulation, forming and executing their own business decisions.
3. **Science Inquiry & Technology II H (5 Credits):** Students will continue to develop an advanced design-making procedure emphasizing group research, design and fabrication.

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## Required Coursework- Academy 12

1. **Academy Biotechnology H (5 Credits):** Students will be introduced to the foundations of biotechnology examining some of its present and future uses as well as evaluate the potential impact on society.
2. **Science Inquiry and Technology III H (5 Credits):** Students will strengthen research and problem-solving skills as well as participate in a 100-hour mentorship program in a professional discipline outside of the classroom.
3. **Technical Writing H (2.5 Credits):** Students will learn the characteristics of technical writing, explore ethical considerations, and conduct audience and purpose analysis. Types of technical writing to be studied include the proposal, instructions, memo, report, letter, and Web pages. Emphasis will be on refinement of writing skills.
4. **Macroeconomics H (2.5 Credits):** Students will cover the fundamental principles on which economics is based and examine various factors that contribute to the market and economic trends.