3300 East Palmdale Blvd.
Palmdale, CA 93550

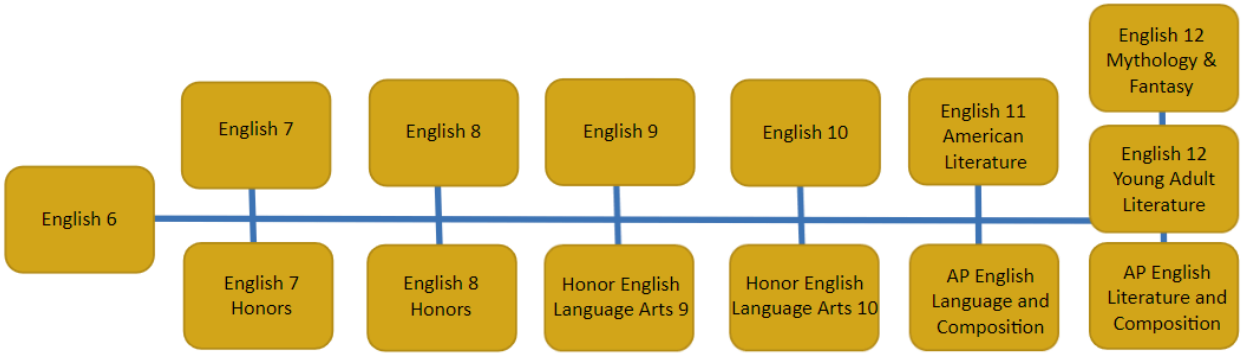
THE PALMDALE AEROSPACE ACADEMY

COURSE DESCRIPTION HANDBOOK 2024-2025

Contents

ENGLISH/LANGUAGE ARTS

Students need 40 English credits to earn a TPAA high school diploma. Possible course sequences are illustrated below:



English 6

Description:

Beginning in grade 6, English Language Arts students develop and refine skills in critical thinking, close reading, writing in various genres, and doing research.

Topics:

Over the course of the program, they read and analyze a wide range of texts in genres including poetry, novels, plays, biographies, nonfiction narratives, speeches, and films. They also learn to write in forms including essays, personal narratives, argumentative texts such as editorials, and research papers.

STEM connection:

STEM will be tied in throughout novels, such as building a paper airplane that can fly and float to go along with the novel Hatchet.

Project-based learning:

There will be several opportunities for cross-curricular project-based learning, such as writing an Egyptian newspaper, writing speeches used for a debate of "What would you rather be, a Spartan or Athenian?" writing Haikus for Ancient China, and writing myths for Ancient Greece.

Next course in sequence: English/Language Arts – 7th grade, or English/Language Arts – 7th grade Honors

English 7

Description:

In 7th grade English, students develop reading, writing, speaking, and listening skills. They practice strategies used by good readers and apply them to a variety of texts and genres. Seventh-grade students read and analyze a variety of literature at home, in class, and in book clubs. They incorporate traits of good writing into their own material and continue to develop

conventional skills of spelling, grammar, and punctuation. Finally, they develop listening and speaking skills embedded in the curriculum.

Topics:
Topics explored in this course include the genres of literature, elements of fiction, literary devices, figurative language, the writing process, truth, utopia and more.

STEM connection:
Students will draft and edit writing assignments related to their science, math and STEM elective courses within this course. Students will also have the opportunity to use their own as well as the school's technology to do research and complete projects.

Project-based learning:
Students will complete projects for this course and cross-curricular projects including the design and creation of their own society.

Next course in sequence: English/Language Arts – 8th grade, or English/Language Arts – 8th grade Honors

English 7 Honors

Description:
This course is more rigorous than conventional 7th grade English, and is for students who have demonstrated both proficiency in 6th grade English, as well as a high level of behavior and enthusiasm for learning, as recommended by their former ELA teacher. Students develop reading, writing, speaking, and listening skills. They practice strategies used by good readers and apply them to a variety of texts and genres. Seventh grade students read and analyze a variety of literature at home and in class. In addition to multiple short stories and works from other genres of literature, students will read and analyze Lois Lowry's *The Giver* and S.E. Hinton's *The Outsiders*. They incorporate traits of good writing into their own material, and continue to develop conventional skills of spelling, grammar, vocabulary, and punctuation. Finally, they develop listening and speaking skills embedded in the curriculum.

Topics:
Topics explored in this course include the genres of literature, elements of fiction, literary devices, figurative language, the writing process, the structure of various types of essays, truth, utopia and more.

STEM connection:
Students will draft and edit writing assignments related to their science, math and STEM elective courses within this course. Students will also have the opportunity to use their own as well as the school's technology to do research and complete projects.

Project-based learning:
Students will complete projects for this course and cross curricular projects including the design and creation of their own society.

Prerequisites: A grade of C or higher in English 6, or have a teacher recommendation.

Next course in sequence: English/Language Arts – 8th grade, or English/Language Arts – 8th grade Honors

English 8

Description:

In 8th grade English, students will focus on reading, writing, and language development. Students will develop their reading skills through short stories and novels. They will develop their writing skills with long-term research essays, argumentative essays, screenwriting, and short answer responses. Students will explore using the written word in combination with artistic mediums such as mosaics, paintings, and film.

Topics:

Short stories include "Flowers for Algernon" by Daniel Keys and "Tell-Tale Heart" by Edgar Allen Poe. Students will read Anne Franks' Diary through a play format. They will discuss the novel, "Monster," by Walter Dean Myers in length. The significant themes covered in the class will be trauma, genocide, racism, injustice, and religion. These themes will be covered in each of our major readings, as well as short excerpts from Sojourner Truth and Fredrick Douglass. The major units will also include unique opportunities for students to explore the written word.

STEM connection:

Students write reflections and essays, as well as give oral presentations, on topics related to aviation or other STEM-related topics. Students collaborate on projects on a regular basis and perform online research.

Project-based learning:

Students engage in cross-curricular projects such as proofreading/editing brochures on careers in engineering that were produced in STEM class. Students collaborate to produce projects such as television talk show or television courtroom show style skits featuring characters in their fictional stories. They interview guest speakers and produce a television newscast presenting coverage of the visit.

Next course in sequence: English 9, or English 9 Honors

English 8 Honors

Description:

In 8th grade English, students will focus on reading, writing, and language development. Students will hone their reading skills through short stories and novels. They will develop their writing skills with long-term research essays, argumentative essays, screenwriting, and short answer responses. Students will explore using the written word with artistic mediums such as mosaics, paintings, and film. Students will be given the opportunity to debate significant topics with their peers in a class trials, film suspense short films, and discuss cinematography and how it blends to the understanding of audiences.

Topics:

Short stories include "Flowers for Algernon" by Daniel Keys and "Tell-Tale Heart" by Edgar Allen Poe. They will discuss the novel "Monster" by Walter Dean Myers and, "Night," by Elie Wiesel at length. The significant themes covered in the class will be trauma, genocide, racism, injustice, and religion. These themes will be covered in each of our major readings, as well as short excerpts from Sojourner Truth and Fredrick Douglas. The major units will also include unique opportunities for students to explore both the written word as well as other artistic mediums to better understand the audience.

STEM Connection:

Students will reflect on STEM related news articles, cover STEM topics in class discussions, and encounter STEM related written passages in daily warm-ups. An example of a STEM related assignment would be watching the brief video news feature on astronaut Jose Hernandez (who grew up as a migrant worker in the Central Valley) and reflecting on his message of hard work and perseverance.

Project-based learning:
Projects require students to go in-depth and think in other ways about what they've read. Example: They read a novel, such as "Of Mice and Men," and then work in teams to take on the role of filmmakers developing a pitch for a 2015 version of the movie. They choose a cast based on modern actors, they explain any changes they might make to the book for their film adaptation, they make posters for the new version, and they engage in public speaking by making a presentation to the rest of the class on why this new movie should be made.

Prerequisites: A grade of C or higher in English 7, English 7 Honors, or have a teacher recommendation.

Next course in sequence: English 9, or English Honors 9

English 9

(Meets English Requirement for Graduation) (Meets A-G Requirement)

Description:
The course will provide a forum for the discussion of issues/themes/structures within a cultural format. Grammar, usage, and vocabulary will be taught throughout the course. This course will also aid students in developing their writing skills using "process" writing.

Topics:
The topics that will be explored include: 1930s, The Great Depression, Figurative Language, Elements of Fiction, Plot Development, Grammar, Expository Writing, Poetry, Non- Fiction Literature, Heroism and more.

STEM connection:
Students will use the "creating process" of STEM as a building block to the writing process. Students will create projects that will be assessed in both English and STEM classes.

Project-based learning:
Students will complete several projects throughout the school year including an end-of-year project that will cross all curriculums in the 9th grade level. Students will be able to work in cooperative groups to complete each project.

***Next course in sequence*:** English 10, or English 10 Honors

English 9 Honors

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
The course will provide a forum for the discussion of issues/themes/structures within a cultural format. Grammar, usage, and vocabulary will be taught throughout the course. This course will also aid students in developing their writing skills using "process" writing. Honors English classes serve two purposes: (1) to expose students to a variety of information concerning writing, literature, and critical thinking and (2) to prepare students for post-secondary English and literature coursework as well as prepare them for functional, technical, and practical use of the standard conventions of English.

Topics:
The topics that will be explored include: themes, 1930s, The Great Depression, Figurative Language, Elements of Fiction, Plot Development, Grammar, Expository Writing, Poetry, Non- Fiction Literature, Heroism and more.

STEM connection:
Students will use the "creating process" of STEM as a building block to the writing process. Students will create projects that will be assessed in both English and STEM classes.

Project-based learning:
Students will complete several projects throughout the school year including an end-of-year project that will cross all curriculums in the 9th grade level. Students will be able to work in cooperative groups to complete each project.

Prerequisites: A grade of C or higher in English 8, English 8 Honors, or have a teacher recommendation.

Next course in sequence: English 10, or English 10 Honors

English 10

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
In this course, students sharpen the reading and writing skills they will need in English as well as in their other courses at the Palmdale Aerospace Academy. Students will focus on the writing process, with the goal of perfecting all forms of the five-paragraph essay. Students will also receive instruction in grammar, vocabulary, research skills, and study literature, delving deeper into its elements and genres.

Topics:
Students read three novels: "Sarah's Key," by Tatiana de Rosnay; "The House of Spirits" by Isabel Allende; and "Catch22" by Joseph Heller. Students complete persuasive, narrative, and expository essays.

STEM connection:
Students will write reflections and essays touching on aviation and STEM-related topics.

Project-based learning:
Students will work as teams to produce newspaper and magazine style stories about events taking place at their school.

Next course in sequence: English 11, or AP English Language and Composition

English 10 Honors

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
In addition to the basic English I curriculum, this course emphasizes the theory and practice of expository composition. Students also carry the study of literature beyond the content-based approach of English I. Students in this course will read one major work of drama, fiction, or non- fiction every six weeks. The goal is to achieve mastery of writing and reading skills, and superior vocabulary and knowledge of grammar.

Topics:
Students choose from a reading list that includes works by authors such as Aeschylus, Aristophanes, Jane Austen, Saul Bellow, John Bunyan, Pearl Buck, Albert Camus, Willa Cather, Joseph Conrad, John Dos Passos, F. Scott Fitzgerald, Ford Madox Ford, Thomas Hardy, Ernest Hemingway, Henry James, Sinclair Lewis. Students read the works outside of class and write papers and make presentations based on the works.

STEM connection:
Students continue writing reflections and essays based on aviation or STEM related topics.

Project-based learning:
Students produce a video package about The Palmdale Aerospace Academy, suitable for use as a recruiting tool.

Prerequisites: A grade of C or higher in English 9, English 9 Honors, or have a teacher recommendation.

***Next course in sequence*:** English 11, or AP English Language and Composition

English 11

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This course provides rigorous and challenging experiences for the student in the areas of critical reading, critical thinking, effective discussion, note-taking, essay test-taking, expository writing and research. The core of the curriculum is a chronological or thematic study of American literature, its literary periods and major writings. Outside reading focuses on broader philosophical ideas, encouraging wider reading including classics by American authors.

Topics:
English 11 covers literary terminology and several literary genres including poetry, short story, speeches, political documents, the essay, and drama. English 11 will also include selections from Mark Twain, Benjamin Franklin, Thomas Jefferson, Dr. Martin Luther King, Edgar Allen Poe, Nathanial Hawthorne, Ralph Waldo Emerson, Henry DSPACE Thoreau, Emily Dickinson, and Walt Whitman.

STEM connection:
Students will use the "creating process" of STEM as a building block to the writing process. Students will create projects that will be assessed in both English and STEM classes. Students will also use several different types of technology in this course that will be taught in the STEM elective course. Students will also have to understand how to actively use different types of computer software to complete different projects throughout the school year.

Project-based learning:
Students will complete projects for this course as well as cross–curricular projects including a comparison of political philosophies.

Next course in sequence: English 12 Young Adult Literature, English 12 Mythology & Fantasy, or AP English Literature and Composition

AP English Language and Composition (11th Grade)

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
The AP English Language and Composition course is designed to help students become skilled readers of prose written in a variety of rhetorical contexts and to become skilled writers who compose for a variety of purposes. Both their writing and their reading should make students aware of the interactions among a writer's purposes, audience expectations, and subjects as well as the way generic conventions and the resources of language contribute to effectiveness in writing.

Topics:
This course emphasizes the expository, analytical, and argumentative writing that forms the basis of academic and professional communication, as well as the personal and reflective writing that fosters the ability to write in any context. In addition, this course teaches students that the expository, analytical, and argumentative writing they must do in college is based on reading texts from various disciplines and periods as well as personal experience and observation. This course also teaches students to read primary and secondary sources carefully, to synthesize materials from these texts in their own compositions, and to cite sources using conventions recommended by professional organizations such as the Modern Language Association (MLA), the University of Chicago Press (The Chicago Manual of Style), and the American Psychological Association (APA).

STEM connection:
Students will use the "creating process" of STEM as a building block to the writing process. Students will create projects that will be assessed in both English and STEM classes. Students will also use several different types of technology in this course that will be taught in the STEM elective course. Students will also have to understand how to actively use different types of computer software to complete different projects throughout the school year.

Project-based learning:
Students will complete projects for this course as well as cross-curricular projects including a comparison of political philosophies.

Prerequisites: A grade of C or higher in English 10, English 10 Honors, or have a teacher recommendation.

Next course in sequence: English 12 Young Adult, English 12 Mythology & Fantasy, or AP English Literature and Composition

English 12- Mythology & Fantasy

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
12th Grade English is a literature survey course. This course is for the college-bound senior and covers many authors and writers. The course covers historical literary periods and several literary genres including poetry, novels, speeches, satires, drama, and the essay. Every year, students select a few course foci from a wide selection of offerings. the three options selected by students are: Young Adult Literature; Science Fiction & Dystopia; and Mythology & Fantasy. Each class will also focus on the intellectual development apparent within this. Our study includes forming generalizations about how historical, scientific, social, and political experiences are reflected in the literature which represents ways of seeing events and creating meaning in the various areas of study.

Topics:
Topics introduced in this class will vary by the class focus, but will include works in a variety of formats and from a variety of time periods. The syllabi from each focus class will better reflect the specific works covered in each class.

STEM connection:
Students will use several different types of technology in this course that will be taught in the STEM elective course. Students will also have to understand how to actively use different types of computer software to complete different projects throughout the school year.

Project-based learning:

For a senior project, students will produce a formal cover letter, resume, and related documents. The student will be guided through the format requirements of these documents. The final product must demonstrate an understanding of purpose, point-of-view, audience, and voice. This project will be a collaboration with the STEM teachers. There will also be several other projects assigned throughout the school year.

English 12 - Young Adult Literature

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

12th Grade English is a literature survey course. This course is for the college-bound senior and covers many authors and writers. The course covers historical literary periods and several literary genres including poetry, novels, speeches, satires, drama, and the essay. Every year, students select a few course foci from a wide selection of offerings. For the 2019 – 2020 school year, the three options selected by students are: Young Adult Literature; Science Fiction & Dystopia; and Mythology & Fantasy. Each class will also focus on the intellectual development apparent within this. Our study includes forming generalizations about how historical, scientific, social, and political experiences are reflected in the literature which represents ways of seeing events and creating meaning in the various areas of study.

Topics:

Topics introduced in this class will vary by the class focus, but will include works in a variety of formats and from a variety of time periods. The syllabi from each focus class will better reflect the specific works covered in each class.

STEM connection:

Students will use several different types of technology in this course that will be taught in the STEM elective course. Students will also have to understand how to actively use different types of computer software to complete different projects throughout the school year.

Project-based learning:

For a senior project, students will produce a formal cover letter, resume, and related documents. The student will be guided through the format requirements of these documents. The final product must demonstrate an understanding of purpose, point-of-view, audience, and voice. This project will be a collaboration with the STEM teachers. There will also be several other projects assigned throughout the school year.

AP English Literature and Composition (12th Grade)

(Meets English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This course provides students with a first year college level experience; its overview and objectives are abstracted from the College Board's AP English Course Description. The course has been organized historically and thematically and will introduce several paradigms of literary criticism. The purpose is to develop understanding of the ways writers use language to provide meaning and pleasure; the focus of the course is "close critical analysis of imaginative literature," which includes a study of a work's structure, its style, its themes, an author's use of figurative language, imagery, symbolism, tone, etc.

Topics:

Students will review and be introduced to topics such as…analyzing different elements of style: diction, point of view, organization, tone, syntax, imagery, figurative language and irony. Learn to answer multiple choice questions efficiently and quickly. Gain a working knowledge of literary terms, tropes and schemes. Show a grasp of major trends in English Literature.

Connect literature to social and political trends. Relate literature to the individual as well as to the universal experience. Analyze any poem, showing understanding of the form and elements that create expression.

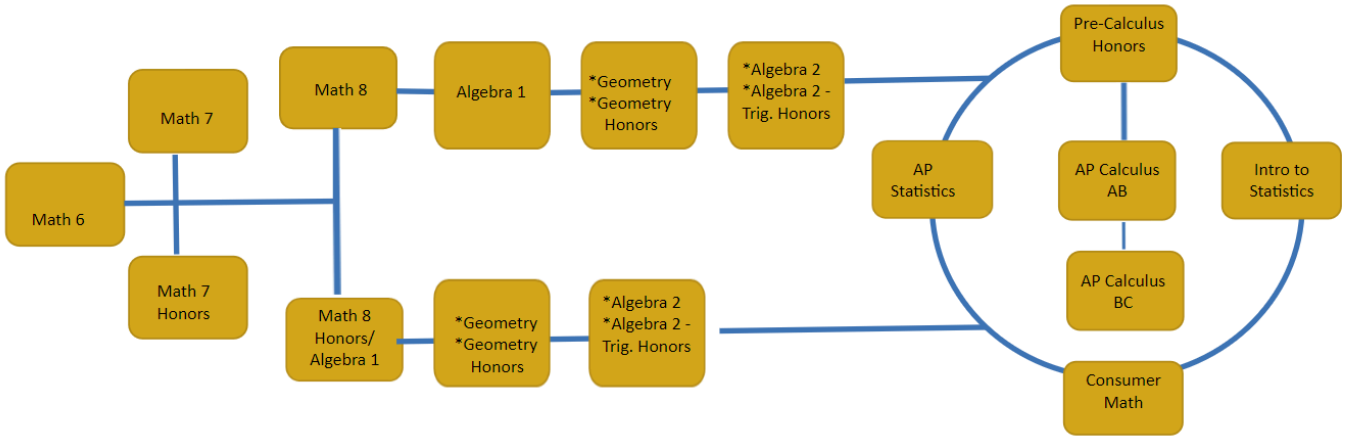
STEM connection:
Students will use the "creating process" of STEM as a building block to the writing process. Students will create projects that will be assessed in both English and STEM classes. Students will also use several different types of technology in this course that will be taught in the STEM elective course. Students will also have to understand how to actively use different types of computer software to complete different projects throughout the school year.

Project-based learning:
For a senior project, students will produce a formal cover letter, resume, and related documents. The student will be guided through the format requirements of these documents. The final product must demonstrate an understanding of purpose, point-of-view, audience, and voice. This project will be a collaboration with the STEM teachers. There will also be several other projects assigned throughout the school year.

Prerequisites: A grade of C or higher in English 11, AP English Language, or have a teacher recommendation.

MATHEMATICS

Students need 30 Math credits to earn a TPAA high school diploma. Possible course sequences are illustrated below:



Ringer of Higher Math
Students may choose any class on the outer ring then may continue along the ring or proceed to the inner ring once they have completed Pre-Calculus Honors

Math 6

Description:

Grade 6 students learn to

- Model functions in numerical, symbolic (equation), table, and graphical forms.
- Communicate mathematics verbally and in writing, justifying answers and clearly labeling charts and graphs.
- Explore and represent data in a variety of forms.
- Use multiple representations to communicate their understanding of a math concept.

Topics:

Ratios, rate, percentage, arithmetic operations including division of fractions, rational numbers, and expressions and equations, geometry, statistics, and algebra.

STEM Connection:

Students gain relevant, real world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will learn how Science, Math, Engineering, and Technology tie in together through STEM activities such as building a candy box to a specific dimension. This activity will tie into volume, surface area, multiplication of fractions, and engineering.

Project-Based Learning:

Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning. Students will complete

several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Next Course in Sequence: Math 7, or Math 7 Honors

Math 7

Description:

The seventh grade mathematics course has the students developing understanding of and applying proportional relationships; developing understanding of operations with rational numbers and working with expressions and linear equations; solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and drawing inferences about populations based on samples. Our instruction and curriculum is partially guided by the common core curriculum developed by Engage New York.

Topics:

Proportions, rational numbers, linear equations, scale drawings, surface area, volume, and sampling.

STEM Connection:

Students gain relevant, real world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:

Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Next Course in Sequence: Math 8, or Math 8/Algebra 1 Honors

Math 7 Honors

Description:

This course combines the standards for 7^{th} and 8^{th} grade mathematics in an advanced and accelerated manner. Students will continue their development of proportional reasoning as it is applied to problem solving, as well as modeling with linear equations, understanding geometric properties of plane figures, and working with the Pythagorean Theorem.

Topics:

Ratios, proportions, similarity of figures, surface area and volume, writing and solving linear expressions and equations, finding distance, and statistical modeling

STEM Connection:

Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Math 6, or have a teacher recommendation.

Next Course in Sequence: Math 8/Algebra 1 Honors

Math 8

Description:
The eighth grade mathematics course has the students formulating and reasoning about expressions and equations, including modeling data with a linear equation, and solving linear equations and systems of linear equations; grasping the concept of a function and using functions to describe quantitative relationships; analyzing two- and three dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

Topics:
Writing expressions and equations, linear models, solving systems of linear equations, functions, distance, similar and congruent triangles, and the Pythagorean Theorem

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Next Course in Sequence: Algebra 1

Math 8/Algebra 1 Honors

Description:
This one-year course will teach students the basics of the number system and the use of algebraic expressions and equations. Students enrolled in this course are expected to already be proficient in applying the order of operations, performing operations with negative numbers and fractions, and solving equations and inequalities.

Topics:
Proportions, factoring expressions, simplifying rational and radical expressions, linear equation forms and graphs, and methods for solving systems of equations and quadratics.

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Math 7, Math 7 Honors, or have a teacher recommendation.

Next Course in Sequence: Geometry Honors

Algebra 1

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This one-year course will teach students the basics of the number system and the use of algebraic expressions and equations. The course will cover functions, graphs, and applications. It will also develop the skills necessary to continue college-prep study. This course will provide a critical foundation upon which students will build during their time at TPAA.

Topics: properties of real numbers, representation of verbal expressions as mathematical expressions, methods for solving equations, inequalities and application problems, proportions, factoring, simplifying rational and radical expressions, forms of linear equations and graphing techniques, and methods for solving systems of equations and quadratics

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Next Course in Sequence: Geometry, or Geometry Honors

Geometry

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
The course covers geometric terms and processes, logic, and problem solving. Various forms of proof are studied. Emphasis is placed upon reasoning and problem solving skills. Trigonometry will be introduced as it applies to geometry. Algebraic skills (particularly work with ratios, simplification of and operations with radicals) are applied.

Topics:
Angle relationships, congruent and similar triangles, geometric inequalities, parallel lines and their applications to quadrilaterals, areas of a polygon and circular regions, arcs and angle measures related to circles, and surface area and volume of solids

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace

skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.
Next Course in Sequence: Algebra 2, or Algebra 2/Trigonometry Honors

Geometry Honors

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This is a one-year course in geometry. Students at this level are expected to be self-motivated, independent learners who are ready to move at an accelerated pace through the curriculum. This course covers geometric terms and processes, logic, and problem solving. Various forms of proof are studied. Emphasis is placed upon reasoning and problem solving skills. Trigonometry will be introduced as it applies to geometry. Algebraic skills (particularly work with ratios, simplification of and operations with radicals) are applied.

Topics:
Angle relationships, congruent and similar triangles, geometric inequalities, parallel lines and their applications to quadrilaterals, areas of a polygon and circular regions, arcs and angle measures related to circles, surface area and volume of solids, and coordinate geometry

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Honors Math 8/Algebra 1, Algebra 1, or have a teacher recommendation.

Next Course in Sequence: ALgebra 2, or Algebra 2/Trigonometry Honors

Algebra 2

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This one-year course will continue the student's study of advanced algebraic concepts including a thorough discussion of the "elementary functions": exponential, logarithmic and polynomial. Graphical and analytical thinking are stressed throughout the year, as is the development of problem solving skills.

Topics:
Logarithms, complex numbers, solving systems of equations, simplifying and solving rational expressions

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Geometry, or Geometry Honors.

Next Course in Sequence: Pre-Calculus Honors, Intro to Statistics, or AP Statistics

Algebra 2/Trigonometry Honors

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This course covers all the essential topics of Algebra 2 and Trig/Pre-calculus in an advanced and accelerated manner. This rigorous course covers all of the California Common Core State Standards for Algebra 2 and Trigonometry. This course is designed to build on algebraic and geometric concepts. The content of this course is important for students' success on both the ACT and college mathematics entrance exams. Algebra 2/Trigonometry provides a review and extension of the concepts taught in Algebra 1 as well as a foundation in trigonometry.

Topics:
Advanced algebra skills such as systems of equations, advanced polynomials, imaginary and complex numbers, quadratics, the study of trigonometric functions and the unit circle.

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Geometry, Geometry Honors, or have a teacher recommendation.

Next Course in Sequence: Pre Calculus Honors, Intro to Statistics, AP Statistics, or Consumer Math

Consumer Math

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

The goal of this course is to guide students in building a strong foundation in logical thinking and problem solving by way of instruction in financial mathematics, probability and statistics, a review of Algebra 1 and Geometry skills and topics, and introduction to higher-level mathematics through sampling of graph theory, cryptography, etc. Financial mathematics units will allow tomorrow's adults to become conscious and responsible consumers who are aware that the financial decisions they make will have an impact on the overall quality of their lives and the lives that depend on them.

Topics:

Checking Accounts, Invoices, Trade Discounts, cash discounts, markup and markdown, payroll, consumer credit, mortgages, financial statements, taxes, insurance, investments, and stocks.

STEM Connection:

Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:

Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Next Course in Sequence: Pre Calculus Honors, Intro to Statistics, or AP Statistics

Pre-Calculus Honors

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

Designed to follow Algebra II Honors, this rigorous full-year course builds upon students' understanding of various aspects of functions: graphing, composition, inverses, modeling, systems, and inequalities. Modeling with functions is expanded to regression analysis with advanced functions. Students expand their knowledge of trigonometric functions to include graphs of reciprocal functions, and they apply trigonometry to a variety of real-world problems. Students prove trigonometric identities and use them to solve equations. Students are regularly challenged with Performance Tasks in the course, which require students to synthesize and apply concepts learned throughout each unit. Throughout Pre-calculus students make connections between geometry and algebra as they: use graphs to solve polynomial, rational, exponential, and logarithmic inequalities; perform operations with complex numbers and vectors; use coordinate algebra to derive equations of ellipses and hyperbolas; and find limits of functions. The standards of mathematical practice are embedded throughout the course as students apply mathematical concepts in modeling situations, make sense of problem situations, solve novel problems, reason abstractly, and think critically.

Topics:

Functions, Equations and Inequalities, Trigonometry, Analytic Trigonometry, Complex Numbers and Polar Coordinates, Vectors, Matrices, Systems and Matrices, Conic Equations and Graphs, Analytic Geometry, Sequences and Series

STEM Connection:

Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Algebra 2/Trigonometry Honors, or have a teacher recommendation.

Next Course in Sequence: Intro to Statistics, AP Statistics, or Consumer Math

AP Calculus AB

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
AP Calculus AB is a course in the Advanced Placement (AP) Program developed by the College Board. The course content follows the curriculum necessary for successful performance on the Advanced Placement Examination given by the College Board. Calculus is a powerful tool for studying systems undergoing change, and is required for many professions, including engineering, finance, and other STEM-related careers.

Topics:
Elementary functions, limits and continuity, and differential and integral calculus

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in Pre-Calculus Honors, or have a teacher recommendation.

Next Course in Sequence: AP Calculus BC, AP Statistics, or Intro to Statistics

AP Calculus BC

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
AP Calculus BC is a course in the Advanced Placement (AP) Program developed by the College Board. AP Calculus BC is a continuation of the AP Calculus AB curriculum and is designed to prepare the student for the Advanced Placement exam in AP Calculus BC

Topics:
In addition to the topics covered in AP Calculus AB (see above), this course includes advanced techniques and applications of differential and integral calculus, differential equations, and calculus as it relates to sequences and series, parametric, and polar equations.

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life.

Prerequisites: A grade of C or higher in AP Calculus AB, or have a teacher recommendation.

Next Course in Sequence: Intro to Statistics, or AP Statistics

Intro to Statistics

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Intro to Statistics is a one-year course in the introductory concepts and techniques of modern statistics. This course does not specifically prepare the students for the AP exam, but will provide a good background for continued work in non-calculus mathematics in college. Its purpose is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Statistics has four primary themes: exploring data, planning a study, anticipating patterns, and statistical inference.

Topics:
Modeling data, measures of center and spread, regression analysis, experimental design, probability, random variables, Normal distributions, hypothesis testing, and confidence intervals

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

Project-Based Learning:
Students work on several hands-on projects throughout the course, including statistical simulations, data-gathering, and the development of a probability game.

Next Course in Sequence: Pre-Calculus Honors, or AP Statistics

AP Statistics

(Meets Mathematics Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
AP Statistics is a course in the Advanced Placement (AP) Program developed by the College Board. AP Statistics is designed to be the secondary school equivalent, upon taking the Advanced Placement Examination, to a one-semester, introductory, non-calculus based, college course in statistics. Its purpose is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. AP Statistics has four primary themes: exploring data, planning a study, anticipating patterns, and statistical inference.

Topics:
Modeling data, measures of center and spread, regression analysis, experimental design, probability, random variables, Normal distributions, hypothesis testing, and confidence intervals

STEM Connection:
Students gain relevant, real-world, hands-on experience with cutting-edge technology and learn the importance of math in all aspects of the world today. Students will gain 21st century high-tech communication skills, presentation and workplace skills, project management, and team leadership expertise through the use of projects-based learning and problem-based learning.

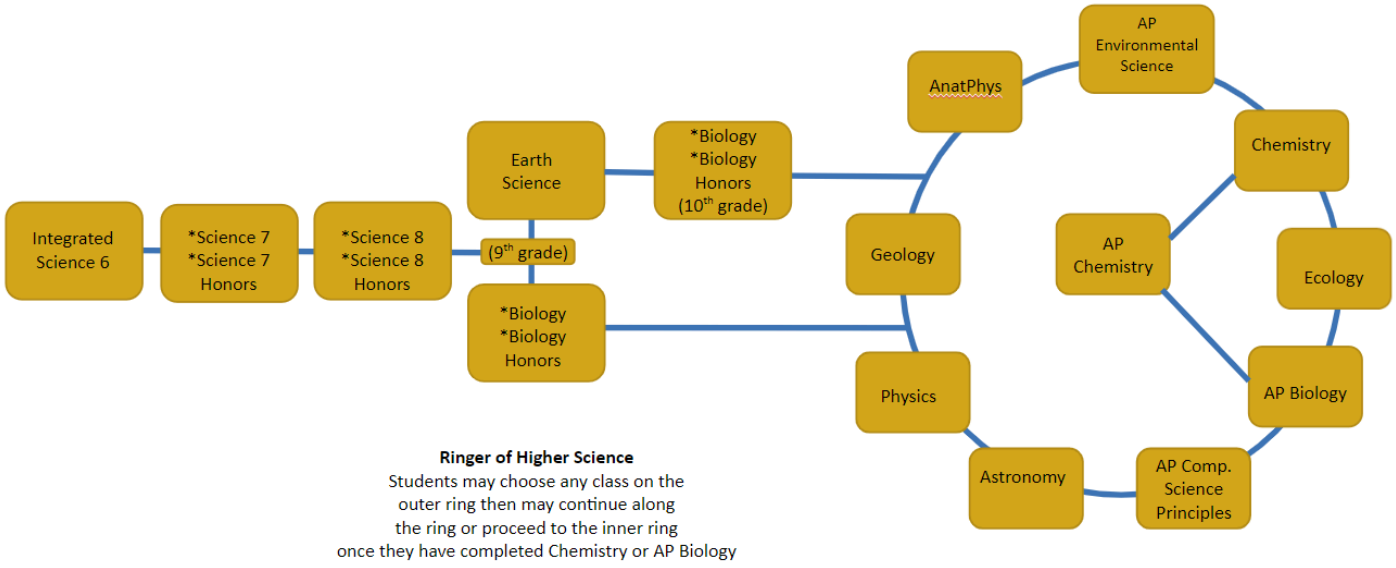
Project-Based Learning:
Students work on several hands-on projects throughout the course, including statistical simulations, data-gathering, and the development of a probability game.

Prerequisites: A grade of C or higher in Algebra 2, Algebra 2/Trigonometry Honors, or have a teacher recommendation.

Next Course in Sequence: Pre-Calculus Honors

SCIENCE

Students need 30 Science credits to earn a TPAA high school diploma. Possible course sequences are illustrated below:



Science 6

Description:

Integrated Science 6 focuses on four major science disciplines: Life Science, Earth Science, Physical Science, and Engineering/Technology. Students will focus on standards that cover concepts from Molecules to Organisms: Structures and Processes, Heredity: Inheritance and Variation of Traits, Earth's Systems, Earth and Human Activity, Energy, and Engineering Design. Students will participate in investigations (labs and projects) that will help them develop a deeper understanding of the different scientific phenomena that occur on our planet. This is an inquiry-based course where students will further develop the Science and Engineering Practices skills such as formulating questions, creating explanations based on evidence, develop models, and communicate and justify explanations among other skills.

Topics:

- Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells
- Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
- Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.
- Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
- Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

- Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
- Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
- Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
- Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
- Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.
- Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
- Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
- Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

STEM connection:
6th grade Integrated Science introduces students to be observers of the world around them and to have an inquisitive mind through the understanding of the scientific method.

Next course in sequence: Integrated Science 7, or Integrated Science 7 Honors

Science 7

Description:
Integrated Science 7 focuses on three major science disciplines: Life Science, Earth Science, and Chemistry. Students will learn how matter interacts from its basic structure, the atom, to form molecules that create the matter that exists in the universe. They will also learn how organisms interact with living and nonliving things to help them survive in the different habitats of planet Earth. Students will participate in investigations (labs and projects) that will help them develop a deeper understanding of the different scientific phenomena that occur on our planet. This is an inquiry-based course where students will further develop the Science and Engineering Practices skills such as formulating questions, creating explanations based on evidence, develop models, and communicate and justify explanations among other skills.
Topics:
Matter and its interactions, ecosystems, plate tectonics, rock cycle, natural disasters and human impact

STEM connection:
Science 7 introduces students to be observers of the world around them and to have an inquisitive mind through the understanding of the scientific method.

Project-Based Learning:
Students will complete projects designed to target the Science and Engineering practices.

Next course in sequence: Integrated Science 8, or Integrated Science 8 Honors

Science 7 Honors

Description:

The course provides students an opportunity to build on the skills and knowledge of 6th grade as they continue their exploration of life science, physical science and earth and space science. With each unit, students will use the NGSS Crosscutting Concepts to make sense of natural phenomena. Students analyze phenomena in terms of patterns, cause and effect, systems-thinking, structure and function, and stability and change. Students will further their understanding of the NGSS Disciplinary Core Ideas by engaging in the NGSS Science and Engineering Practices including but not limited to: engaging in argument from evidence, analyzing and interpreting data, designing and conducting explanations, constructing explanations, and modeling.

Topics:

Earth in Space, Chemical Reactions and Matter, Energy and Chemical Reactions, Metabolic Reactions, Matter Cycling and Photosynthesis, and Ecosystems and Biodiversity.

STEM connection:

Science 7 Honors introduces students to be observers of the world around them and to have an inquisitive mind through the understanding of the scientific method.

Project-Based Learning:

Students will complete projects designed to target the Science and Engineering practices.

Prerequisites: A grade of C or higher in Science 6, or have a teacher recommendation.

Next course in sequence: Integrated Science 8 or Integrated Science 8 Honors

Science 8

Description:

8th grade Integrated science will cover the topics and concepts of Physical and Life Sciences. Biology, Chemistry, and Physics will be studied in isolation as well as how the three branches of study blend and interact with one another. Life Science will focus on patterns, processes, and relationships of living organisms. The study of life ranges from the cell to the biosphere. Physical science will study the physical and chemical subprocesses that occur in all systems of the universe.

Topics:

- Matter and its Interactions
- Motion and Stability
- Energy
- Molecules to Organisms
- Ecosystems
- Heredity
- Change

STEM connection:

Develop and use mathematical models for data analysis and to make predictions about scientific phenomena.

Project-based learning:

Students will design and complete projects to further their understanding of NGSS Science and Engineering standards.

Next course in sequence: Earth Science, or Biology

Science 8 Honors

Description:

The course increases the depth of understanding of life science, physical science, and earth and space science and prepares students for high school science. With each unit, students will use the NGSS Crosscutting Concepts to make sense of natural phenomena. Students analyze phenomena in terms of patterns, cause and effect, systems-thinking, structure and function, and stability and change. Students will further their understanding of the NGSS Disciplinary Core Ideas by engaging in the NGSS Science and Engineering Practices including but not limited to: engaging in argument from evidence, analyzing and interpreting data, designing and conducting explanations, constructing explanations, and modeling.

Topics:

Contact Forces, Sound, Forces at a Distance, Genetics

STEM connection:

Develop and use mathematical models for data analysis and to make predictions about scientific phenomena.

Project-based learning:

Students will design and complete projects to further their understanding of NGSS Science and Engineering standards.

Prerequisites: A grade of C or higher in Science 7, Science 7 Honors, or have a teacher recommendation.

Next course in sequence: Earth Science, or Biology

Earth Science

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

Earth Science focuses on the study of five major science disciplines: astronomy, geology, meteorology, oceanography and environmental science. Students will learn about the formation of the universe and Earth's place in the Universe. They will explore how systems of the Earth work together and affect geologic and atmospheric processes, and how current human activities are affecting our planet. Students in this course will investigate and supplement their understanding by conducting and analyzing experiments and using technology to collect data and communicate ideas.

Topics:

Space; Earth's systems; carbon cycle; human activities and the environment; human activity; and climate change.

STEM Connection:

The students develop the ability to think and express themselves in a scientific manner by focusing on the importance of laboratory skills, experimentation, and analysis.

Project-Based Learning:

Students will complete projects and engineering challenges design to target the Engineering, Technology, and Application of Science standards where students will analyze major problems, design solutions, evaluate their solutions, and present it to their class.

Next course in sequence: Biology, or AP Biology

Biology

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Biology is a college preparatory course designed to familiarize the student with the diversity and processes of life. This course emphasizes the classification and ecology of organisms; the role that evolution has played in life on earth; ecological change and stability; the molecular, cellular and organism levels of life; energy production and flow within living systems.

Topics:

- Cell Structure and Physiology
- DNA Structure and Function
- Genetics and Inheritance
- Evolution
- Ecology
- Biomolecules and Scientific Procedures and Behavior
- Cellular Respiration and Photosynthesis

STEM connection:
The students develop the ability to think and express themselves in a scientific manner by focusing on the importance of laboratory skills, experimentation, and analysis.

Project-based learning: Dissection

Next course in sequence: Chemistry, Physics, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

AP Biology

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
The Advanced Placement Biology course is designed to be the equivalent of a first year college biology class. The course is an in depth study of biological concepts and will include lecture, independent and team work, extensive lab work, demonstrations and projects. Curriculum will focus on current research methods and career opportunities whenever possible. Importance will be placed on student initiative and responsibility in terms of laboratory work, meeting assignment and exam deadlines and coping with the rigorous requirements of the program. This course is designed to prepare students to take and pass the AP Biology exam in May.

STEM connection:
The problem-solving strategies obtained during this course will prepare college- bound students for careers in the sciences, medicine, engineering, and other technical areas.

Prerequisites: A grade of C or higher in Biology, Chemistry, or have a teacher recommendation.

Next course in sequence: Chemistry, Physics, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Computer Science Principles, AP Chemistry, or AP Environmental Science

Chemistry

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Chemistry is designed to be a general, college-preparatory course in the fundamentals of chemistry. The emphasis in this course is given to both problem-solving and laboratory investigation.

Topics:
Measurement, the physical and chemical structure of matter, chemical reactions and stoichiometry, solutions and ionization, atomic theory, equilibrium and electrochemistry.

STEM connection:
Students will research chemistry-related careers and design an experiment to explore real-world applications of chemistry to a potential career path.

Project-based learning:
Love and War - how has chemistry impacted human interaction and warfare throughout the ages.

Next course in sequence: Physics, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, AP Chemistry, or AP Environmental Science

AP Chemistry

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
AP Chemistry is designed to be the equivalent of a first-year college general chemistry course and follows the College Board's AP Chemistry Topic Outline. As such, the course is suitable only for high school students who exhibit high levels of commitment, motivation and academic maturity. Students are expected to spend extra time studying outside of class.

Topics:
This course presents a rigorous treatment of the following concepts: the nature of matter, gas laws, thermodynamics, stoichiometry, bonding, chemical kinetics, chemical equilibria, and more.

STEM connection:
The problem-solving strategies obtained during this course will prepare college-bound students for careers in the sciences, medicine, engineering, and other technical areas.

Prerequisites: A grade of C or higher in Biology and a teacher recommendation; A grade C or higher in AP Biology, Chemistry, or have a teacher recommendation.

Next course in sequence: Physics, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

Anatomy and Physiology

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This course is designed specifically for those students whose college and/or career plans include a possible emphasis on the medical or biological sciences. The student should be capable of performing in an independent as well as small group laboratory setting. Importance will be placed on student initiative and responsibility in terms of laboratory work, meeting assignment and exam deadlines and coping with the rigorous requirements of the program. The course curriculum will focus on the anatomy and physiology of the human body, including the 11 body systems. Some dissection will be included.

STEM connection:
The problem-solving strategies obtained during this course will prepare college-bound students for careers in the sciences, medicine, bioengineering, and other technical areas.

Prerequisites: A grade of C or higher in Biology, or have a teacher recommendation.

Next course in sequence: Chemistry, Physics, Ecology, Geology, Astronomy, AP Biology, AP Computer Science Principles, or AP Environmental Science

Ecology

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This is a project-based class where you will have the opportunity to work solo and with others on projects to show your comprehension of the information shared.

During our first semester we will cover the fundamentals of Ecology: biotic/abiotic interactions, levels of organization, biogeochemical cycles, community interactions, biomes, and types of species along with learning to evaluate scientific writings and studies. Throw in the exploration of a couple of different types of Ecology and your first semester is complete.

Second semester is the application of what was learned in the first semester: biodiversity, ecosystems, California bioregions, sustainability, the impact of human activities, and our role in the intertwined future of global systems. A realistic view of where we are, ecologically, and where we need to be going.

Next course in sequence: Chemistry, Physics, Geology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

AP Environmental Science

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them.

Topics:
Earth Systems and Resources, Population Biology, Land and Water Use, Energy Resources and Consumption, Pollution and Global Changes. The laboratory and field investigation component of the AP Environmental Science course challenges students to: critically observe environmental systems utilizing appropriate techniques and instrumentation, develop and conduct well-designed experiments, analyze and interpret data - including appropriate statistical and graphical presentations, think analytically and apply concepts to the solution of environmental problems, communicate accurately and meaningfully about observations and conclusions and propose further questions for study.

STEM Connection:
All students in AP Environmental Science will conduct problem-based investigations using analytical instrumentation and data analysis to support project-based learning (see topics below).

Project-Based Learning:
Tragedy of the Commons - a case study of the Mystery of Easter Island. Bio-Builds – designing, creating, and maintaining aquaculture, Dynamic Planet – How models interpret and predict changes to our home planet.

Prerequisites: A grade of C or higher in Biology, or have a teacher recommendation.

Next course in sequence: Chemistry, Physics, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Biology, or AP Computer Science Principles

Astronomy

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This course introduces astronomy by examining the physics, chemistry, biology, history, and philosophy to explore our current understanding of the nature of the universe to answer this essential question: How did the Earth, our Solar System, the Milky Way Galaxy, and the Universe form and how have they evolved over time?
Energy and matter are studied by investigating the processes of nuclear fusion and fission that govern the formation and evolution of the solar system in the universe. Newton's laws of gravitation and Kepler's laws of planetary motion are investigated to understand the movement of celestial objects. Additionally, the roles that engineering and technology play in obtaining and analyzing data that support the theories of the formation of the solar system and universe will be explored. Students will demonstrate proficiency in developing and using models, using mathematical and computational thinking, constructing explanations, obtaining, evaluating, and communicating information; and use these practices to demonstrate understanding of core concepts.

Topics:

Cosmic Perspective - Our Place in the Universe
Life Cycles of the Stars - Formation of Atoms
Analyzing Light - Radio Waves to Gamma Radiation
Planetary Science - How Earth Relates to Other Worlds
Intergalactic Space - Galaxy Formation
Deep Space - Dark Matter, Black Holes, Space and Time

STEM Connection:

Students will use Starry Night simulation software to make precise observations and predictions of lunar phases, motions of the planets and the relative location of the stars in the past, present and future to develop analytic thinking and explore the dynamic motions of the universe.

Project-based learning:

A Personal Journey in Astronomy
Students will choose a research topic and develop a presentation and a class activity in which other students will engage with that topic. Students will learn about concepts that they find particularly interesting and share those interests with others.

Next course in sequence: Chemistry, Physics, Ecology, Geology, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

Geology

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This course is designed to help students understand the processes that shape our planet and make our “third rock from the sun” a dynamic and sometimes dangerous place. Students will investigate Earth Science concepts and acquire laboratory and field skills involving mineral and rock identification (geochemistry), geophysics, geomorphology, geologic history, mapping, plate tectonics, oceanography and meteorology. Basic concepts in Chemistry, Physics, Biology, and Environmental Science will be incorporated with the core units covered. The Next Generation Science Standards will be highlighted throughout the course in order to adhere to the newest California adopted standards for Secondary Science education.

Next course in sequence: Chemistry, Physics, Ecology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

Physics

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This course is a standards-based study of fundamental physics concepts. Emphasis is placed on the utilization of mathematical, analytical, data acquisition, graphical, and communication skills as well as interdisciplinary approaches to discovery. Concepts and skills are reinforced by a strong emphasis on hands-on laboratory experiences and the integration

of other branches of science. Applications to society, individuals, and the utilization of technology is included. Physics fulfills both the physical science high school graduation requirement and the UC/CSU “d” laboratory science requirement.

Topics:
Measurement, calculation, and graphing in kinematics and dynamics, propagation and conservation of energy and momentum, gravitation and orbital mechanics, heat and thermodynamics, waves, optics, electromagnetic phenomena, and relativity and quantum physics.

STEM Connection:
The problem-solving strategies obtained during this course will prepare college- bound students for careers in the sciences, engineering, math, and other technical areas.

Project-based learning:
Students conduct labs and specific projects to apply the concepts in context.

Prerequisites: A grade of C or higher in Biology and Algebra 1, or have a teacher recommendation; concurrent enrollment in Algebra II or higher is strongly recommended.

Next course in sequence: Chemistry, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

AP Computer Science Principles

(Meets Science Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
AP Computer Science Principles curriculum is a full-year, rigorous, entry-level course that introduces high school students to the foundations of modern computing. The course covers a broad range of foundational topics such as programming, algorithms, the Internet, big data, digital privacy and security, and the societal impacts of computing.

Topics:
The internet, digital information, intro to programming, big data and privacy, and building apps.

STEM Connection:
The problem-solving strategies obtained during this course will prepare college- bound students for careers in the sciences, engineering, math, and other technical areas.

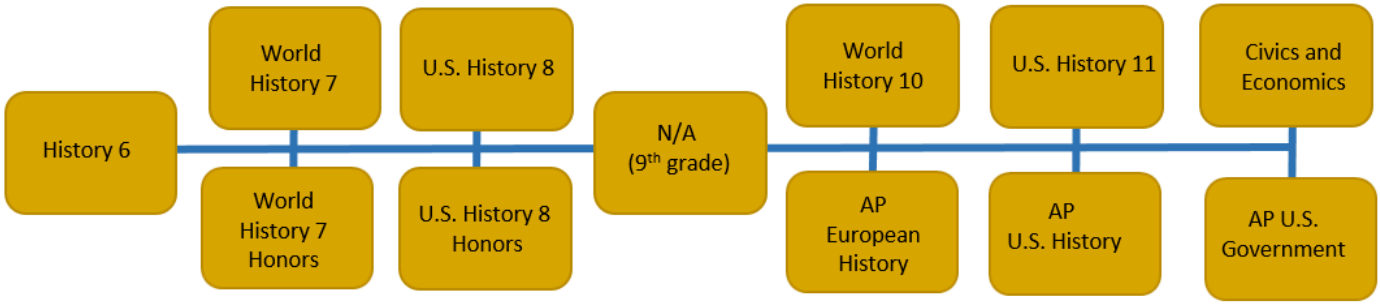
Project-Based Learning:
Students will complete several projects throughout the school year and they will be able to work in cooperative groups to complete each project. Students will use projects and the topics in this course to describe how mathematics is integrated into their everyday life

Prerequisites: A grade of C or higher in Algebra 1 and English 9, or have a teacher recommendation.

Next course in sequence: Chemistry, Physics, Ecology, Geology, Astronomy, Anatomy and Physiology, AP Biology, AP Computer Science Principles, or AP Environmental Science

SOCIAL SCIENCE

Students need 30 Social credits to earn a TPAA high school diploma. Possible course sequences are illustrated below:



History 6

Description:

Students will learn Ancient Civilizations from the Mesopotamia "The Cradle of Civilization" through the fall of Rome, which will include Ancient Egypt, China, Greece, and Rome.

Topics:

Some examples of topics covered in each region includes the following:

- Egypt- topics will include Pharaohs such as King Tutankhamun and King Ramses, pyramids, lifestyles of the Egyptians, burial traditions, geography, and afterlife belief.
- China- topics included for China are the Shang Zhou, Qin, and Han Dynasties, Huang He River, The Great Wall, The Silk Road and the teachings of Confucius.
- Greece- topics will include geography, four types of government, the Parthenon, Greek Theatre, Myths/Greek gods, Spartan, Athenians, Circus Maximus.
- Rome topics will include geography, the rise of the Roman empire, the comparison of Greek and Roman art and architecture, culture, the beginning of Christianity, and the events that lead up to the fall of Rome.

STEM connection:

STEM projects will be tied throughout the Social Studies units such as building a "boulder mover" with bricks to simulate the building of the pyramids, making a Roman aqueduct, and using paper to build Greek and Roman arched bridges.

Project-based learning:

STEM projects will be tied throughout the Social Studies units such as building a "boulder mover" with bricks to simulate the building of the pyramids, making a Roman aqueduct, and using paper to build Greek and Roman arched bridges.

Next course in sequence: 7th Grade World History, or 7th Grade World History Honors

World History 7

Description:

World History provides students with opportunities to study the rise and fall of empires, the diffusion of religions and languages, and significant movements of people, ideas, and products. During these periods, the regions of the world became more and more interconnected. Although societies were quite distinct from each other, there were more exchanges of people, products, and ideas in each century. For this reason, world history during the medieval and early modern periods can be a bewildering catalog of names, places, and events that impacted individual societies, while the larger patterns that affected the world are lost. To avoid this, the course will focus on questions that get at the larger geographic, historical, economic, and civic patterns of the world. To answer these questions, students study content-rich examples and case studies, rather than superficially survey all places, names, and events. Students approach history not only as a body of content (such as events, people, ideas, or historical accounts) to be encountered or mastered, but also as an investigative discipline. They analyze evidence from written and visual primary sources, supplemented by secondary sources, to form historical interpretations. Both in writing and speaking, they cite evidence from textual sources to support their arguments.

Topics:

1. Rome and the Rise of Christianity
2. Medieval Europe
3. Islamic Civilizations & India
4. Imperial China
5. The Americas & African Civilizations
6. New Ideas in Korea, Japan, and Europe
7. Age of Exploration and Trade

STEM connection:

Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing.

Project-based learning:

Students will collaborate with peers to design presentations, projects, and other informative based media.

Next course in sequence: 8th grade U.S. History, or 8th grade U.S. History Honors

World History 7 Honors

Description:

Honors World History is a survey course that gives you the opportunity to explore recurring themes of the human experience common to civilizations around the world from ancient to contemporary times. The themes of geography and an analysis of the cultural traits of civilizations will help you, as a young historian, to understand how people shape their world and how their world shapes them. You will examine the historical roots of significant events, ideas, movements, and phenomena, and will discover the contributions and patterns of civilizations around the world.

This is a challenging course that will require you to take greater responsibility for your learning. You will be engaged in problem-solving, critical analysis and reflective thinking, both as an individual and as part of a group. The desired outcome of this course is twofold. First, that you develop an understanding of current world issues and relate them to their historical, political, economic, geographical and cultural contexts. And second, that you will acquire the skills and knowledge necessary to become responsible and effective citizens in an interdependent world.

Topics:
The Neolithic Revolution and the Emergence of Complex Societies, Expanding Networks of Exchange and Encounter, Patterns of Interregional Unity, Global Interactions, Industrialization and Revolution, The age of imperialism, Global Conflict, Decolonization and the The Cold War, and Globalization.

STEM connection:
Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing.

Project-based learning:
Students will collaborate with peers to design presentations, projects, and other informative based media.

Prerequisites: A grade of C or higher in History 6, or have a teacher recommendation.

Next course in sequence: U.S. History 8, or US History 8 Honors

U.S. History 8

Description:
The 8th grade U.S history class will explore the origins of our nation from the 13 colonies until the outbreak of World War I. Throughout the class, students will learn to think like historians by questioning, analyzing, and evaluating both secondary and primary sources. Students will be challenged to think of history as not just one story in a textbook, but rather as multiple histories that look at the past from multiple perspectives.

Topics:
- Early Colonization and Revolutionary War
- Constitution and Government
- Westward Expansion
- Civil War and Reconstruction Era
- Industrialization and Immigration

STEM connection:
Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing. Content wise, students will trace the development of technological inventions and their impact on American life at home and at war.

Project-based learning:
Students will collaborate with peers to design presentations, projects, and other informative based media

Next course in sequence: World History, or AP European History

US History 8 Honors

Description:
The focus for social studies in grade eight is the story of the history of South Carolina and the role that the state and its people have played in the development of the United States as a nation. The honors course will be more rigorous and will help prepare students for Advanced Placement social studies classes at TPAA. Using a variety of materials, lessons, and activities, students will deepen their understanding of American and South Carolina history and of political, social, and economic concepts. Students will use analytical thinking skills and primary documents to compare events, consider cause and effects, and consider the links between historical and modern-day issues. They will construct and express views and

judgments both orally and in writing, with an emphasis on the development of essay writing skills, including document-based essay questions. Technology will be incorporated into class activities with the understanding that research skills and presentations are an integral part of the honors social studies curriculum.

Topics:

- Great Awakening, Revolution, and Independence
- Early American Government
- American Political System
- Ideals of a New Nation
- Foreign Policy in the Early Republic
- West and Manifest Destiny

STEM connection:

Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing. Content wise, students will trace the development of technological inventions and their impact on American life at home and at war.

Project-based learning:

Students will collaborate with peers to design presentations, projects, and other informative based media

Prerequisites: A grade of C or higher in World History 7, World History 7 Honors, or have a teacher recommendation.

Next course in sequence: World History, or AP European History

World History 10

(Meets History Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This course is an analysis of the progression of the world from ancient primitive civilizations to the present with an emphasis on the historic importance of democratic concepts and ideas and its validity in the light of the historical roots of present world issues. Students will analyze the major pivotal points that have molded and modified the modern course of world events, the rise and fall of various political, social and economic developments, and the causes and inherent significance of the two major world wars.

Topics:

- Greek and Roman philosophy and significance of their legacy; Judaism and Christianity and the long and short term effects on contemporary western political thought
- Industrial Revolution, imperialism, and the rise of various revolutionary political and socio-economic movements in Europe, Asia, and the Americas
- Causes and effects of the two world wars of the 20th century and the global impact of universalism
- Post World War II and contemporary world issues in the light of significant and irreversible catastrophic consequences of rogue or irresponsible reactionism

STEM connection:

Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing. Content wise, students will trace the development of technological inventions and their impact on World History and contemporary civilizations.

Project-based learning:
Students will collaborate with peers to design presentations, projects, and other informative based media

Next course in sequence: U.S. History, or AP U.S. History

AP European History (10th grade)

(Meets History Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
The objective of the course is to increase students' understanding and appreciation of European history while helping each student succeed on the AP® European History Exam. The course is divided into two semesters: (1) the Later Middle Ages through the French Revolution, and (2) the Industrial Revolution to the present. Areas of concentration include historical, political, and economic history coupled with an intense study of cultural and intellectual institutions and their development. These areas are studied from a variety of perspectives with the hope of providing a balanced view of history.
This course is taught at the college level. The major difference between a regular high school history course and a college-level history course is the greater amount of reading and the depth of focus that is found in the college level course. Moreover, the AP curriculum demands higher- order thinking skills within a rigorous academic context. Thus, students are frequently required to analyze, synthesize, and evaluate primary and secondary historical sources, in addition to comprehending, memorizing, and applying facts.

Topics:
This class is a survey of modern European History beginning with a review of the medieval ages and ending with a close look at European nations in the 21st century.

STEM Connection:
Various units will be highlighted, such as how the technological advances influenced European nations and propelled them into the modern era.

Project-Based Learning:
Students will collaborate with one another through various in-class and out of class projects. Students will participate in college-style discussions and develop skills needed to be successful in real world settings.

Prerequisites: A grade of C or higher in English 9, English 9 Honors, or have a teacher recommendation.

Next course in sequence: U.S. History, or AP U.S. History

U.S. History 11

(Meets History Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This course is a survey of 20th century America. The year starts with a general review of concepts studied in 8th grade, covering America's colonial beginnings to approximately the Civil War. Attention will be given to the origin and development of democratic institutions in the country. Students will study America in the 20th century and will focus on the Progressive movement, American involvement in imperialism, and World War I and the 1920s. The second semester highlights the period from the 1920s to the modern day, with an emphasis upon the Great Depression, World War II, the Cold War, Civil Rights, the Vietnam War, the rise of the Conservative political movement in the 1980s, and the new technological advancements into the 21st century.

Topics:

- Geography and its impact on the development of early America
- 18th and 19th century social, economic, political, and technological developments
- The rise of Industrialization and its impact on urban growth
- America at war with the world (World War I & World War II)
- The changing status of Mexican-Americans, African-Americans, and other ethnic minorities
- America's involvement in Vietnam
- Political and social developments in the modern era

STEM connection:

Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing. Content wise, students will trace the development of technological inventions and their impact on American life at home and at war.

Project-based learning:

Students will collaborate with peers to design presentations, projects, and other informative based media

Next course in sequence: Civics/Economics, or AP Government and Politics

AP United States History (11th Grade)

(Meets History Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This course focuses on an in-depth history of the United States from pre-colonial to contemporary times. Students will receive an academically intensive and rigorous curriculum that emphasizes analytical and investigative skills. Historical, economic, geographical, social, and political knowledge and concepts, as well as reasoning and research will be emphasized. This course will prepare students to take the Advanced Placement Exam in U.S. History.

Topics:

- Geography and its impact on the development of early America
- 18th and 19th century social, economic, political, and technological developments
- The rise of Industrialization and its impact on urban growth
- America at war with the world (World War I & World War II)
- The changing status of Mexican-Americans, African-Americans, and other ethnic minorities
- America's involvement in Vietnam
- Political and social developments in the modern era

STEM connection:

Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing. Content wise, students will trace the development of technological inventions and their impact on American life at home and at war.

Project-based learning:

Students will collaborate with peers to design presentations, projects, and other informative based media

Prerequisites: A grade of C or higher in World History 10, AP European History, or have a teacher recommendation.

Next course in sequence: Civics/Economics, or AP Government and Politics

Civics & Economics (12th Grade)

(Meets History Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

Civics course focuses on the structure of the United States government. The student will study the judicial, legislative, and executive branches of the American system on a national, state, and local level. Emphasis will be placed on civic duty and responsibility. The economics portion of this course will introduce students to basic economic concepts and principles such as the dichotomies of supply versus demand, concepts of artificial shortages and market control, economic systems, gross domestic products, natural supply and demand, inflation, economic rebounding, tipping points of unemployment and taxation philosophies, responsible versus irresponsible fiscal policies, and resultant monetary policies and consequences.

Topics:

- 3 Branches of government
- Prominent government systems and concepts
- Capitalism, Socialism, and Communism
- Factors of economic growth and development
- International trade and issues
- Economic ideas of Adam Smith, John Keynes, and Karl Marx and their influence on modern economic systems and thought.

STEM connection:

Students will utilize technological resources to research, present, and analyze historical figures, documents, and writing. Content wise, students will trace the development of technological inventions and their impact on American life at home and at war.

Project-based learning:

Students will collaborate to design and create their own political parties, campaigns, and systems of government to understand the power of perspectives on public opinion.

Next course in sequence: N/A

AP United States Government and Politics (12th Grade)

(Meets History Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

The AP Government & Politics class provides an in-depth study of how the American government functions in the world today. Particular attention will be given to an analytical view of the government's institutions as well as the role that citizens and politicians play in the democratic process. Students will become familiar with various political institutions, groups, beliefs, systems, and ideas that constitute everyday American politics. This course will prepare students to take the Advanced Placement Exam in Government.

Topics:

- Foundations of American Democracy
- Interaction Among Branches of Government
- Civil Liberties and Civil Rights
- American Political Ideologies and Beliefs
- Political Participation
-

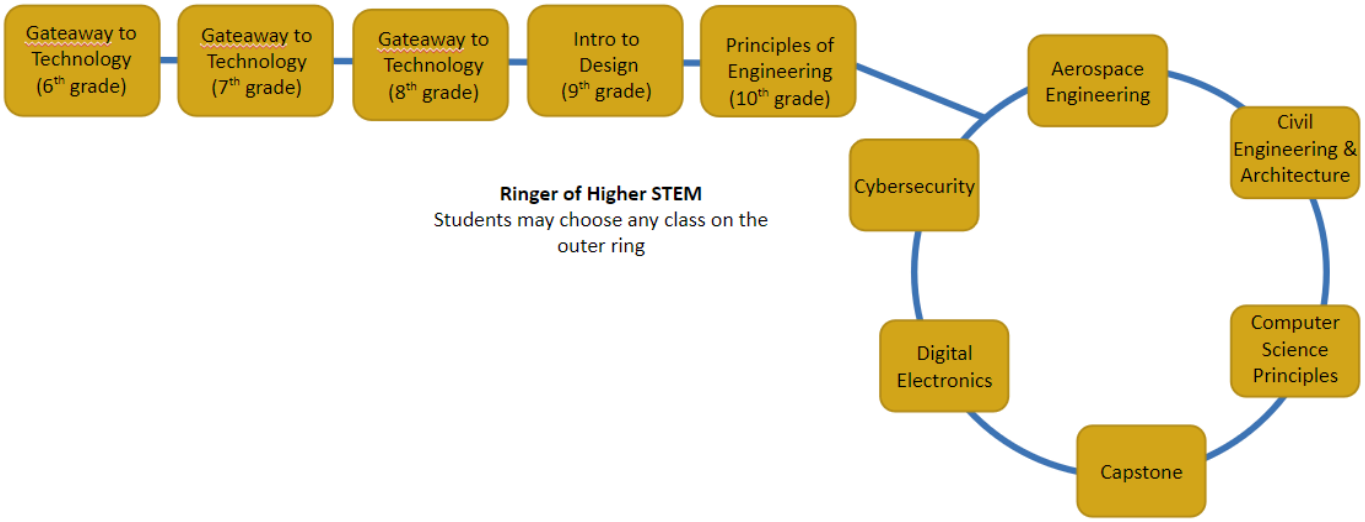
STEM connection:
Students will utilize technological resources (i.e. iPads) to research, present, and analyze.

Project-based learning:
Students will collaborate to design and create their own political parties, campaigns, and systems of government to understand the power of perspectives on public opinion.

Prerequisites: A grade of C or higher in US History 11, AP US History, or have a teacher recommendation.

STEM

Students need 30 Math credits to earn a TPAA high school diploma. Possible course sequences are illustrated below:



Gateway to Technology 6

Description:

6th grade students will participate in Project Lead the Way "Gateway to Technology- **Design and Modeling**"

Topics:

Students will learn what engineers do and the various kinds of engineers. They will also learn the design process which will help them to solve various problems they will solve as a group. Some of the problems are designing a foot orthosis and a toy that can be used by a child with Cerebral Palsy, build a wooden puzzle from scrap pieces, and build bridges out of paper.

Students will also learn technical drawings and how to use a computer assisted drawing program to aid in creating their designs on the computer.

In Medical Detectives students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries through hands-on projects and labs, measure and interpret vital signs, examine nervous system structure and function, and investigate disease outbreaks.

Next Course in sequence: Gateway to Technology (7th Grade)

Gateway to Technology 7

Description:

The PLTW Gateway To Technology (GTT) program features a project-based curriculum designed to challenge and engage the natural curiosity and imagination of middle school students. They envision, design and test their ideas with the same advanced modeling software used by companies like Lockheed Martin, Intel and Sprint. They study block coding coupled with mechanical and computer control systems; think robotics and animation. Students also explore the importance of energy, including innovative ways to reduce, conserve and produce it using solar, thermal and wind power. The knowledge

that student's gain and the skills they build from GTT create a strong foundation for further STEM learning in high school and beyond.
Throughout GTT, students acquire knowledge and skills in problem solving, teamwork and innovation as well as explore STEM careers. Taught in conjunction with a rigorous academic curriculum, the program is divided into seven, nine-week independent units, assuming a 45- minute class period. Schools implement both foundation units and may add any combination of the specialization units.
GTT is designed to spark an interest in STEM subjects and prepare students for further study in high school.

Topics:
Computer Science for Innovators and Makers (CSIM)
This unit will allow students to discover computer science concepts and skills by creating personally relevant, tangible, and shareable projects. Throughout the unit, students will learn about programming for the physical world by blending hardware design and software development. They will design and develop a physical computing device, interactive art installation, or wearable, and plan and develop code for microcontrollers that bring their physical designs to life.

Flight and Space (FS)
The rich history of aerospace comes alive through hands-on activities, research, and a presentation in the form of a short informational video. Students explore the science behind aeronautics and use their knowledge to design, build and test an airfoil. Custom-built simulation software allows students to experience space travel.

Next Course in sequence: Gateway to Technology (8th Grade)

Gateway to Technology 8

Description:
The PLTW Gateway to Technology (GTT) program features a project-based curriculum designed to challenge and engage the natural curiosity and imagination of middle school students. They envision, design and test their ideas with the same advanced modeling software used by companies like Lockheed Martin, Intel and Sprint. They study mechanical and computer control systems; think robotics and animation. Students also explore the importance of energy, including innovative ways to reduce, conserve and produce it using solar, thermal and wind power. The knowledge that students gain and the skills they build from GTT create a strong foundation for further STEM learning in high school and beyond.

Throughout GTT, students acquire knowledge and skills in problem solving, teamwork and innovation as well as explore STEM careers. Taught in conjunction with a rigorous academic curriculum, the program is divided into seven, nine-week independent units, assuming a 45- minute class period. Schools implement both foundation units and may add any combination of the specialization units.

GTT is designed to spark an interest in STEM subjects and prepare students for further study in high school.

Topics:
Automation and Robotics (AR)
Students trace the history, development, and influence of automation and robotics. They learn about mechanical systems, energy transfer, machine automation and computer control systems. Students use the VEX Robotics platform to design, build, and program real-world objects such as traffic lights, toll booths, and robotic arms.

Next course in sequence: Intro to Engineering (9th Grade)

PLTW Principles of Engineering (10th Grade)

(Meets STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This survey course exposes students to major concepts they'll encounter in a post- secondary engineering course of study. Topics include mechanical design, application of robotics, energy, and designing infrastructure. They develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, document their work and communicate solutions.

Topics:

Mechanical design, application of robotics, energy, and designing infrastructure.

Next course in sequence: PLTW Aerospace Engineering, PLTW Civil Engineering and Architecture, PLTW Computer Science Principles, PLTW Cybersecurity, PLTW Digital Electronics, or PLTW Capstone

PLTW Aerospace Engineering

(Meets STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

AE explores the evolution of flight, navigation and control, flight fundamentals, aerospace materials, propulsion, space travel, and orbital mechanics. In addition, this course presents alternative applications for aerospace engineering concepts. Students analyze, design, and build aerospace systems. They apply knowledge gained throughout the course in a final presentation about the future of the industry and their professional goals.

Topics:

- Aerodynamics
- Astronautics
- Space-life sciences
- Systems engineering

Prerequisites: Successful completion of Principles of Engineering.

Next course in sequence: PLTW Civil Engineering and Architecture, PLTW Computer Science Principles, PLTW Cybersecurity, PLTW Digital Electronics, or PLTW Capstone

PLTW Civil Engineering and Architecture (11th & 12th Grade)

(Meets STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

In CEA students are introduced to important aspects of residential and commercial building, site design and development. Using activity-project-problem based learning, students will progress from completing structured activities to solving open-ended projects and problems that require planning, documentation, communication, and other professional skills.

Topics:

You design both residential and commercial projects and document work using 3-D architectural design software. You will develop skills in engineering calculations, technical representation and documentation of design solutions according to

accepted technical standards, and use of current 3-D architectural design and modeling software to represent and communicate solutions.

Next course in sequence: PLTW Aerospace Engineering, PLTW Computer Science Principles, PLTW Cybersecurity, PLTW Digital Electronics, or PLTW Capstone

PLTW Computer Science Principles (11th & 12th Grade)

(Meets A- G Requirement for Elective Credit) (Meets A- G Requirement with a C or better)

Description:
Using Python® as a primary tool and incorporating multiple platforms and languages for computation, this course aims to develop computational thinking, generate excitement about career paths that utilize computing, and introduce professional tools that foster creativity and collaboration. Computer Science Principles helps students develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cybersecurity, and simulation.

Topics:
Algorithms, Graphical User Interfaces, The internet, Visualizing Data, Intelligent Behavior

STEM Connection:
Computer Science Principles is one of our PLTW STEM Electives.

Project-based Learning:
Build a Scratch Project. Program an App that uses sensors, Build a webpage, program an interactive story.

Next course in sequence: PLTW Aerospace Engineering, PLTW Cybersecurity, PLTW Digital Electronics, or PLTW Capstone

PLTW Cybersecurity (11th & 12th Grade)

Meets A- G Requirement for Elective Credit) (Meets A- G Requirement with a C or better)

Description:
The design of the course exposes high school students to the ever growing and far reaching field of cybersecurity. Students accomplish this through problem-based learning, where students role-play as cybersecurity experts and train as cybersecurity experts do. PLTW Cybersecurity strongly connects to the National Cybersecurity Workforce Framework (also known as the NICE Framework or NCWF). Created by the National Institute of Standards and Technology (NIST), this framework identifies standards developed by numerous academic, industry, and government organizations. The framework objectives address topics that span K-12 education and guide learning progressions. The objectives also incorporate many of the big ideas and learning objectives outlined by the College Board and addressed in AP CSP and AP CSA. In addition, the course integrates Computer Science Teachers Association (CSTA) standards. PLTW Cybersecurity gives students a broad exposure to the many aspects of digital and information security, while encouraging socially responsible choices and ethical behavior. It inspires algorithmic thinking, computational thinking, and especially, “outside-the-box” thinking. Students explore the many educational and career paths available to cybersecurity experts, as well as other careers that comprise the field of information security. The course contains the following units of study.

Topics:
Personal Security, System, Security, Network Security, Applied Cybersecurity

STEM Connection:
Cybersecurity is one of our PLTW STEM Electives.

Project-based Learning:
Protect your Data, identify security vulnerabilities for ecommerce, Secure the Net, Criminal Justice

Next course in sequence: PLTW Aerospace Engineering, PLTW Computer Science Principles, PLTW Digital Electronics, or PLTW Capstone

PLTW Digital Electronics (11th & 12th Grade)

(Meets STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Digital electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, computers, digital cameras, HD television, etc. This course focuses on the study of digital electronic theories, circuits, and devices that are used to process and control digital signals to do work for us.

Topics:
You the student will be exposed to basic electrical and electronic theories and basic circuit design and construction, soldering, digital electronic theories, the design process of combinational and sequential logic circuits and devices, programmable logic devices, stamp programmable devices, project development, engineering standards and documentation, teamwork, and communication.

Pre-requisites: Principles of Engineering

Next course in sequence: PLTW Aerospace Engineering, PLTW Computer Science Principles, PLTW Cybersecurity, or PLTW Capstone

PLTW Capstone (11th & 12th Grade)

(Meets STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This is a capstone course for students who are completing any of PLTW's high school programs. It is an open-ended research course in which students work in teams to design and develop an original solution to a well-defined and justified open-ended problem. Teams draw on the knowledge, skills, and interests of each member, as they perform research to select, define, and justify a problem. Given this collaboration, team members leave the course with a broadened skillset and an appreciation for learning from their peers. After carefully defining the design requirements and creating multiple solution approaches, student teams select an approach, create, and test or model their solution prototype. As they progress through the problem-solving process, students work closely with experts and continually hone their organizational, communication, and interpersonal skills, creative and problem-solving abilities, and their understanding of the integration of processes such as the design process, experimental design, and the software development process. At the conclusion of the course, teams present and defend their original solution to an outside panel.

Topics:
Project management, experimental design, professional documentation, teamwork and collaboration, and presentation of a project proposal.

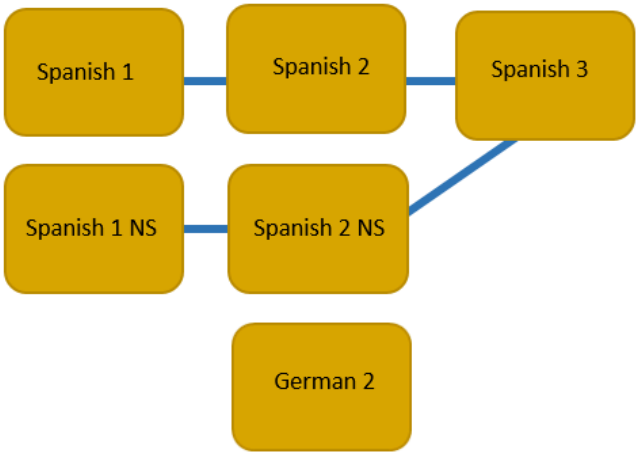
STEM Connection:
Introduction to Engineering and Principles of Engineering

Project-based Learning:
Open ended research and identification of design requirements

Next course in sequence: PLTW Aerospace Engineering, PLTW Computer Science Principles, PLTW Cybersecurity, or PLTW Digital Electronics

WORLD LANGUAGE

Students need 20 World Language credits to earn a TPAA high school diploma. Possible course sequences are illustrated below:



Spanish 1

(Meets Language Other than English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This course provides an introduction to the Spanish language through the development of listening, speaking, reading, and writing skills. In accordance with the World language standards, students will explore the "Five Cs": communication, culture, connections, comparisons, and communities.

Topics:
Grammar, culture, school life, home life, food, leisure activities, professions, health, shopping, and vacations.

STEM connection:
The course will promote and develop a variety of 21st century skills including oral and written communication, critical thinking and collaboration.

Project-based learning:
Students will collaborate frequently throughout the course in short and long term projects. The course will allow students to build language skills through project based activities.

Next course in sequence: Spanish 2

Spanish 1 for Native Speakers

(Meets Language Other than English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Designed for heritage learners of Spanish, this course can accommodate students from a wide range of backgrounds, from those who are minimally functional (can comprehend Spanish but are not able to speak fluently, read or write) to those

who are more proficient and/or literate in Spanish. This course focuses on the development of communicative competence in reading, writing, speaking and listening. Students will also develop an awareness and understanding of Hispanic cultures, including language variation, customs, geography, history, and current events.

Topics:
Grammar, literature, culture, school life, home life, food, leisure activities, professions, health, shopping, and vacations.

STEM connection:
The course will promote and develop a variety of 21st century skills including oral and written communication, critical thinking and collaboration.

Project-based learning:
Students will collaborate frequently throughout the course in short and long term projects. The course will allow students to build language skills through project based activities.

Prerequisites: Teacher recommendation based upon language assessment

Next course in sequence: Spanish 2, or Spanish 2 for Native Speakers

Spanish 2

(Meets Language Other than English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Spanish II continues the development of listening, speaking, reading, and writing skills. The course continues to provide an understanding of the civilization, culture and customs of Spanish-speaking people in multiple countries. In accordance with the World Languages standards, students will explore the "Five Cs": communication, culture, connections, comparisons, and communities.

Topics:
Grammar, culture, school life, home life, food, leisure activities, professions, health, shopping, and vacations.

STEM connection:
The course will promote and develop a variety of 21st century skills including oral and written communication, critical thinking and collaboration.

Project-based learning:
Students will collaborate frequently throughout the course in short and long term projects. The course will allow students to build language skills through project based activities.

Prerequisites: A grade of D or higher in Spanish 1, or have a teacher recommendation.

Next course in sequence: Spanish3

Spanish 2 for Native Speakers

(Meets Language Other than English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Designed for heritage learners of Spanish, this course can accommodate students from a wide range of backgrounds. This course focuses on the development of communicative competence in reading, writing, speaking and listening. Students will also develop an awareness and understanding of Hispanic cultures, including language variation, customs, geography, history, and current events.

Topics:
Grammar, culture, school life, home life, food, leisure activities, professions, health, shopping, and vacations.

STEM connection:
The course will promote and develop a variety of 21st century skills including oral and written communication, critical thinking and collaboration.

Project-based learning:
Students will collaborate frequently throughout the course in short and long term projects. The course will allow students to build language skills through project based activities.

Prerequisites: A grade of D or higher in Spanish 1NS, or have a teacher recommendation.

Next course in sequence: Spanish 3, or Spanish 3 NS

Spanish 3

(Meets Language Other than English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Spanish III is a rigorous and in depth continuation of the development of listening, speaking, reading, and writing skills. The course continues to provide an understanding of the civilization, culture and customs of Spanish-speaking people in multiple countries. In accordance with the World language standards, students will explore the “Five Cs”: communication, culture, connections, comparisons, and communities.

Topics:
Grammar, literature, culture, school life, home life, food, leisure activities, professions, health, shopping, and vacations.

STEM connection:
The course will promote and develop a variety of 21st century skills including oral and written communication, critical thinking and collaboration.

Project-based learning:
Students will collaborate frequently throughout the course in short and long term projects. The course will allow students to build language skills through project based activities.

Prerequisites: A grade of D or higher in Spanish 2, Spanish 2 NS, or have a teacher recommendation.

Next course in sequence: AP Spanish

German 2

(Meets Language Other than English Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
This one-year course builds on the German-language skills and cultural knowledge developed in German 1. Students will continue to work on their ability to comprehend, read, speak, and write German, facilitated through the use of cutting-edge educational technology, their *Deutsch:Na Klar!* textbook, as well as other authentic German-language media. Through oral and written exercises, grammar and vocabulary skills are further honed. By working with audio/video recordings and communication opportunities listening, speaking, and pronunciation skills will be further improved. Students will gain a deeper insight into the cultural aspects of German by completing research projects and by getting exposed to authentic media from German-speaking countries.

Topics:
Grammar, literature, culture, city life, home life, travel, leisure activities, professions, health, media & technology, public opinion

STEM connection:
The course will promote and develop a variety of 21st century skills, including oral and written communication, critical thinking, technology literacy, and collaboration.

Project-based learning:
Students will collaborate frequently throughout the course in short and long term assignments. The course will allow students to build language skills through project-based activities.

Prerequisites: A grade of D or higher in German 1, or have a teacher recommendation.

Next course in sequence: German 3

VISUAL AND PERFORMING ART (VAPA)

Students need 10 VAPA credits to earn a TPAA high school diploma.

AP Art History (11th- 12th grade)

(Meets VAPA Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

Art history is designed to be a college level survey course approved by the College Board. Students will learn artworks chronologically, beginning with Paleolithic painting/sculpture and ending with Post-Modernist contemporary artists. The course will spend the most time on Renaissance art to the 21st century. We will explore ancient through the Medieval ages, and global arts including Africa, the ancient North and South Americas, Asia, Near East, Oceania, and Islamic traditions. Throughout the year the students will be guided by Essential Questions put forth by College Board; What is art and how is it made? Why and how does art change? How do we describe our thinking about art?

Students will learn art history through experiencing art, contextual and visual analysis, lectures, activities, discussions, writing, reading, and understanding art vocabulary. They will learn to develop their skill in analyzing works of art including paintings, drawings, sculpture, architecture, ceramics, printmaking, and fibers. An emphasis will be put on learning works of art through context, styles, and meaning to determine century, culture, and artist.

Topics:

- visual analysis
- contextual analysis
- comparison of works of art
- artistic traditions
- visual analysis of unknown works
- attribution of unknown works
- argumentation

Digital Arts and Game Design

(Meets VAPA or STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This course introduces students to the process of conceptualizing, designing, and creating playable interactive digital experiences. Throughout this projects-based course, students will learn foundational art skills in illustration and graphic design in order to create characters and environments that communicate an effective visual narrative. Students will learn to use industry-standard software to create playable video games that demonstrate an understanding of the technical tools and the mechanics of game design. The larger goal of this course is to expose students to a variety of roles within game art and design, and to provide them with the foundational skills that will allow them to pursue different paths within the field.

Introduction to Design 1, 2 (9th Grade)

(Meets VAPA or STEM Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

The major focus of the Introduction to Engineering course is to expose students to design processes, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. Students will employ engineering and scientific concepts in the solution of engineering design problems. ID provides students the opportunity to develop skills and understanding of course concepts through activity-, project-, and problem-based learning, used in combination with a teaming approach. The course challenges students to continually hone their interpersonal skills, creative abilities and understanding of the design process. It also allows students to develop strategies to enable and direct their own learning. In addition, students use a state of the art 3D solid modeling design software package to help them design solutions to solve proposed problems. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges that increase in difficulty throughout the course. Students will also learn how to document their work, and communicate their solutions to their peers and members of the professional community.

Topics:

- Design Process
- Reverse Engineering
- Modeling
- Consumer Product Design Innovation Marketing
- Sketching
- Graphic Design
- Measurement, Statistics, and Applied Geometry
- Engineering Ethics
- Presentation Design and Delivery
- Proper Documentation
- Engineering Drawing Standards
- Virtual Design Teams
- CAD Solid Modeling

Prerequisites: Successful completion of Gateway to Technology (8th)

Next course in sequence: Principles of Engineering

EL

MS EL 1/2

Description:

English 3D Course B Volume 1, is an intermediate English language course designed to further develop students' skills in reading comprehension, critical thinking, and effective communication. Building upon the foundations laid in previous English 3D courses, this course focuses on engaging students with complex texts from various genres, including literature, informational texts, and multimedia sources.

Topics:

- Literary Analysis: Techniques for analyzing and interpreting literature, including characterization, plot structure, and theme analysis.
- Research Writing: Strategies for conducting research, evaluating sources, and synthesizing information into well-organized essays.
- Argumentation and Persuasion: Crafting persuasive arguments through effective rhetoric and evidence-based reasoning.
- Oral Communication: Practicing public speaking skills through presentations, debates, and discussions.
- Media Literacy: Analyzing media texts, including advertisements, news articles, and digital media, to understand persuasive techniques and biases.

Project-based learning:

English 3D Course B Volume 1, offers students the opportunity to further develop their English language skills while exploring diverse literary works and engaging in critical analysis and communication. Through rigorous coursework, interactive activities, and collaborative learning experiences, students will emerge with enhanced proficiency and confidence in their English language abilities.

Next course in sequence: ELD MS 3/4

MS EL 3/4

Description:

English 3D Course B Volume 2, is an advanced-level English language course designed to further develop students' proficiency
in reading, writing, speaking, and listening. Building upon the skills and knowledge acquired in previous volumes, this course
focuses on exploring complex texts, honing analytical thinking, and refining communication skills through in-depth study and
application of English language arts concepts.

Topics:

- Literary Analysis: Exploring advanced literary elements such as symbolism, allegory, and narrative structure through the
  study of contemporary texts.
- Research and Argumentation: Conducting in-depth research and crafting well-supported arguments in written essays
  and oral presentations.
- Creative Writing: Experimenting with various writing styles and genres, including poetry, short fiction, and personal narrative.
- Oral Communication Skills: Developing effective public speaking techniques through debates, speeches, and multimedia

presentations.

- Cultural and Global Perspectives: Examining literature and media from diverse cultural perspectives to foster empathy,
  understanding, and global awareness.

Project-based learning:

English 3D Course B Volume 2, offers students an advanced-level English language learning experience that emphasizes critical thinking, effective communication, and cultural literacy. This course is designed to evaluate students' mastery of course objectives through a variety of methods, including essays, exams, presentations, and portfolio assessments.

HS EL 1/2

Description:

ELD HS 1/2: English 3D Course C, is an advanced English language course aimed at boosting students' reading, writing, speaking, and listening skills. Through a mix of challenging coursework, interactive activities, and teamwork, students will dive into various literary works and articles to deepen their language understanding. They'll tackle advanced topics like literary analysis, research, creative writing, public speaking, and global awareness. The course focuses on developing
critical thinking and cultural understanding, preparing students for both academic success and real-world communication
challenges.

Topics:

- Advanced Literary Analysis: Exploring sophisticated literary techniques and themes in both canonical and contemporary texts.
- Research and Argumentation: Conducting in-depth research and constructing compelling arguments supported by evidence and analysis.
- Creative Writing: Experimenting with various writing styles and genres to express individual voice and creativity.
- Public Speaking and Presentation Skills: Developing effective communication techniques for presenting ideas and engaging with diverse audiences.
- Cultural Literacy and Global Awareness: Examining literature and media from diverse cultural perspectives to foster empathy, understanding, and appreciation for global relationships.

Project-based learning:

English 3D Course C provides a stimulating learning journey focusing on advanced language skills, critical thinking, and cultural understanding. Through analyzing complex texts and exploring diverse viewpoints, students will improve their language abilities and gain a greater appreciation for English.

Next course in sequence: ELD HS 3/4

HS EL 3/4

Description:

English 3D Course C, is an immersive and comprehensive English language course designed to further enhance students'
proficiency in reading, writing, speaking, and listening. This course provides students with advanced-level skills and strategies necessary for academic success and real-world communication. Through a blend of rigorous coursework, interactive activities, and collaborative projects, students will engage with a diverse range of literary texts, informational
articles, and multimedia resources to deepen their understanding of language and literature.

Topics:

- Advanced Literary Analysis: Exploring sophisticated literary techniques and themes in both canonical and contemporary
  texts.
- Research and Argumentation: Conducting in-depth research and constructing compelling arguments supported by evidence and analysis.
- Creative Writing: Experimenting with various writing styles and genres to express individual voice and creativity.
- Public Speaking and Presentation Skills: Developing effective communication techniques for presenting ideas and engaging with diverse audiences.
- Cultural Literacy and Global Awareness: Examining literature and media from diverse cultural perspectives to foster empathy, understanding, and appreciation for global relationships.

Project-based learning:

English 3D Course C offers students an enriching and dynamic learning experience that emphasizes advanced-level language
skills, critical thinking, and cultural literacy. By engaging with complex texts, honing analytical skills, and exploring diverse
perspectives, students will emerge with enhanced proficiency and a deeper appreciation for the English language.

ELECTIVES

Students need 35 Electives credits to earn a TPAA high school diploma.

AVID 7

Description:

AVID (Advancement Via Individual Determination) has been in existence for four decades. Ninety-five per cent of AVID students are accepted into a four-year college or university. Only half the students who enter college actually graduate. Among AVID students the graduation rate is 85%. This is a program that is geared to "students in the middle," B-C students who want to go to college and are willing to work hard to reach their goal. It is particularly beneficial for students who will be the first in their family to attend college.

Topics:

Beginning in 7th grade the AVID introduces all of the following skills which are built upon as student's progress through high school:

- Note taking
- Organization
- Time Management
- Writing
- Socratic Seminars
- Critical Thinking
- Critical Reading

All AVID students will participate in tutorials twice a week under the guidance of college students, some of whom are TPAA graduates, and they will take yearly college field trips. As students move through high school, college applications and scholarship applications are added to the curriculum.

AVID 8

Description:

AVID stands for Advancement via Individual Determination; therefore, it is necessary that students understand they are the key to their success in this program. Because this program has quite specific guidelines to help students achieve, the AVID contract and essentials must be followed. AVID is not only a class but it combines rigor and support to ensure student success in a college preparatory curriculum. It includes instruction in study skills, organization skills, communication skills, reading comprehension, writing, collaboration, inquiry, test-taking strategies, and personal development.

AVID 9-10

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This academic elective course prepares students for college readiness and success, and it is scheduled during the regular school day as a year-long course. Each week, students receive instruction utilizing a rigorous college preparatory curriculum provided by the AVID Center, tutor-facilitated study groups, strengthen metacognitive development, analytical reading and writing, communication skills, and academic success skills. In AVID, students participate in activities that incorporate strategies focused on writing, inquiry, collaboration, organization, and reading to support their academic growth.

AVID 11-12

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

The purpose of Junior Seminar is to expose students to a variety of skill and knowledge building activities as well as self-reflective discussions and assignments that will enhance their ability to make successful, intentional, and responsible decisions around college and career planning through the lens of the first-generation experience. The class will be structured into seven units that cover a range of topics and include: design thinking and long-term goal setting, college admissions, college & scholarship essay writing, social justice issues on college campuses, civic engagement, financial literacy, and career planning readiness. Each unit will provide students an opportunity to reflect on their own assets and growth throughout the year, as well as engage them in highly relevant research assignments that help them understand social structures and how to navigate those structures in support of their long-term college and career goals. Students will develop a variety of writing skills through long term essays, short term reflection assignments, and a variety of peer editing workshops. In addition, students will develop research and analytical reading skills as they analyze and extract key evidence from articles, books, and other published documents. Students will also develop their oral presentation skills as they present their independent portfolios to classmates and staff panels where students will be integrating and evaluating their research projects and written reflections around the long-term goals they have set for themselves and the communities and issues they want to impact.

Classroom Teachers Assistant

(Meets Elective Requirement for Graduation

Description:

Teacher's Aide/TA is available to 11th and 12th grade students. Students must report promptly for their class, as it is like a job where they learn good work habits. The duties in this class vary depending on the teacher and the department in which the student is serving as a TA. Duties may include: taking attendance, setting up or cleaning up science labs, filing papers, making copies and tutoring students. Students will use communication skills to discuss their tasks and clarify requests.

Film and Literature

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

Film and Literature is a writing, text-based, English 12 course aimed at enriching the experience of textual literary study and expository, critical, and analytical writing through the medium of film. This blended course of study will be designed around film genres and their elements (including comedy, western, world cinema, noir, horror, documentary, and musical). In addition, each unit will explore a variety of central themes (such as good vs. evil, the individual vs. the collective, triumph over adversity, love conquers all, etc.) common to both film and literature. The course literary texts include but are not limited to A Midsummer Night's Dream, Frankenstein, and The Things They Carried. The course films include but are not limited to Citizen Kane, Metropolis, Rashomon, The Sixth Sense, The Princess Bride, The Road, and various Hitchcock selections. All course films, including films on the approved homework lists, will be rated NR, G, PG, or PG-13, and will reflect diverse actors, directors, and screenwriters.

STEM connection:

Students will use several different types of technology in this course that will be taught in the STEM elective course. Students will also have to understand how to actively use different types of computer software to complete different projects throughout the school year.

Project-based learning:
For a senior project, students will produce a formal cover letter, resume, and related documents. The student will be guided through the format requirements of these documents. The final product must demonstrate an understanding of purpose, point-of-view, audience, and voice. This project will be a collaboration with the STEM teachers. There will also be several other projects assigned throughout the school year.

Health

(Meets Elective Requirement for Graduation) (Recommended in 9th Grade)
Description:
This course is designed to assist students in obtaining accurate information, developing lifelong positive attitudes and behaviors, and making wise decisions related to their personal health. Study will include personal and community health; mental, emotional, and social health; injury prevention and safety; nutrition and physical activity; alcohol, tobacco, and other drugs; growth, development, and sexual health. Central themes are the acceptance of personal responsibility for lifelong health, respect for and promotion of the health of others, an understanding of the process of growth and development, and informed use of health-related information, products, and services.

Topics:
- Nutrition Program using MyPlate website
- Mental and Emotional Health and Wellness category
- Understanding and Avoiding Hazardous Substances category

STEM connection:
The Online Health course at TPAA is enhanced by the use of STEM. This course is completed entirely online causing students to use various technologies such as a computer, tablet, or smartphone in order to complete coursework. Students will be required to use math while creating their nutrition programs, counting calories, and determining exactly how many calories need to be burned in order to lose 1lb of weight. Science is spread throughout the course dealing with the various chemical reactions the body goes through when an individual damages themselves through substances such as drugs, alcohol, and tobacco as well as treatments like chemotherapy and everyday over the counter drugs. Engineering of prescription drugs and procedures used to legalize these drugs will be explored within this course as well.

Project-based learning:
Students will be required to collaborate and use skills such as critical thinking and problem solving, agility and adaptability, communication, creativity, and innovation to complete the following projects:
- Two Week Nutrition Program
- PowerPoint Presentation on a specific body system
- Create an informational video dealing with a chronic disease and/or drugs, alcohol, and tobacco

Pre/co-requisites: Successful completion of 9th grade coursework

High School Leadership

(Meets Elective Requirement for Graduation) ***(Meets A- G Requirement with a C or better)***

Description:
This class is designed to teach leadership skills and governmental structure which ultimately enhances school pride, spirit and culture as well as the student's individual knowledge of a working government. The class will focus on standards designed by the California Association of Directors of Activities and Common Core State Standards, including public speaking, written communication, service learning, presentation skills, community service, government hierarchy,

procedures and elections, personal and social development, goal setting, group dynamics, business marketing, finance accounting, advertising, business law and research while positively impacting the entire student body.

STEM connection:
Leadership is a hands-on opportunity for students to practice and enhance their skills.
Students use technology to monitor projects and programs, and collaborate to ensure that projects are successful. The skills students use in Leadership are precisely those 21st century skills demanded in STEM careers.

Project-based learning:
Students apply leadership skills through projects of their own design. In its first year, students designed and implemented a project that resulted in the opening of the Hangar, a student lounge and study area.

Prerequisites: GPA 3.0 or higher, citizenship grades reflect satisfactory or higher, or have a teacher recommendation.

High School Physical Education

(Meets Elective Requirement for Graduation)

Description:
The primary focus of our program is to continue an in depth teaching of fitness principles that enable each student to develop lifelong fitness skills. These skills are the 5 components of physical education, fitness, movement, target heart rate, rhythmic skills, manipulative skills, motor skills, individual health, nutritional guidance, self-responsibility, group dynamic, and social interaction to name a few. Fitness levels are increased through participation in regular exercise. Exercise, in turn, contributes to our ability to manage stress and achieve a sense of well-being. Furthermore, exercise reduces our risk of heart disease and obesity, both of which have their roots in childhood. Our sports and activities will help your child gain the knowledge necessary to continue critically analyzing the importance of having a physically active lifestyle.

Topics:
- 5 Components of Physical Fitness
- Nutritional Guidance
- Physical Fitness/Fitness Concepts
- Self-Responsibility
- Combination of Movement Skills
- Group Dynamic
- Target Heart Rate
- Social Interaction/Psychological Development
- Dance
- Motor Skills
- Rhythmic Skills
- Individual and Team Sports
- Manipulative Skills
- Body Systems
- Individual Health

STEM connection:
Students will be introduced to STEM within PE through the use of Biomechanics as well as various technologies. Students will use the internet, computers, tablets, and smart phones to track their progress while entering their personal data. Through the use of programs such as Microsoft PowerPoint and Prezi, students will create elaborate and informative presentations dealing with PE. Finally, students will study the engineering process used when developing equipment, as well as the mathematical equations necessary to find accurate data such as target heart rate.

Project-based learning:
Students will be required to collaborate and use skills such as critical thinking and problem solving, agility and adaptability, communication, creativity, and innovation to complete the following projects:
- Historical Evolution of Sports Equipment
- 4-week Individual fitness plan

- Organize a creative and innovative game

High School Yearbook

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

This project-based course is designed to provide practical, specific journalistic experiences with the main, end result the production of a professional yearbook. The course goals focus on the expository aspect of the reading and reporting (oral and written), extensive practice in writing that goes through a thorough editing and revision process as well as substantial reading of expository sources and other materials that develop imperative skills and rigorous training on written themes including body copy, interviewing, captions and headlines, and visuals including photography and designing layouts. Members are expected to assume the responsibilities and self-discipline necessary to contribute to the success of such an organization. Students deal with and learn to understand the ethical dimensions of life while they search for information and gain a respect and understanding of the viewpoints others hold. Students will need to evaluate information and convey intricate or multifaceted information to the student body. Yearbook teaches real-world skills such as, meeting deadlines, teamwork, working with advanced and professional technology, communication skills, and independent thinking skills.

STEM connection:

Students will utilize computer software common in the workplace.

Project-based learning:

Students will be tasked with a yearlong project to design the school's yearbook while working collaboratively.

Prerequisites: GPA 3.0 or higher, citizenship grades reflect satisfactory or higher, or have a teacher recommendation.

Life Skills

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:

The Life Management course is an introduction to the study of the discipline of Home Economics, Careers and Technology and equips students with essential skills for living. This course focuses on teaching students' skills for managing personal, family, and work responsibilities and provides a solid foundation for further study in the Consumer and Family Sciences content areas and/or for entering one of the industry-related Home Economics Related Occupations career pathway programs. It provides students with the opportunity to gain life management skills through leadership and career development activities and through instruction in the seven content areas of child development and guidance; consumer education; family and human development; fashion, textiles and apparel; food and nutrition; housing and furnishings; and individual and family health. This course provides rigorous, standards-driven instruction and assessment, integrates academic and career-technical concepts through Foundation Standards, and contributes significantly to students' academic achievement.

This is a comprehensive course, which includes units in basic areas of Home Economics. Personal Development, Careers, Child Development, Food Safety, Nutrition and basic culinary skills: cooking demonstrations and labs for a variety of different foods. Sewing: Beginning sewing techniques. Interior Design explores housing and design decisions. Financial Literacy with a focus on the importance of credit scores, how to use a bank account, using credit and making good financial decisions.

STEM connection:

Life Skills is a hands-on opportunity for students to practice and enhance their essential skills for living.

Project-based learning:

Students will be required to collaborate and use skills such as critical thinking and problem solving, agility and adaptability, communication, and creative

LINK

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
Link Crew is a two-semester course that combines high-level critical thinking, writing, and analytical skills with mentorship and entrepreneurial project experiences and implementation. Students will participate in research and evaluation, project planning and execution, as well as leadership and critical thinking-based activities in order to further develop these key skills in tandem with mentorship and counseling of fellow students. Students will learn vital theoretical lessons in the areas of interpersonal communications, diversity and inclusion, marketing, advertising, and public speaking. Findings from these experiences will lead students to become empathic and responsible citizens who can apply their knowledge to larger-scale future projects as their ages, resources, and scopes increase. Students will be taught best practices in business development involving budgeting, marketing, target audience research, reporting, and pitching ideas for their leadership projects; subsequently, students will implement these concepts as they craft and execute their events, projects, and presentations. This class will require students to synthesize information obtained in core classes as well as work both individually and collaboratively.

STEM connection:
Leadership is a hands-on opportunity for students to practice and enhance their skills.

Project-based learning:
Students will be required to collaborate and use skills such as critical thinking and problem solving, agility and adaptability, communication, and creativity.

Prerequisites: Teacher recommendation

Middle School Leadership

Description:
The Leadership course is designed to give students hands-on experience with a variety of aspects of leadership within an organization and in the community. Students will organize events, conduct fundraisers and facilitate and participate in community service activities. Leadership students operate “the Hangar” and manage the student store. Students also study effective leadership and management skills.

Topics:
The course curriculum focuses on teenagers, leadership, school curriculum, school culture which will then help provide opportunities for students to practice what they have learned. The course has four key components:

- a series of leadership trainings workshops
- daily student council and representative meetings to address current events
- weekly student council advising meetings to address internal LC student dynamics
- team-building and growth opportunities for students to apply and model their leadership training to youth and groups outside of the school community.

Through all four components, the students reflect on their personal growth as leaders and their responsibility to the school community.

STEM connection:

Leadership is a hands-on opportunity for students to practice and enhance their skills.
Students use technology to monitor projects and programs, and collaborate to ensure that projects are successful. The skills students use in Leadership are precisely those 21st century skills demanded in STEM careers.

Project-based learning:
Students apply leadership skills through projects of their own design. In its first year, students designed and implemented a project that resulted in the opening of the Hangar, a student lounge and study area.

Prerequisites: GPA 3.0 or higher, citizenship grades reflect satisfactory or higher, or have a teacher recommendation.

Middle School Physical Education

Description:
The primary focus of our program is an introduction to teaching fitness principles that enable each student to develop lifelong fitness skills. These skills are the 5 components of physical education, fitness, movement, target heart rate, rhythmic skills, manipulative skills, motor skills, individual health, nutritional guidance, self-responsibility, group dynamic, and social interaction to name a few. Fitness levels are increased through participation in regular exercise. Exercise, in turn, contributes to our ability to manage stress and achieve a sense of well-being. Furthermore, exercise reduces our risk of heart disease and obesity, both of which have their roots in childhood. Our sports and activities will help your child gain the knowledge necessary to begin to critically analyze the importance of having a physically active lifestyle.

Topics:
- 5 Components of Physical Fitness
- Nutritional Guidance
- Physical Fitness/Fitness Concepts
- Self-Responsibility
- Combination of Movement Skills
- Group Dynamic
- Target Heart Rate
- Social Interaction/Psychological Development
- Dance
- Motor Skills
- Rhythmic Skills
- Individual and Team Sports
- Manipulative Skills
- Body Systems
- Individual Health

STEM connection:
Students will be introduced to STEM within PE through the use of Biomechanics as well as various technologies. Students will use the internet, computers, tablets, and smart phones to track their progress while entering their personal data. Through the use of programs such as Microsoft Power Point and Prezi, students will create elaborate and informative presentations dealing with PE. Finally, students will study the engineering process used when developing equipment, as well as the mathematical equations necessary to find accurate data such as target heart rate.

Project-based learning:
Students will be required to collaborate and use skills such as critical thinking and problem solving, agility and adaptability, communication, creativity, and innovation to complete the following projects: Significance of Sports Equipment Personal Fitness Plan

Middle School Yearbook

Description:
Yearbook/News is a class designed to give the student experience in all of the processes and techniques utilized in the production of the TPAA Yearbook. Students are selected for this class on the basis of interest, good writing skills, Art/Photography experience, not necessary, but a definite plus as these skills are very important in the production of the yearbook.

Students will understand and experience the process required to plan, design, implement, and distribute print media while developing important work related skills. Students will be expected to work under hard deadlines, collaborate with others, and take risks related to designing and composing a publication.

Topics:

- The design process
- Copyright
- Aesthetics & Organization
- Photography
- Design Software

STEM connection:
Students will utilize computer software common in the workplace.

Project-based learning:
Students will be tasked with a yearlong project to design the school's yearbook while working collaboratively.

Prerequisites: GPA 3.0 or higher, citizenship grades reflect satisfactory or higher, or have a teacher recommendation.

Robotics

(Meets Elective Requirement for Graduation) (Meets A- G Requirement with a C or better)

Description:
TPAA Robotics Elective is an environment for students to both learn necessary skills like programming, fabrication, electronics, and design; AND to develop collaborative skills like planning and teamwork to help facilitate various projects that contribute to a successful Robotics Program at TPAA. We would say that it is "not about the robot", as students have diverse interests that all their learned skills can contribute to in the future. Students of various levels, and grades will be part of the TPAA Robotics Elective, and there will be some differentiated learning, and students will be guided towards projects that they can be productive doing.

Topics: Programming, fabrication, electronics, design, and how to develop collaborative skills like planning and teamwork

Prerequisites: GPA 2.0 or higher, citizenship grades reflect satisfactory or higher, is on FRC or FTC team, or have a teacher recommendation.

WEB

Description:
The structure of the WEB program guides 6th graders to academic and social success by reducing the initial challenges of entering middle school. WEB helps create an environment where 6th graders feel cared for and supported by creating an atmosphere free of bullying, intimidation and fear and replacing it with support, connection and a sense of comfort and belonging. The transition to middle school can be a major event in the life of a young person, and yet very few strategies for support exist in most middle schools. Because the move to middle school can be stressful and frightening, 6th graders often experience lowered academic achievement and difficult social adjustments. WEB eases this challenging time period by offering the 6th graders a solid and safe foundation to begin their middle school experience.

Work Experience (11-12th Grade)

(Meets Elective Requirement for Graduation) ((Meets A- G Requirement with a C or better)

Description:
Exploratory Work Experience Education is an elective class which combines academic instruction with supervised paid or non-paid internship opportunities. Students develop an understanding of the employment cycle, economic awareness, and the career development process.

Length: 1 year

Prerequisites: GPA 2.0 or higher, citizenship grades reflect satisfactory or higher, must be at least 16 years old, and must provide your own transportation.

ANTELOPE VALLEY COLLEGE ARTICULATION

The Palmdale Aerospace Academy has articulated a few courses with Antelope Valley College, allowing high school students to earn college credit for those courses taken by the listed specified teachers. Articulation refers to the process of linking two or more educational systems. For example: a student at TPAA taking Principles of Engineering with Mr. Trent, will earn 3 units of ENGR 110 at AVC. This saves time and provides a jump-start to the college experience. Credit is earned only when the course is taken in high school within the year of Articulation. Students must pass the class with a "B" or better, each semester, in order to receive college credit. Letter grade must be the same for both semesters (i.e. a "B" in 1st & 2nd semester or "A" in 1st & 2nd semester). If you took Digital Electronics, you will only receive credit for one AVC course (you must choose a pathway).

PROCEDURE: To receive credit for the courses below at AVC:

1. Please complete the Articulation 2 + 2 Form. Click here to access the form.
2. Request an official transcript from TPAA Counseling office to be sent to AVC.
3. Submit the 2+2 form to AVC's Admission & Records office within 3 years of taking course.

High School Course Name	Course Number	Teacher	Year of Articulation	College Course Name	College Course Number	College Units
Digital Electronics	430, 431	Currently Hiring	Fall 2022-25	Materials Science or Digital Logic and Design	**ELTE 130** or **ENGR 185**	4
Aerospace Engineering	440	Matthew Madrid	Pending Fall 2022-25	Basic Blueprints Interpretation	**AFAB 110**	4
Spanish 1	3550	Irene Medina, Oscar Suarez, Victor Gonzalez	Fall 2022-25	Elementary Spanish 1	**SPAN 101**	5
Spanish 1NS	3550	Oscar Suarez	Fall 2022-25	Elementary Spanish 1	**SPAN 101**	5
Spanish 2	3552	Daniel Warda, Oscar Suarez	Fall 2022-25	Elementary Spanish 2	**SPAN 102**	5
Spanish 2NS	3552	Oscar Suarez	Fall 2022-25	Elementary Spanish 2	**SPAN 102**	5
German 1	3560	Pending	Fall 2022-25	Elementary German 1	**GER 101**	5
German 2	3561	Pending	Fall 2022-25	Elementary German 2	**GER 102**	5

DUAL ENROLLMENT

TPAA and AVC have a dual enrollment partnership that allows our eligible 9th - 12th students to take college classes.

For high school students interested in more advanced courses or wanting to get a "jump on" college requirements, dual enrollment programs may provide a good answer.

Dual enrollment, or Special Admit, is the practice of allowing a student to be enrolled in high school and college at the same time.

Benefits:

1. Makes transition from high school to college smoother. Students can see what college courses entail without being overwhelmed by the classes and a new environment at one time.
2. Allows students to sample different classes and a range of coursework before deciding on a college major.
3. Demonstrate, on their transcript, the ability to handle a complex course load. This information is used by colleges to predict student success and to decide which applicants to admit.
4. Access to more courses than high school may offer.
5. Credits not only can apply to high school diploma requirements but may be applied toward college graduation.

If you're interested in dual credit (high school and college), a form must be submitted for approval prior to taking the course you wish to have high school credit. If you use a college course for high school credit, you may not be able to transfer those courses to a UC or CSU.

GRIFFIN ELITE MEDALLION

Parent/Student Information

HIGH SCHOOL STUDENTS ONLY

The Palmdale Aerospace Academy (TPAA) would like to recognize our students' commitment to excellence in education by providing an opportunity for all students to earn special recognition. The board has approved students to be recognized for participating in community service and work based learning activities. This special recognition, designed and developed by the Academy staff, will be the Griffin Elite Medallion.

Students must meet ALL requirement below to receive the Griffin Elite Medallion:

- Meet TPAA Graduation Requirements
- An overall unweighted GPA of 3.0 or higher
- Complete the minimum hours (hours must be completed outside of the school day):
- Community service – 125 hours
- Work-based learning – 75 hours

Community Service Hours:

- ❖ Must not be paid
- ❖ Must occur outside of the regular school day
- ❖ Hours must represent different activities and must be done with different organizations/services. Students must have volunteered for at least five different activities and/or organizations to reach a total of 125 hours.

Work-based Learning Hours - may include but not limited to:

- ❖ Internship, job shadow, classroom guest speakers, college visits, training or certifications, and Robotics/Science Olympiad competitions. (any other possibilities must be pre-approved by TPAA's Griffin Elite Medallion Coordinator.)

8TH GRADE PROMOTION REQUIREMENTS

In order to be promoted from 8th grade, students must demonstrate proficiency in their core academic subjects, as measured by their academic grades in 7th and 8th grade. Students not demonstrating proficiency may be required to take remedial classes during the school year or over the summer in order to qualify for promotion to 9th grade, or may be subject to retention.

Retention (from Board policy SP017)
Teachers shall identify students who should be retained or who are at a risk of being retained at their current grade level as early as possible in the school year and as early in their school careers as practicable. Such students shall be identified:

1. Throughout middle school, teachers and counsellors will monitor students academic progress
2. Between the end of the middle school grades and the beginning of the high school grades

Students shall be identified for retention on the basis of failure to meet minimum levels of proficiency, as indicated by grades and the following additional indicators of academic achievement: attendance, performance on common formative assessments, performance on state assessments, teacher feedback, and the student's response to intervention strategies. Proficiency in reading, English language arts and mathematics shall be the basis for identifying students between intermediate and middle school grades, and between middle school grades and high school grades. The Administrator or designee shall specify the team of teachers and counselors responsible for the decision to promote or retain the student. The team's decision to promote or retain a student may be appealed. The Superintendent or designee shall establish an appeals process for The Palmdale Aerospace Academy. When a student is recommended for retention or is identified as being at risk for retention, the Administrator or designee shall offer an appropriate program of remedial instruction to assist the student in meeting grade-level expectations.

The following criteria will help to identify students who may qualify for retention in the 8th grade:

a. Student's GPA less than 1.5
b. Student has multiple D's and F's during the first and second semester.
c. Absence should be taken into consideration
d. Other methods of academic intervention have failed to help the student improve their performance and mastery of academic content

Academic review will be led by the counselor and use the Student Study Team (SST) model to decide if retention will be of benefit to the student in order to improve her/his academic performance.

12TH GRADE GRADUATION REQUIREMENTS

The Palmdale Aerospace Academy, in partnership with the community, provides an exceptional education that prepares students to be successful members of our democratic society. The Palmdale Aerospace Academy prepares its graduates for college and careers in the 21st century, aligned with workforce needs in the local area and beyond. The educational program emphasizes science, technology, engineering and mathematics (STEM) skills and views academics through the lens of aerospace. Challenging projects, hands-on activities and collaborative learning engage student interest to maximize learning potential. The Palmdale Aerospace Academy thrives through partnership with employers who rely on STEM experts, the City of Palmdale, the Palmdale School District and others who help develop an innovative, relevant educational option. The graduation requirements encompass the knowledge, abilities, and experience necessary to develop the essential aptitudes and skills of successful participants in today's society in the 21st century: critical thinking and problem solving, clear and persuasive communication, collaboration and leading with influence, agility and adaptability, initiative and entrepreneurialism, accessing and analyzing information, and curiosity and imagination. Students are provided with a world-class education tailored according to their individual needs and capabilities. It is one that develops within them the necessary skills requisite to pursue a career path in STEM fields. Students must demonstrate proficiency in STEM content, literacy, and numeracy. Those students not proficient will be provided academic interventions as necessary and appropriate.
Students enrolled at The Palmdale Aerospace Academy will be enrolled in a STEM elective every year.
These graduation requirements constitute the Academy's minimum standard for graduation, and are written in keeping with California Education code and UC entry requirements, otherwise known as A-G. In addition to the following graduation requirements, students must participate in all other state and federally mandated assessments.

In order to earn a high school diploma from The Palmdale Aerospace Academy, students must earn a minimum of the following number of credits in each subject domain:

English…….…….. 4 years, 40 credits
Mathematics……..... 3 years, 30 credits
Social Science…….....3 years, 30 credits
Laboratory Science…….…… 3 years, 30 credits
World Language Other than English……..……...…… 2 years, 20 credits
Visual/Performing Arts……...……1 year, 10 credits
Health…… 0.5 year, 5 credits
College Preparatory/STEM Elective…….....…… 3 years, 30 credits
General Electives …… 3.5 years, 35 credits

Students must earn at least 230 credits in order to earn a diploma from the Academy. It is imperative that students make appropriate academic progress each year so that they are able to remain at the Academy in good standing. Students falling behind in credits must enroll in an appropriate summer program in order to "catch up" or risk losing their eligibility to graduate.

RECOGNITION OF GRADUATES, CLASS RANK, & GRADE POINT AVERAGE

The Palmdale Aerospace Academy Board recognizes the importance of recognizing outstanding student performance. The Board also recognizes the need to provide accurate information to prospective colleges and universities, in particular with respect to Grade Point Average (GPA) and Class Rank**. For the purpose of recognition at commencement, GPA, rank, and Latin Honors will be computed based on 7 total semesters, once students' complete semester 1 of the 12th grade.** GPA class rank will be updated on your transcript at the end of the year but will not count towards latin honors recognition. ***It is extremely important that you communicate with your counselor and parents in planning the sequence of your schedule, to compete for the following recognition.***

Recognition of Graduates

Palmdale Aerospace Academy graduates may be recognized as follows:

- ***Valedictorian*** – student(s) with the highest weighted GPA in the graduating class (determined at the end of the first semester of senior year)
- ***Salutatorian*** – student with the second highest weighted GPA in the graduating class
- ***Latin Honors*** (based on weighted GPA) o Summa Cum Laude = Weighted GPA of 4.50 to highest possible o Magna Cum Laude = Weighted GPA of 4.00 to 4.49 o Cum Laude = Weighted GPA of 3.5 to 3.99

Computation of Grade Point Average (GPA)

Computation of the weighted grade point average will use the "added value" method. Each designated honors or Advanced Placement course will be part of the computation.

- Convert every letter grade to its respective points (A=4, B=3, C=2, D=1, F=0 / Honors and AP A=5, B=4, C=3)
- Add up all of the grade points.
- Divide the added grade points by the number of class credits taken.

Determination of Class Rank

Class rank will be based upon the weighted GPA of every senior. GPA's will be placed in order, highest to lowest, and each student will be assigned a class rank based on their place on the ordered list. Students with the same GPA will receive the same class rank number. When students receive the same class rank number, the next number in the class rank sequence will be retired.

TPAA Graduation & UC/CSU Course Requirements

High School Subject Area	State Mandated Requirements* (*EC Section 51225.3*) for High School Graduation	TPAA Graduation	UC Requirements for Freshman Admissions	CSU Requirements for Freshman Admissions
English	Three Years	40 credits = 4 years	Four years of approved courses	Four years of approved courses
Mathematics	Two years, including Algebra I, beginning in 2003–04. [*EC Section 51224.5*]	30 credits = 3 years	Three years, including algebra, geometry, and intermediate algebra. Four years recommended.	Three years, including algebra, intermediate algebra, and geometry.
Social Studies/Science	Three years of history/social studies, including one year of U.S. history and geography; one year of world history, culture, and geography; one semester of American government and civics, and one semester of economics.	30 credits = 3years	Two years of history/social science, including one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government; and one year of world history, cultures, and geography.	Two years, including one year of U.S. history or U.S. history and government and one year of other approved social science.
Science	Two years, including biological and physical sciences.	30 credits = 3 years	Two years with lab required, chosen from biology, chemistry, and physics. Three years recommended.	Two years, including one year of biological and one year of physical science with lab.
Foreign Language	One year of either visual and performing arts, foreign language, or career technical education**.	20 credits = 2 years	Two years, or equivalent to the 2nd level of high school instruction Three years recommended.	Two years in same language required.
Visual and Performing Arts	One year of either visual and performing arts, foreign language, or career technical education**.	10 credits = 1 years	One year of visual and performing arts chosen from the following: dance, drama/theater, music, or visual art.	One year of visual and performing arts chosen from the following: dance, drama/theater, music, or visual art.
Physical Education	Two years	Not Applicable	Not Applicable	Not Applicable
Electives	Not Applicable	35 credits = 3.5 years	Must be chosen from approved academic courses in history/social science, English, advanced mathematics, lab science, foreign language, social science, or visual and performing arts	Must be chosen from approved academic courses in history/social science, English, advanced mathematics, lab science, foreign language, social science, or visual and performing arts
STEM	Not Applicable	30 credits = 3 years	STEM credits should it be used for College-Preparatory Elective	STEM credits should it be used for College-Preparatory Elective
Health		5 credits = 0.5years	Not Applicable	Not Applicable

https://www.cde.ca.gov/ci/gs/hs/hsgrtable.asp

A-G Requirements

UC/CSU A-G REQUIREMENTS

To be eligible for admission to either the UC or CSU systems, you must satisfy certain subject requirements with a grade of a **C –or better**. This requirement is satisfied by completing 15 units (a unit is equal to an academic year, or two semester of study) of the high school coursework listed below. This set of courses is also known as the "A-G Requirements."

A SOCIAL SCIENCE

2 years required, 3 years recommended:
AP European History, AP Government and Politics United States, AP United States History, Civics and Economics, U.S. History 11, World History 10

B ENGLISH

4 years required:
AP English Language and Composition, AP English Literature and Composition, English 9, English 9 Honors, English 10, English 10 Honors, English 11, English 12 - Young Adult Literature, English 12- Mythology & Fantasy

C MATHEMATICS

3 years required, 4 years recommended:
Algebra 1, Algebra 2, Algebra 2/Trigonometry Honors AP Calculus AB, AP Calculus BC, AP Statistics, Consumer Math, Geometry, Geometry- Honors, Intro to Statistics, Pre-Calculus Honors

D SCIENCE WITH LABORATORY (1 YEAR OF BIOLOGICAL AND 1 YEAR OF PHYSICAL)

2 years required, 4 years recommended:
Anatomy and Physiology, AP Biology, AP Chemistry, AP Computer Science Principles, AP Environmental Science, Astronomy, Biology, Chemistry, Earth Science, Ecology, Geology, PLTW Aerospace Engineering, PLTW Civil Engineering and Architecture, PLTW Computer Science Principles, PLTW Cybersecurity, PLTW Digital Electronics, PLTW Engineering Design and Development, PLTW Principles of Engineering

E LANGUAGE OTHER THAN ENGLISH

2 years, or equivalent to the 2nd level of high school instruction, 3 years recommended:
German 2, Spanish 1, Spanish 1 Native Speaker, Spanish 2, Spanish 2 Native Speaker, Spanish 3

F VISUAL & PERFORMING ARTS

1 year required:
AP Art History; Digital Media & Game Design, Introduction to Design 1, 2; Ed-Concepts of Engineering and Technology

G COLLEGE-PREP ELECTIVE

1 year required, 3 years recommended:
AVID 11-12, AVID 9-10, Film and Literature, High School Leadership, High School Yearbook, Life Skills, Link Crew, Robotics, Work Experience

TPAA Middle and High School Plan

TPAA MIDDLE SCHOOL 3-YEAR PLAN						
Subject	6th Grade		7th Grade		8th Grade	
	1st Semester	2nd Semester	1st Semester	2nd Semester	1st Semester	2nd Semester
English	English 6	English 6	• English 7 • English 7 Honors	• English 7 • English 7 Honors	• English 8 • English 8 Honors	• English 8 • English 8 Honors
Math	Math 6	Math 6	• Math 7 • Math 7 Honors	• Math 7 • Math 7 Honors	• Math 8 • Math 8/Algebra 1 Honors	• Math 8 • Math 8/Algebra 1 Honors
Social	History 6	History 6	• World History 7 • World History 7 Honors	• World History 7 • World History 7 Honors	• U.S. History 8 • U.S. History 8 Honors	• U.S. History 8 • U.S. History 8 Honors
Science	Science 6	Science 6	• Science 7 • Science 7 Honors	• Science 7 • Science 7 Honors	• Science 8 • Science 8 Honors	• Science 8 • Science 8 Honors
STEM	Gateway to Technology 6	Gateway to Technology 6	Gateway to Technology 7	Gateway to Technology 7	Gateway to Technology 8	Gateway to Technology 8
Elective	Physical Education 6	Physical Education 6	• AVID 7 • Dimensional Art and Design • Middle School Leadership • Middle School Physical Education • Middle School Yearbook	• AVID 7 • Dimensional Art and Design • Middle School Leadership • Middle School Physical Education • Middle School Yearbook	• AVID 8 • Dimensional Art and Design • Middle School Leadership • Middle School Physical Education • Middle School Yearbook • Spanish 1 • Spanish 1 Native Speaker	• AVID 8 • Dimensional Art and Design • Middle School Leadership • Middle School Physical Education • Middle School Yearbook • Spanish 1 • Spanish 1 Native Speaker

TPAA 4-YEAR PLAN 2023-24: GRADUATION AND A-G REQUIREMENTS								
Subject	9th		10th		11th		12th	
	1st Semester	2nd Semester	1st Semester	2nd Semester	1st Semester	2nd Semester	1st Semester	2nd Semester
A. Social Science TPAA: 30 credits A-G: 2 years			• AP Euro Hist • World History 10	• AP Euro Hist • World History 10	• AP U.S. History • U.S. History 11	• AP U.S. History • U.S. History 11	• AP U.S. Government • Civics and Economics	• AP U.S. Government • Civics and Economics
B. English TPAA: 40 credits A-G: 4 years	• English 9 • English 9 Honors	• English 9 • English 9 Honors	• English 10 • English 10 Honors	• English 10 • English 10 Honors	• AP Lang and Comp • English 11	• AP Lang and Comp • English 11	• AP Eng Lit and Comp • English 12-YA • English 12-SciF • English 12-Fant	• AP Eng Lit and Comp • English 12-YA • English 12-SciF • English 12-Fant
C. Mathematics TPAA: 30 credits A-G: 3 years	• Algebra 1 • Geometry • Geometry-Honors • Algebra 2 • Algebra 2/Trigonometry Honors	• Algebra 1 • Geometry • Geometry-Honors • Algebra 2 • Algebra 2/Trigonometry Honors	• Algebra 1 • Geometry • Geometry-Honors • Algebra 2 • Algebra 2/Trigonometry Honors • Pre-Calculus Honors • Intro to Statistics • Statistics Honors • Statistics • AP Statistics • AP Calculus AB	• Algebra 1 • Geometry • Geometry-Honors • Algebra 2 • Algebra 2/Trigonometry Honors • Pre-Calculus Honors • Intro to Statistics • Statistics Honors • Statistics • AP Statistics • AP Calculus AB	• Geometry • Geometry-Honors • Algebra 2 • Algebra 2/Trigonometry Honors • Pre-Calculus Honors • Intro to Statistics • AP Statistics • AP Calculus AB • AP Calculus BC	• Geometry • Geometry-Honors • Algebra 2 • Algebra 2/Trigonometry Honors • Pre-Calculus Honors • Intro to Statistics • AP Statistics • AP Calculus AB • AP Calculus BC	• Algebra 2 • Algebra 2/Trigonometry Honors • Pre-Calculus Honors • Intro to Statistics • Statistics Honors • AP Statistics • AP Calculus AB • AP Calculus BC • Consumer Math	• Algebra 2 • Algebra 2/Trigonometry Honors • Pre-Calculus Honors • Intro to Statistics • Statistics Honors • AP Statistics • AP Calculus AB • AP Calculus BC • Consumer Math

			• AP Calculus BC	• AP Calculus BC	• Consumer Math	• Consumer Math		
D. Laboratory Science TPAA: 30 credits A-G: 2 years	• AP Biology • Biology • Earth Science	• AP Biology • Biology • Earth Science	• AP Biology • AP Env Sci • Biology	• AP Biology • AP Env Sci • Biology	• Anatomy and Physiology • AP Biology • AP Chemistry • AP Env Sci • Astronomy • Chemistry • Ecology • Geology • Physics	• Anatomy and Physiology • AP Biology • AP Chemistry • AP Env Sci • Astronomy • Chemistry • Ecology • Geology • Physics	• Anatomy and Physiology • AP Biology • AP Chemistry • AP Env Sci • Astronomy • Chemistry • Ecology • Geology • Physics	• Anatomy and Physiology • AP Biology • AP Chemistry • AP Env Sci • Astronomy • Chemistry • Ecology • Geology • Physics
E. Language Other Than English: TPAA: 20 credits A-G: 2 years, or equivalent to the 2nd level of high school instruction	• German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• AP Spanish Language and Culture • German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• AP Spanish Language and Culture • German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• AP Spanish Language and Culture • German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• AP Spanish Language and Culture • German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• AP Spanish Language and Culture • German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3	• AP Spanish Language and Culture • German 2 • Spanish 1 • Spanish 1 Native Speaker • Spanish 2 • Spanish 2 Native Speaker • Spanish 3
F. Arts TPAA:10 credits A-G: 1 year	• -ntroduction to Design 1, 2 • Digital Arts & Game Design (VAPA and STEM)	• Introduction to Design 1, 2 • Digital Arts & Game Design (VAPA and STEM)	• Digital Arts & Game Design (VAPA and STEM)	• Digital Arts & Game Design (VAPA and STEM)	• AP Art History • Digital Arts & Game Design (VAPA and STEM)	• AP Art History • Digital Arts & Game Design (VAPA and STEM)	• AP Art History • Digital Arts & Game Design (VAPA and STEM)	• AP Art History • Digital Arts & Game Design (VAPA and STEM)

G. College Preparatory Electives TPAA: 30 credits A-G: 1 year	•	•	• PLTW Principles of Eng.	• PLTW Principles of Eng.	• PLTW Aerospace Eng. • PLTW Civil Eng and Arch • PLTW Comp Sci Principals • PLTW Cybersecurity • PLTW Digital Electronics • PLTW Eng Design and Dev	• PLTW Aerospace Eng • PLTW Civil Eng and Arch • PLTW Comp Sci Princ • PLTW Cybersecurity • PLTW Digital Electronics • PLTW Eng Design and Dev	• PLTW Aerospace Eng • PLTW Civil Eng and Arch • PLTW Comp Sci Princ • PLTW Cybersecurity • PLTW Digital Electronics • PLTW Eng Design and Dev • Digital Arts & Game Design	• PLTW Aerospace Eng • PLTW Civil Eng and Arch • PLTW Comp Sci Princ • PLTW Cybersecurity • PLTW Digital Electronics • PLTW Eng Design and Dev • Digital Arts & Game Design
Health Other Electives TPAA: 5 credits	• Health (1 sem)	• Health (1 sem)						

Other Electives TPAA: 35 credits	• AVID 11-12 • AVID 9-10 • Film and Literature • High School Physical Education • High School Leadership • High School Yearbook • Life Skills • Robotics	• AVID 11-12 • AVID 9-10 • Film and Literature • High School Physical Education • High School Leadership • High School Yearbook • Life Skills • Robotics	• AVID 9-10 • Robotics • High School Leadership • High School Yearbook	• AVID 9-10 • Robotics • High School Leadership • High School Yearbook	• AVID 11-12 • AVID 9-10 • Classroom Teachers Assistant • Film and Literature • High School Leadership • High School Physical Education • High School Yearbook • Life Skills • Robotics • Work Experience	• AVID 11-12 • AVID 9-10 • Classroom Teachers Assistant • Film and Literature • High School Leadership • High School Physical Education • High School Yearbook • Life Skills • Robotics • Work Experience	• AVID 11-12 • AVID 9-10 • Classroom Teachers Assistant • Film and Literature • High School Leadership • High School Physical Education • High School Yearbook • Life Skills • Robotics • Work Experience	• AVID 11-12 • AVID 9-10 • Classroom Teachers Assistant • Film and Literature • High School Leadership • High School Physical Education • High School Yearbook • Life Skills • Robotics • Work Experience