



3300 East Palmdale Blvd.
Palmdale, CA 93550

THE PALMDALE AEROSPACE ACADEMY

2025-2026 COURSE HANDBOOK



Mission & Vision

This is our mission:

We are committed to academic excellence. Guided by the principles and innovation of the aerospace industry, the educational program integrates STEAM-focused learning with real-world applications, providing opportunities for students to design, create, and explore. Through industry-inspired learning experiences and partnerships with aerospace employers, local community colleges, and other partners, students will develop the skills and mindset needed to innovate, adapt, and excel in a rapidly evolving world.

This is our vision:

The vision of the Academy is to provide an engaging environment for learning in grades TK-12. Our graduates will be supported, encouraged, and challenged to develop the following competencies that they will use for the rest of their lives:

- Ethical, responsible citizens who lead with integrity
- Flexible, adaptable, imaginative, and resilient life-long learners
- Creators and innovators who are artistic and technologically literate
- Empathetic and compassionate individuals
- Effective communicators, critical thinkers, and problem-solvers



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COURSE SELECTION OVERVIEW

- Each spring, the Counseling Department provides registration guidance to 6th through 12th grade students to support them in selecting courses for the upcoming school year.
- Students and families are encouraged to review this course catalog to review promotion and graduation requirements, college admission expectations, course descriptions, suggested academic pathways, and recommended prerequisites.
- TPAA recommends that students take advanced, honors, or AP courses each school year. Students should aim to choose a course load that supports a healthy balance between academic responsibilities and personal well-being.
- Course selections are finalized during the preceding spring term. Once the school year begins, schedule changes are not permitted unless there is an error or misplacement. For this reason, careful consideration should be given to all course selections. Please note that teacher and period-specific requests cannot be accommodated.
- Students in grades 9 through 11 must enroll in six courses. Seniors may enroll in a minimum of four courses, provided they are on track to meet graduation requirements.
- To register, students will enter their course selections through the PowerSchool student portal.
- While every effort will be made to place students in their first-choice courses, alternatives may be assigned if space is unavailable.
- Some courses may require additional steps such as teacher approval, an application, interview, try-out, or completion of specific prerequisites. Please refer to the course catalog for detailed information.

*Note: The course catalog is subject to change as the master schedule is finalized.

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 (STEAM) 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 STEAM 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 STEAM fields. Students must demonstrate proficiency in STEAM 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 STEAM 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 / Human Interactions.....	0.5 year, 5 credits
Ethnic Studies.....	0.5 year, 0 credits
College Preparatory/STEAM Elective.....	3 years, 30 credits
General Electives	3 years, 30 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) Summa Cum Laude = Weighted GPA of 4.3 or higher
Magna Cum Laude = Weighted GPA of 4.0 to 4.299 Cum Laude = Weighted GPA of 3.5 to 3.999

Computation of Grade Point Average (GPA)

Computation of the weighted grade point average will use the “added value” method. E

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.



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.)



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 Capstone, PLTW Principles of Engineering, PLTW Aerospace Engineering

E LANGUAGE OTHER THAN ENGLISH

2 years required, 3 years recommended:

German 2, Spanish 1, 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

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 UC/CSU A-G COURSE LIST 25/26 SCHOOL YEAR

(A) History	(B) English	(C) Math	(D) Science	(E) World Language	(F) VAPA	(G) College Prep Electives
World History	English 9	Algebra 1	Earth Science	Spanish 1	AP Art History	AVID 9-10
US History	English 9 Ethnic Studies	Geometry	Biology	Spanish 2	Digital Media & Game Design	AVID 11-12
Civics and Economics	English 9 Honors	Geometry Honors	Chemistry	Spanish 3	Introduction to Design 1&2	High School Leadership
AP European History	English 9 Ethnic Studies Honors	Algebra 2	Anatomy and Physiology			High School Yearbook
AP US History	English 10	Algebra 2/Trigonometry Honors	Astronomy			Life Skills
AP Government and Politics	English 10 Honors	Intro to Statistics	Ecology			Link Crew
	English 11	Pre Calculus Honors	Geology			Work Experience
	English 12 - Young Adult Literature	AP Calc AB	Physics			
	English 12 - Mythology & Fantasy	AP Calc BC	PLTW Aerospace Engineering			
	Film and Literature	AP Statistics	PLTW Civil Eng & Architecture			
	HS EL 3/4	Consumer Math	PLTW Compt Science Principles			
	AP English Literature and Composition		PLTW CyberSecurity			
	AP English Language and Composition		PLTW Digital Electronics			
			PLTW Eng Design & Development			
			PLTW Principles of Engineering			
			Intro-Data Science and Machine Learning			
			AP Environmental Science			
			AP Chemistry			

Additional Information

- The minimum GPA students must earn for admission to the UC is 3.0, however admission to the UC is competitive and the average admitted student's GPA is often higher. See the UC website for more details: <https://www.universityofcalifornia.edu/> * *

- The minimum GPA for admission to the CSU is 2.5. Students earning between 2.0-2.49 may still be evaluated based on supplemental factors. Some CSU campuses may require a higher minimum GPA in order to be eligible. See the CSU website for more details: <https://www.calstate.edu/>



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 are interested in earning dual credit (both high school and college), please consult with your counselor before enrolling in any course.



TPAA ANTELOPE VALLEY COLLEGE ARTICULATION

THE PALMDALE AEROSPACE ACADEMY ARTICULATION PROCEDURE

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. Alvarez, will earn 3 units of ENGR 110 at AVC. This saves 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](#).
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 the course.

List of Courses and Teachers:

High School Course Name	Course Number	Teacher	Year of Articulation	College Course Name	College Course Number	College Units
Principles of Engineering	3460	Miguel Alvarez Blanca Sandoval Sandra Rangel	Fall 2025-2028	Engineering Orientation and Basic Skills	ENGR 110	3
Digital Electronics	3475	Thomas Mataya	Fall 2025-2028	Materials Science or Digital Logic and Design	ELTE 130 or ENGR 185	4
Aerospace Engineering	3470	Matthew Madrid	Fall 2025-2028	Basic Blueprints Interpretation	AFAB 110	4
Spanish 1	3550	Claudia Colville Irene Medina Oscar Suarez	Fall 2025-2028	Elementary Spanish 1	SPAN 101	5
Spanish 2	3552	Oscar Suarez Daniel Warda	Fall 2025-2028	Elementary Spanish 2	SPAN 102	5



English HS Courses

TPAA High School Graduation Requirements: 4 years/ 40 credits

A-G Requirements: 4 years / 40 credits

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

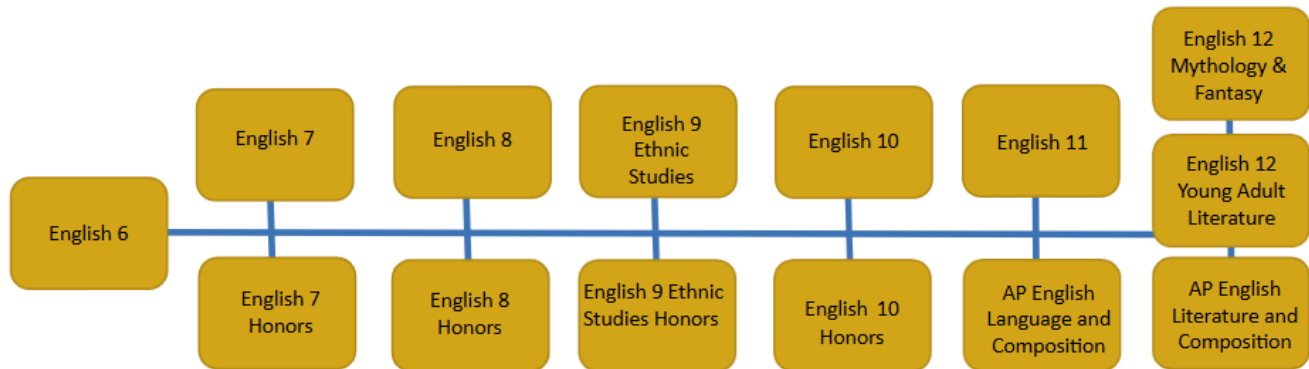
Grade 9	Grade 10	Grade 11	Grade 12
English 9: Ethnic Studies English 9 Ethnic Studies Honors	English 10 OR English 10 H	English 11 OR AP English Language and Composition	English 12YA/Myth OR AP English Literature and Composition

English Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
9	English 9: Ethnic Studies	English 9: Ethnic Studies	Yes		B
9	English 9 Ethnic Studies Honors	English 9 Ethnic Studies Honors	Yes	TPAA Only	B
10	English 10	English 10	Yes		B
10	English 10 Honors	English 10 H	Yes	TPAA/UC	B
11	English 11	English 11	Yes		B
11	AP Lang andComp	AP English Language and Composition	Yes	TPAA/UC	B
12	ENGLISH 12 FANT	English 12 Mythology & Fantasy	Yes		B
12	English 12 YA	English 12 Young Adult	Yes		B
12	AP Eng Lit and Comp	AP English Literature and Composition	Yes	TPAA/UC	B

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.

STEAM connection:

STEAM 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.

STEAM connection:

Students will draft and edit writing assignments related to their science, math and STEAM 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.

STEAM connection:

Students will draft and edit writing assignments related to their science, math and STEAM 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.

STEAM connection:

Students write reflections and essays, as well as give oral presentations, on topics related to aviation or other STEAM-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 STEAM 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.

STEAM Connection:

Students will reflect on STEAM related news articles, cover STEAM topics in class discussions, and encounter STEAM related written passages in daily warm-ups. An example of a STEAM 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 Ethnic Studies, or English 9 Ethnic Studies Honors

English 9: Ethnic Studies

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

Description:

This course is an interdisciplinary English course that explores literature and informational texts through the lens of race, identity, and social justice. Centering the experiences of Native American, Black/African American, Asian American, and Chicana/Latina communities, the course examines power dynamics, systems of oppression, and the intersections of identity, including class, gender, ability, and nationality. Through reading, writing, dialogue, and collaborative activities, students develop critical thinking, empathy, and social awareness while meeting California State Standards for 9th-grade English. This course fulfills both the English 9 and Ethnic Studies graduation requirements.

Topics:

English 9: Ethnic Studies explores themes of identity, race, and social justice through literature and personal narratives. Students examine foundational concepts such as race, ethnicity, and systemic inequities while analyzing texts that reflect diverse experiences. The course covers the impact of colonization and indigenous resistance, the role of identity and assimilation, and the histories of local communities through oral storytelling. Students also study intersectionality and memoirs to understand how overlapping identities shape individual experiences. The year concludes with a capstone project focused on using storytelling to promote empathy, equity, and community engagement.

STEAM connection:

English 9: Ethnic Studies integrates STEAM through multimedia projects, digital storytelling, and research-based presentations that develop students' technology and communication skills. Artistic expression is fostered through graphic novels, poetry, and personal narratives. The course also promotes systems thinking by analyzing historical and social structures, encouraging critical inquiry and problem-solving.

Project-based learning:

Project-based learning in **English 9: Ethnic Studies** includes oral histories, personal narrative,, and a capstone storytelling project that connect students' identities to community, history, and social justice through research, collaboration, and creative expression.

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

English 9 Ethnic Studies Honors

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

Description:

This Honors English 9 Ethnic Studies course is designed to rigorously align with the California Common Core Standards while fostering an intellectually stimulating and reflective learning environment. Students will engage in advanced analysis and critical discussions of diverse perspectives, exploring not only their own identities but also the complex histories and lived experiences of marginalized communities. With a curriculum that includes challenging literature, nonfiction texts, and multimedia resources, students will delve deeper into the histories, cultures, contributions, and resilience of key racial and ethnic groups, including Black and African Americans, Chicano, Latino, and Hispanic Americans, Asian Americans, Native Americans, various gender identities, LGBTQ communities, and more. Expectations for independent work and excellence in content mastery will be heightened, with students expected to contribute thoughtfully to discussions, presentations, and written analyses that demonstrate a high level of intellectual engagement and critical thinking.

Topics:

The topics of English 9 Ethnic Studies Honors include identity and community, intersectionality, oppression and resistance, resilience and survival, cultural ownership and storytelling, and personal transformation. Students explore these themes through diverse literary works, historical texts, and multimedia, engaging in critical analysis, creative expression, and reflective learning grounded in Ethnic Studies principles.

STEAM connection:

The STEAM connection in English 9 Ethnic Studies Honors comes from integrating technology and multimedia tools for research, presentations, and creative projects, which develop digital literacy and communication skills. The course also emphasizes critical thinking and analysis, scientific inquiry, as students explore complex social systems and cultural narratives. Additionally, the study of storytelling and adaptation fosters artistic expression and innovation.

Project-based learning:

Project-based learning in English 9 Ethnic Studies Honors involves creative writing, literary analysis, multimedia presentations, and reflective projects that deepen students' understanding of identity, culture, and social justice through research, collaboration, and personal expression.

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.

STEAM connection:

Students will write reflections and essays touching on aviation and STEAM-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.

STEAM connection:

Students continue writing reflections and essays based on aviation or STEAM 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, Nathaniel Hawthorne, Ralph Waldo Emerson, Henry DSPACE Thoreau, Emily Dickinson, and Walt Whitman.

STEAM connection:

Students will use the “creating process” of STEAM as a building block to the writing process. Students will create projects that will be assessed in both English and STEAM classes. Students will also use several different types of technology in this course that will be taught in the STEAM 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).

STEAM connection:

Students will use the “creating process” of STEAM as a building block to the writing process. Students will create projects that will be assessed in both English and STEAM classes. Students will also use several different types of technology in this course that will be taught in the STEAM 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.

STEAM connection:

Students will use several different types of technology in this course that will be taught in the STEAM 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 STEAM 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.

STEAM connection:

Students will use several different types of technology in this course that will be taught in the STEAM 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 STEAM 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.

STEAM connection:

Students will use the “creating process” of STEAM as a building block to the writing process. Students will create projects that will be assessed in both English and STEAM classes. Students will also use several different types of technology in this course that will be taught in the STEAM 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 STEAM 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.



Math HS Courses

TPAA High School Graduation Requirements: 3 years/ 30 credits

A-G Requirements: 3 years / 30 credits

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

Grade 9	Grade 10	Grade 11	Grade 12
Algebra 1, Geometry, Geometry H, Algebra 2, Or Algebra 2 Trig/H	Algebra 1, Geometry, Geometry H, Algebra 2, Algebra 2/Trig H, Pre-Calc Honors, AP Statistics, Intro to Statistics, Consumer Math, Or AP Calc AB	Geometry, Geometry H, Algebra 2, Algebra 2/Trig H, Pre-Calc Honors, AP Statistics Intro to Statistics Consumer Math AP Calc AB AP Calc BC	Algebra 2, Algebra 2/Trig H, Pre-Calc Honors, AP Statistics Intro to Statistics Consumer Math AP Calc AB AP Calc BC

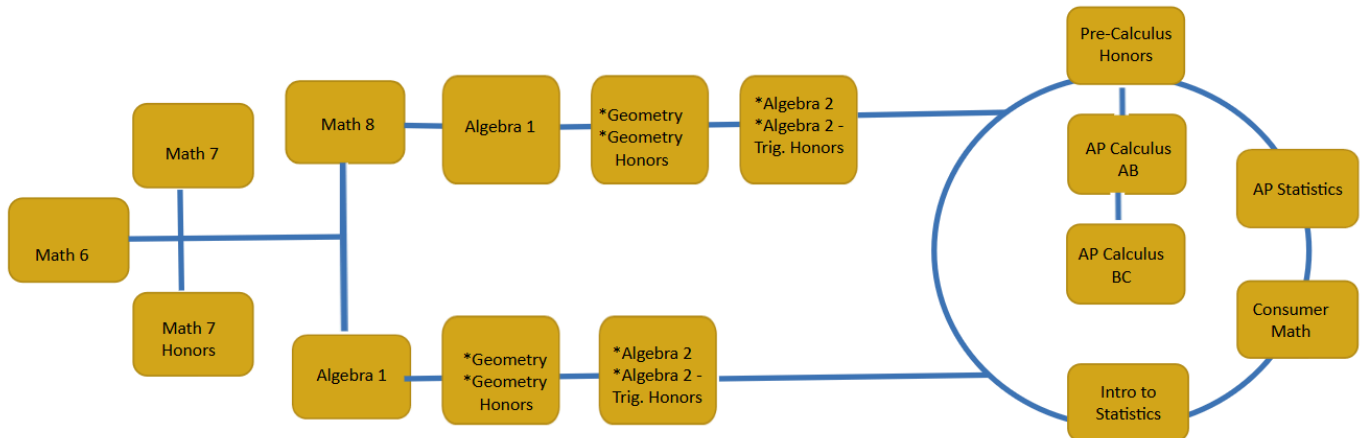
Math Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
8/9/10	Algebra 1	Algebra 1	Yes		C
9/10/11	Geometry	Geometry	Yes		C
9/10/11	Geometry Honors	Geometry Honors	Yes	TPAA Only	C
9/10/11/12	Algebra 2	Algebra 2	Yes		C
9/10/11/12	Algebra 2/Trig-H	Algebra 2/Trigonometry Honors	Yes	TPAA Only	C
10/11/12	Pre-Calculus Honors	Pre-Calculus Honors	Yes	TPAA/UC	C
10/11/12	AP Statistics	AP Statistics	Yes	TPAA/UC	C
10/11/12	Intro to Statistics	Intro to Statistics	Yes		C
10/11/12	Consumer Math	Consumer Math	Yes		C
10/11/12	APCalcAB	AP Calculus AB	Yes	TPAA/UC	C
10/11/12	APCalcBC	AP Calculus BC	Yes	TPAA/UC	C

MATHEMATICS

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

Math



Ring 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

Mathematics Middle School Credit Policy 6039 - Summary

The Palmdale Aerospace Academy's Mathematics Middle School Credit Policy allows eligible 7th and 8th grade students to enroll in high school-level math courses (Algebra I, Geometry, or Algebra II) by passing a placement assessment and meeting academic criteria such as strong grades or CAASPP scores. Enrollment depends on seat availability, with high school students given priority. Qualified middle school students may be placed in mixed-grade classes if needed. Those who pass with a C or higher earn high school credit and GPA points. Students who do not pass will receive support and may repeat the course or return to the standard math track. The policy is reviewed annually for alignment with state standards and school goals.

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.

STEAM 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 STEAM 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.

STEAM 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 Algebra 1

Math 7 Honors

Description:

This course combines the standards for 7th and 8th 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

STEAM 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, or Algebra 1

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

STEAM 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

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

STEAM 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: There are no prerequisites for incoming 9th grade students. However, 7th and 8th grade students may enroll in this course to meet A-G requirements if they pass the required placement assessment and meet all eligibility criteria, as outlined in the Mathematics Middle School Credit Policy (Policy 6039, pg. 10).

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

STEAM 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

STEAM 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

STEAM 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.

STEAM 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.

STEAM 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

STEAM 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 STEAM-related careers.

Topics:

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

STEAM 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.

STEAM 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

STEAM 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

STEAM 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 HS Courses

TPAA High School Graduation Requirements: 3 years/ 30 credits

A-G Requirements: 2 years / 20 credits (1 year Biological and 1 year Physical)

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

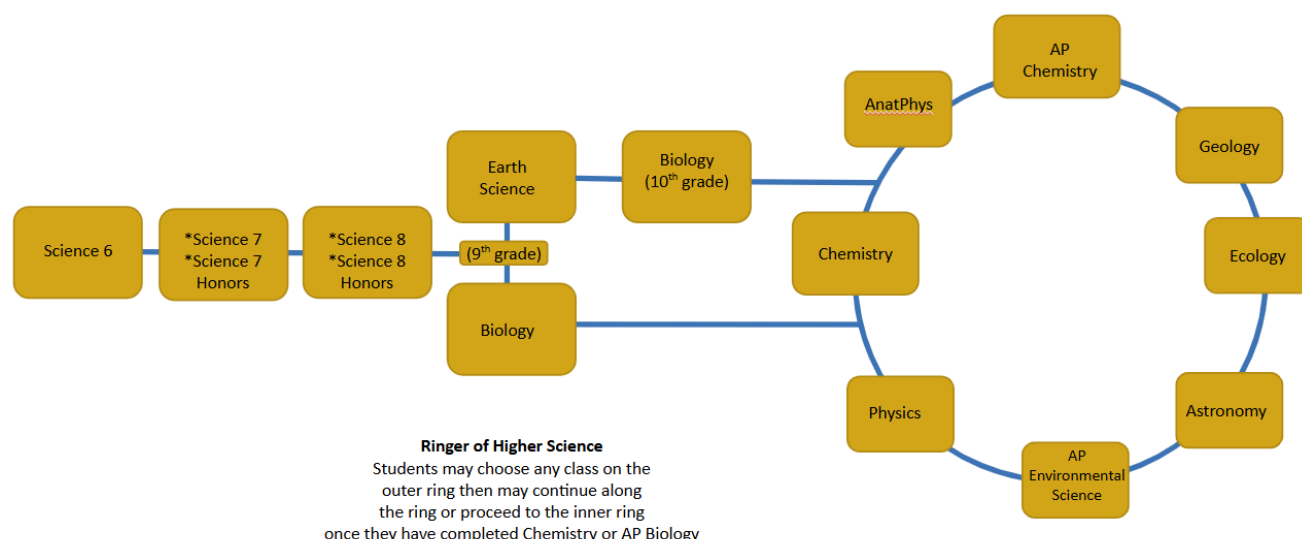
Grade 9	Grade 10	Grade 11	Grade 12
Earth Science, or Biology	Biology, Chemistry, AP Chemistry Anatomy and Physiology, AP Environmental Science, Astronomy, Geology, Ecology, or Physics	Biology, Chemistry, AP Chemistry Anatomy and Physiology, AP Environmental Science, Astronomy, Geology, Ecology, or Physics	Biology, Chemistry, AP Chemistry Anatomy and Physiology, AP Environmental Science, Astronomy, Geology, Ecology, or Physics

Science Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
9	Earth Science	Earth Science	Yes		D
9/10	Biology	Biology	Yes		D
10/11/12	Chemistry	Chemistry	Yes		D
10/11/12	AP Chemistry	AP Chemistry	Yes	TPAA/UC	D
10/11/12	Anatomy and Physiology	Anatomy and Physiology	Yes		D
10/11/12	AP Env Sci	AP Environmental Science	Yes	TPAA/UC	D
10/11/12	Astronomy	Astronomy	Yes		D
10/11/12	Ecology	Ecology	Yes		D
10/11/12	Geology	Geology	Yes		D
10/11/12	Physics	Physics	Yes	TPAA/UC	D

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.

STEAM 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

STEAM 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.

STEAM 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:

- ❖ Energy
- ❖ Motion and Stability: Forces & Interactions
- ❖ Earth's Place in the Universe
- ❖ Biological Evolution: Unity & Diversity
- ❖ Heredity: Inheritance and Variation of Traits
- ❖ Earth & Human Activity

STEAM 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

STEAM 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.

STEAM 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

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 and natural selection has played in life on earth; ecological change and stability; the molecular, cellular and organism levels of life and cellular processes; 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

STEAM 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, Astronomy, Anatomy and Physiology, Ecology, Geology, Physics, 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:

- ❖ Measurements and Sig Figs
- ❖ Physical and chemical structure of matter
- ❖ Atomic Theory
- ❖ Nuclear Reactions
- ❖ Intramolecular Forces
- ❖ Chemical Reactions and Stoichiometry
- ❖ Intermolecular Forces
- ❖ Gas Laws
- ❖ Solutions and Mixtures
- ❖ Acids and Bases

STEAM connection:

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

Next course in sequence: Astronomy, Anatomy and Physiology, Ecology, Geology, Physics, 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 all topics outlined in Chemistry in addition to:

- ❖ Chemical Kinetics
- ❖ Chemical Equilibria
- ❖ Acids and Bases
- ❖ Thermodynamics
- ❖ Electrochemistry
- ❖ Spectroscopy
- ❖ VSEPR and Hybridization

STEAM 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 Chemistry, or have a teacher recommendation.

Next course in sequence: Astronomy, Anatomy and Physiology, Chemistry, Ecology, Geology, Physics, 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.

STEAM 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, Ap Biology, or have a teacher recommendation.

Next course in sequence: Astronomy, Chemistry, Ecology, Geology, Physics, AP Chemistry, 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.

STEAM 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: Astronomy, Anatomy and Physiology, Chemistry, Ecology, Geology, Physics, or AP Chemistry

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

STEAM 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: Anatomy and Physiology, Chemistry, Ecology, Geology, Physics, AP Chemistry, 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: Astronomy, Anatomy and Physiology, Chemistry, Geology, Physics, AP Chemistry, 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: Astronomy, Anatomy and Physiology, Chemistry, Ecology, Physics, AP Chemistry, 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.

STEAM 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: Astronomy, Anatomy and Physiology, Chemistry, Ecology, Geology, AP Chemistry, or AP Environmental Science



SOCIAL SCIENCE HS Courses

TPAA High School Graduation Requirements: 3 years/ 30 credits

A-G Requirements: 2 years / 20 credits

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

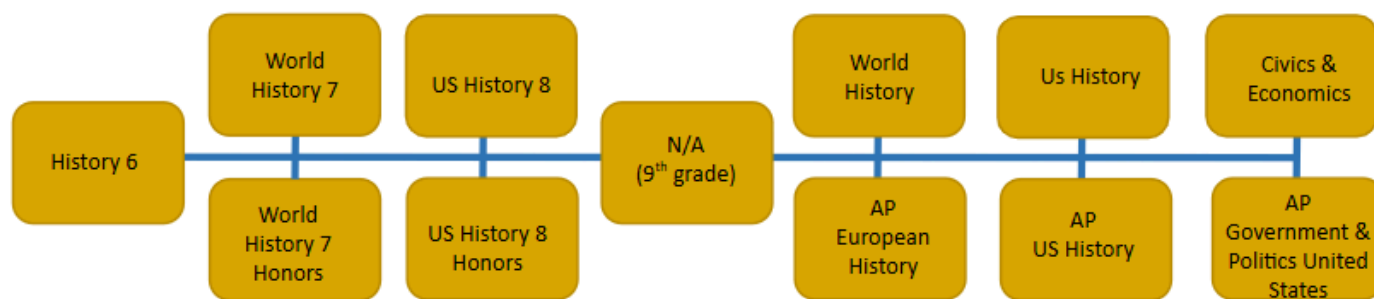
Grade 9	Grade 10	Grade 11	Grade 12
N/A	World History 10 Or AP European History	US History 11 Or AP US History	Civics and Econ Or AP Government and Politics United States

Social Science Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
10	World History 10	World History 10	Yes		A
10	AP Euro Hist	AP European History	Yes	TPAA/UC	A
11	U.S. History 11 US History USHis11	U.S. History 11	Yes		A
11	AP U.S. History	AP United States History	Yes	TPAA/UC	A
12	Civics and Economics	Civics and Economics	Yes		A
12	AP U.S. Government	AP Government and Politics United States	Yes	TPAA/UC	A

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.

STEAM connection:

STEAM 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:

STEAM 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:

In 7th grade World History, students explore the major civilizations and cultures from the fall of the Roman Empire to the Enlightenment. They study the development of societies across Europe, Africa, Asia, and the Americas, examining key events, beliefs, and innovations that shaped the world. Through primary sources, critical thinking, and discussions, students analyze the connections between historical events and their lasting impact. This course fosters a global perspective and deepens students' understanding of cultural and historical developments.

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

STEAM 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:

In 7th grade World History, students explore the major civilizations and cultures from the fall of the Roman Empire to the Enlightenment. They study the development of societies across Europe, Africa, Asia, and the Americas, examining key events, beliefs, and innovations that shaped the world. Through primary sources, critical thinking, and discussions, students analyze the connections between historical events and their lasting impact. This course fosters a global perspective and deepens students' understanding of cultural and historical developments. The honors course will be more rigorous and will help prepare students for future honors or Advanced Placement Social Studies courses at TPAA.

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.

STEAM 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:

In 8th grade U.S. History, students explore the founding and development of the United States from the colonial era through Reconstruction. They examine key events, figures, and ideas that shaped the nation, including the American Revolution, Constitution, westward expansion, and the Civil War. Through critical thinking, primary sources, and discussions, students analyze the impact of democracy, freedom, and conflict on American society. This course builds historical literacy and civic understanding, preparing students to make connections between the past and present

Topics:

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

STEAM 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:

In 8th grade U.S. History, students explore the founding and development of the United States from the colonial era through Reconstruction. They examine key events, figures, and ideas that shaped the nation, including the American Revolution, Constitution, westward expansion, and the Civil War. Through critical thinking, primary sources, and discussions, students analyze the impact of democracy, freedom, and conflict on American society. This course builds historical literacy and civic understanding, preparing students to make connections between the past and present. The honors course will be more rigorous and will help prepare students for Advanced Placement Social Studies courses at TPAA.

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

STEAM 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 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

STEAM 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.

Units:

1. The Renaissance and Exploration
2. Age of Reformation
3. Absolutism and Constitutionalism
4. Scientific, Philosophical, and Political Developments
5. Conflicts, Crises, and Reactions in the Late 18th Century
6. Industrialization and its Effects
7. 19th Century Perspectives and Political Developments
8. 20th Century Global Conflicts
9. Cold War and Contemporary Europe

STEAM Connection:

Students are required to assess the social, political, and economic impacts of technologies from various periods of advancement (ie: The Industrial Revolution, WWII, The Digital Age). Students are required to assess artistic movements and infer the purpose, symbolism, and motivations behind the school of art. In-class tech will be utilized throughout the course to access assignments, organize materials, conduct research, and create projects or assignments.

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 11th Grade U.S. History course examines key political, economic, social, and cultural developments from the late 19th century to the present. Students explore industrialization, immigration, imperialism, and the causes and consequences of both World Wars. The course also covers the Cold War, the Civil Rights Movement, and shifting domestic and foreign policies in the late 20th and early 21st centuries. By analyzing primary and secondary sources, students develop critical thinking and historical analysis skills, connecting past events to contemporary issues. The course emphasizes civic engagement and a deeper understanding of how historical forces continue to shape the United States today.

Topics:

- ❖ Foundations of modern America
- ❖ Imperialism and World War I
- ❖ The Roaring Twenties and Great Depression
- ❖ World War II and its aftermath
- ❖ The Cold War and Civil Rights Movement
- ❖ The 1970s to the Present

STEAM 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. Students will also be exposed to various mediums of art that reflect the ideas and/or events of the time period (i.e. paintings, photographs, poems, music).

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:

AP U.S. History is a college-level course that explores the political, social, economic, and cultural history of the United States from pre-Columbian times to the present. Students analyze primary and secondary sources, develop historical arguments, and make connections across time periods. The course emphasizes critical thinking, essay writing, and historical interpretation to prepare students for the AP U.S. History Exam. With a passing score, students may earn college credit while gaining a deeper understanding of America's past and its relevance today.

Topics:

- ❖ Colonial America and the American Revolution
- ❖ The Constitution and the Early Republic
- ❖ Civil War and Reconstruction
- ❖ Industrialization and Progressive Reform
- ❖ The U.S. in the 20th and 21st Centuries

STEAM connection:

This course integrates STEAM learning by analyzing historical innovations, using data to interpret trends, and applying technology in research and presentations.

Project-based learning:

AP U.S. History incorporates project-based learning, allowing students to engage in research, debates, and hands-on activities that deepen their understanding of historical events and perspectives.

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 voting rights will be explored. The economics portion of this course will introduce students to basic economic concepts and principles such as the role of supply versus demand, concepts of artificial shortages and market control, economic systems, gross domestic products, natural supply and demand in a free market economy. The role of Factors of production in economic production, how banks and markets function, who establishes prices in the marketplace, and the role of entrepreneurship. Economic ideas of Adam Smith and the evolution of economics from the Neolithic Age to the establishment of free market economics.

Topics:

- ❖ 3 Branches of government
- ❖ Prominent government systems and concepts
- ❖ Capitalism, Socialism, and Communism
- ❖ Factors of economic growth and development
- ❖ Supply & Demand & free market economy
- ❖ Economic ideas of Adam Smith & early economies

STEAM 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 Government and Politics United States (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
- ❖

STEAM 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.



STEAM HS Courses

TPAA High School Graduation Requirements: 3 years/ 30 credits

A-G Requirements: 1 years / 10 credits (College Prep Courses/Science Courses-as 3rd year of science only)

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

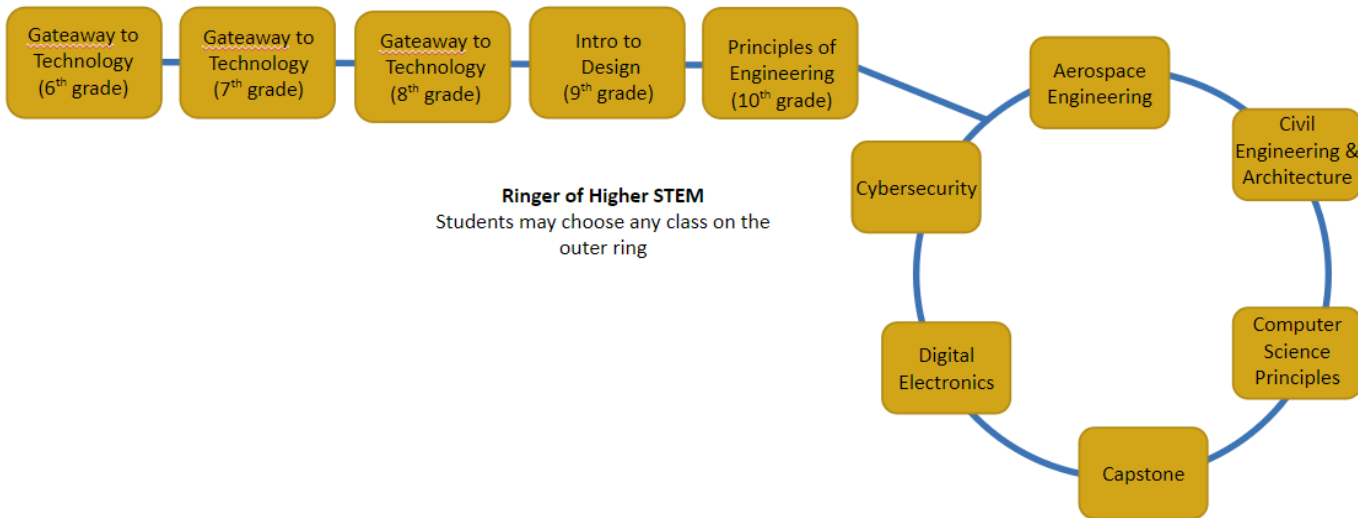
Grade 9	Grade 10	Grade 11	Grade 12
N/A	PLTW Principles of Engineering Intro-Data Science and Machine Learning	PLTW Aerospace Eng., PLTW Civil Eng. & Arch., PLTW Comp Science Princ., PLTW Cybersecurity PLTW Digital Electronics PLTW Capstone Intro-Data Science and Machine Learning	PLTW Aerospace Eng., PLTW Civil Eng. & Arch., PLTW Comp Science Princ., PLTW Cybersecurity PLTW Digital Electronics PLTW Capstone Intro-Data Science and Machine Learning

STEAM Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
10	PLTW Principles of Eng	PLTW Principles of Engineering	Yes		D/G
10/11/12	Intro-Data Science and Machine Learning	Intro-Data Science and Machine Learning	Yes		D/F
11/12	PLTW Aerospace Engineering	PLTW Aerospace Engineering	Yes		D/G
11/12	PLTW Civil Eng and Arch	PLTW Civil Engineering and Architecture	Yes		D/G
11/12	PLTW Comp Sci Princ	PLTW Computer Science Principles	Yes		D/G
11/12	PLTW Cybersecurity	PLTW Cybersecurity	Yes		D/G
11/12	PLTW Digital Electronics	PLTW Digital Electronics	Yes		D/G
11/12	PLTW Capstone	PLTW Capstone	Yes		D/G

STEAM

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- **Medical Detectives and 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 students gain and the skills they build from GTT create a strong foundation for further STEAM learning in high school and beyond.

Throughout GTT, students acquire knowledge and skills in problem solving, teamwork and innovation as well as explore STEAM 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 STEAM 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.

Green Architecture

Students learn how to apply green concepts to the fields of architecture and construction. They explore dimensioning, measuring, and architectural sustainability and apply what they have learned to design affordable housing units using Autodesk's 3D architectural design software.

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 STEAM learning in high school and beyond.

Throughout GTT, students acquire knowledge and skills in problem solving, teamwork and innovation as well as explore STEAM 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 STEAM subjects and prepare students for further study in high school.

Topics:

Automation and Robotics (AR):

Students apply what they've learned in a highly interactive course that introduces mechanical systems, energy transfer, and computer-controlled automation.

In the Automation and Robotics (AR) unit, students explore the evolution of robotics and its role in shaping the future of various industries, ranging from aerospace to healthcare. Using VEX Robotics kits and professional-grade software, students design, build, and program smart machines, including traffic systems, toll booths, and robotics arms. Participants also learn the core principles of engineering and begin to understand how systems integrate with sensors, motors, and logic.

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.

App Creators:

This unit will expose students to computer science as a means of computationally analyzing and developing solutions to authentic problems through mobile app development.

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

PLTW Principles of Engineering (10th Grade)

(Meets STEAM 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, Intro-Data, Science and Machine Learning

Intro-Data Science and Machine Learning

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

Description:

Students will learn how to design appropriate graphic user interfaces and web applications for the purpose of exploring the burgeoning fields of data science, machine learning, and generative artificial intelligence (AI.) The culmination of the course will have students applying everything they learn in a final project of their choice: an innovative computer/web application intended to solve a complex real-world problem.

Topics:

- ❖ Tkinter and Flask for Application Development: Building sophisticated GUI and web applications.
- ❖ Data Science Fundamentals: Introduction to data analysis, visualization, and statistical modeling with Python.
- ❖ Practical Machine Learning: Designing and training machine learning models for real-world applications.
- ❖ Exploring Generative AI: Leveraging generative models for innovative design and problem-solving.
- ❖ Capstone Project: A comprehensive project incorporating GUI, Flask, data science, and AI concepts.

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 STEAM 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:

- v Aerodynamics
- v Astronautics
- v Space-life sciences
- v 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 STEAM 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

STEAM Connection:

Computer Science Principles is one of our PLTW STEAM 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

STEAM Connection:

Cybersecurity is one of our PLTW STEAM 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 STEAM 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 STEAM 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.

STEAM 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 HS Courses

TPAA High School Graduation Requirements: 2 years/ 20 credits

A-G Requirements: 2 years / 20 credits

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

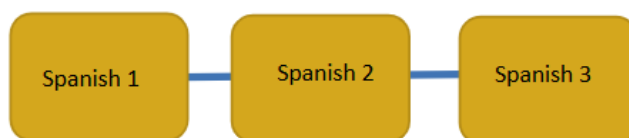
Grade 9	Grade 10	Grade 11	Grade 12
Spanish 1	Spanish 2	Spanish 3	N/A

World Language Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
9	Spanish 1	Spanish 1	Yes		E
10	Spanish 2	Spanish 2	Yes		E
11	Spanish 3	Spanish 3	Yes		E

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.

STEAM 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 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.

STEAM 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 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.

STEAM 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



VAPA HS Courses

TPAA High School Graduation Requirements: 1 years/ 10 credits

A-G Requirements: 1 years / 10 credits

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

Grade 9	Grade 10	Grade 11	Grade 12
Introduction to Design 1,2 Digitals Arts & Game Design (VAPA & STEAM), AP Art History	Introduction to Design 1,2 Digitals Arts & Game Design (VAPA & STEAM), AP Art History	Introduction to Design 1,2 Digitals Arts & Game Design (VAPA & STEAM), AP Art History	Introduction to Design 1,2 Digitals Arts & Game Design (VAPA & STEAM), AP Art History

VAPA Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
9/10/11/12	Introduction to Design 1, 2	Introduction to Design 1, 2	Yes		F
9/10/11/12	Dimensional Art and Design	Digital Media & Game Design	Yes		F
9/10/11/12	AP Art History	AP Art History	Yes	TPAA/UC	F

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:

AP Art History is a college-level course that explores the history of art across global cultures from prehistory to the present. Students analyze 250 required works from diverse traditions, considering their form, function, content, and context while developing skills in visual and contextual analysis. The course emphasizes critical thinking, comparative analysis, and how art reflects cultural, historical, and political influences. Through discussions, research, and writing, students engage with major artistic movements, architectural innovations, and the evolving role of artists in society. By the end of the course, students will have a deeper understanding of art's impact and be prepared for the AP exam, which includes multiple-choice and free-response questions.

Topics:

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

STEAM connection:

AP Art History is a course that focuses on art. The course also investigates technological advances used in art.

Digital Arts and Game Design

(Meets VAPA or STEAM 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 STEAM 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/HS Courses

TPAA High School Graduation Requirements: N/A

A-G Requirements: N/A

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

Grade 9	Grade 10	Grade 11	Grade 12
MS EL 1-2 MS EL 3-4 HS EL 1-2 HS EL 3-4	MS EL 1-2 MS EL 3-4 HS EL 1-2 HS EL 3-4	MS EL 1-2 MS EL 3-4 HS EL 1-2 HS EL 3-4	MS EL 1-2 MS EL 3-4 HS EL 1-2 HS EL 3-4

MS/HS EL Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
7/8	N/A	MS 1/2	No		N/A
7/8	N/A	MS 3/4	No		N/A
9/10/11/12	N/A	HS EL 1/2	No		N/A
9/10/11/12	AP Art History	HS EL 3/4	Yes		B

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.



Elective HS Courses / Health HS Course

Electives TPAA High School Graduation Requirements: 3.5 years/ 35 credits

Health TPAA High School Graduation Requirements: 5 years/ 5 credits

A-G Requirements: 1 years / 10 credits (College Prep Courses only)

Four Year Course Options

Performance and Teacher Recommendations Determine Progress

Grade 9	Grade 10	Grade 11	Grade 12
Health AVID 9-10, AVID 11-12, Classroom Teacher Assistant, High School Leadership, High School Yearbook, Life Skills, Link, or Work Experience	Health AVID 9-10, AVID 11-12, Classroom Teacher Assistant, High School Leadership, High School Yearbook, Life Skills, Link, or Work Experience	Health AVID 9-10, AVID 11-12, Classroom Teacher Assistant, High School Leadership, High School Yearbook, Life Skills, Link, or Work Experience	Health AVID 9-10, AVID 11-12, Classroom Teacher Assistant, High School Leadership, High School Yearbook, Life Skills, Link, or Work Experience

Health / Electives Course List

Grade(s)	UC/CSU Transcript Abbreviation	Course Title	College Prep	TPAA Honors Only/UC Honors	UC/CSU Approved
9/10/11/12	N/A	Health	No		N/A
9/10	AVID 9-10	AVID 9-10	Yes		G
11/12	AVID 11-12	AVID 11-12	Yes		G
9/10/11/12	N/A	Classroom Teacher Assistant	No		N/A
9/10/11/12	HS Leadership	High School Leadership	Yes		G
9/10/11/12	HS Yearbook	High School Yearbook	Yes		G
11/12	Life Skills	Life Skills	Yes		G
11/12	Link	Link Crew	Yes		G
11/12	Work Experience	Work Experience	Yes		G

ELECTIVES / HEALTH

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.

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.

Human Interactions (Integrated within Health Course)

The Human Interactions component is delivered through Positive Prevention PLUS High School (HS), an evidence-based and comprehensive sexual health and teen pregnancy prevention curriculum for students in grades 9–12. This curriculum

is fully aligned with the California Healthy Youth Act and is designed to provide students with accurate information and practical skills to support their overall health and well-being.

Instructional content includes, but is not limited to: abstinence, contraceptive methods, HIV and other sexually transmitted infections (STIs), relationship violence, peer influence, and access to reproductive health services. Lessons incorporate interactive learning experiences, social-emotional learning (SEL) strategies, and family engagement activities to ensure students are equipped to make informed, responsible, and healthy decisions regarding their personal relationships and health.

Topics:

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

STEAM connection:

The Online Health course at TPAA is enhanced by the use of STEAM. 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.

STEAM 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 STEAM 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

STEAM connection:

Students will be introduced to STEAM 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.

STEAM 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.

STEAM 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.

STEAM 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 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.

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

STEAM connection:

Students will be introduced to STEAM 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

STEAM 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.

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.

STEAM

Length: 1 year

Prerequisites: Students must have earned a GPA of 2.0 or higher in the most recent grading period, maintain satisfactory or above citizenship grades, be at least 16 years old, and provide their own transportation.



TPAA Middle School 3 Year 2025-2026 Promotion Plan

	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 * English87 Honors	* English 8 * English87 Honors
Math	* Math 6	* Math 6	* Math 7 * Math 7 Honors	* Math 7 * Math 7 Honors	* Math 8 * Algebra 1	* Math 8 * Algebra 1
Social Science	* History 6	* History 6	* World History 7 * World History 7 Honors	* World History 7 * World History 7 Honors	* US History 8 * US History 8 Honors	* US History 8 * US 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
STEAM	Gateway to Technology 6	Gateway to Technology 6	Gateway to Technology 7	Gateway to Technology 7	Gateway to Technology 8	Gateway to Technology 8

TPAA High School 4 Year 2025-2026 Graduation Plan and A-G Requirements

	9th Grade		10th Grade		11th Grade		12th Grade	
	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 History * World History 10	* AP Euro History * World History 10	* AP US History * US History 11	* AP US History * US History 11	* AP US Government and Politics * Civics and Economics	* AP US Government and Politics * Civics and Economics
B. English TPAA: 40 credits A-G: 4 years	* English 9 Ethnic Studies * English 9 Ethnic Studies Honors	* English 9 Ethnic Studies * English 9 Ethnic Studies Honors	* English 10 * English 10 Honors	* English 10 * English 10 Honors	* English 11 * AP Language and Composition	* English 11 * AP Language and Composition	* English 12 Young Adult * English 12 Myth & Fant * AP English Literature	* English 12 Young Adult * English 12 Myth & Fant * AP English Literature
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-Calc Honors * AP Statistics * Intro to Statistics * AP Calc AB * AP Calc BC * Consumer Math	* Algebra 1 * Geometry * Geometry-Honors * Algebra 2 * Algebra 2/Trigonometry Honors * Pre-Calc Honors * AP Statistics * Intro to Statistics * AP Calc AB * AP Calc BC * Consumer Math	* Algebra 1 * Geometry * Geometry-Honors * Algebra 2 * Algebra 2/Trigonometry Honors * Pre-Calc Honors * AP Statistics * Intro to Statistics * AP Calc AB * AP Calc BC * Consumer Math	* Algebra 1 * Geometry * Geometry-Honors * Algebra 2 * Algebra 2/Trigonometry Honors * Pre-Calc Honors * AP Statistics * Intro to Statistics * AP Calc AB * AP Calc BC * Consumer Math	* Algebra 1 * Geometry * Geometry-Honors * Algebra 2 * Algebra 2/Trigonometry Honors * Pre-Calc Honors * AP Statistics * Intro to Statistics * AP Calc AB * AP Calc BC * Consumer Math	* Algebra 1 * Geometry * Geometry-Honors * Algebra 2 * Algebra 2/Trigonometry Honors * Pre-Calc Honors * AP Statistics * Intro to Statistics * AP Calc AB * AP Calc BC * Consumer Math
D. Laboratory Science TPAA: 30 credits A-G: 2 years	* Earth Science * Biology	* Earth Science * Biology	* Earth Science * Biology * Chemistry * AP Chemistry * Anat and Phys * AP Environmental Science * Astronomy * Ecology * Geology * Physics	* Earth Science * Biology * Chemistry * AP Chemistry * Anat and Phys * AP Environmental Science * Astronomy * Ecology * Geology * Physics	* Earth Science * Biology * Chemistry * AP Chemistry * Anat and Phys * AP Environmental Science * Astronomy * Ecology * Geology * Physics	* Earth Science * Biology * Chemistry * AP Chemistry * Anat and Phys * AP Environmental Science * Astronomy * Ecology * Geology * Physics	* Earth Science * Biology * Chemistry * AP Chemistry * Anat and Phys * AP Environmental Science * Astronomy * Ecology * Geology * Physics	* Earth Science * Biology * Chemistry * AP Chemistry * Anat and Phys * AP Environmental Science * Astronomy * Ecology * Geology * Physics
E. Language Other Than English: TPAA: 20 credits A-G: 2 years	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3	* Spanish 1 * Spanish 2 * Spanish 3
F. Arts TPAA: 10 credits A-G: 1 years	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning	* Introduction to Design 1, 2 * Digital Arts & Game Design * Intro to Data Science & Machine Learning
G. College Preparatory Electives TPAA: 30 credits A-G: 1 years			* Principles of Engineering (POE) * Intro-Data Science and Machine Learning	* Principles of Engineering (POE) * Intro-Data Science and Machine Learning	* PLTW Aerospace Eng * PLTW Civil Eng. & Arch * PLTW Comp Science Princ. * PLTW Cybersecurity * PLTW Digital Electronics * PLTW Capstone	* PLTW Aerospace Eng * PLTW Civil Eng. & Arch * PLTW Comp Science Princ. * PLTW Cybersecurity * PLTW Digital Electronics * PLTW Capstone	* PLTW Aerospace Eng * PLTW Civil Eng. & Arch * PLTW Comp Science Princ. * PLTW Cybersecurity * PLTW Digital Electronics * PLTW Capstone	* PLTW Aerospace Eng * PLTW Civil Eng. & Arch * PLTW Comp Science Princ. * PLTW Cybersecurity * PLTW Digital Electronics * PLTW Capstone
Health Other Electives TPAA: 5 credits	Health - Human Interaction (1 sem)	Health - Human Interaction (1 sem)						
Other Electives TPAA: 35 credits	* AVID 9-10 * Classroom TA * HS Leadership * HS Yearbook * High School PE	* AVID 9-10 * Classroom TA * HS Leadership * HS Yearbook * High School PE	* AVID 9-10 * Classroom TA * HS Leadership * HS Yearbook * High School PE	* AVID 9-10 * Classroom TA * HS Leadership * HS Yearbook * High School PE	* AVID 11-12 * Classroom TA * HS Leadership * HS Yearbook * High School PE * Life Skills * Link * Work Experience	* AVID 11-12 * Classroom TA * HS Leadership * HS Yearbook * High School PE * Life Skills * Link * Work Experience	* AVID 11-12 * Classroom TA * HS Leadership * HS Yearbook * High School PE * Life Skills * Link * Work Experience	* AVID 11-12 * Classroom TA * HS Leadership * HS Yearbook * High School PE * Life Skills * Link * Work Experience



Thank you