

Charter School Request for Material Revision to Charter

School Date submitted: _____ December 22, 2020

Education Code 47607(a)(2)

Renewals and material revisions of charters are governed by the standards and criteria in Section 47605, and shall include, but not be limited to a reasonably comprehensive description of any new requirement of charter schools enacted into law after the charter was originally granted or last renewed.

This document is a template for your revision request. Please use as many pages as needed in order to ensure that your request is thoroughly described.

Please complete all parts of each of the following sections:

1. Address any new requirements of charter schools enacted into law after the charter was originally granted or last renewed that are relevant to your school. If none are relevant to your school please indicate with 'NA'.

NA- All updates and revisions current with law were included in the renewal petition submitted December 23, 2020 and scheduled for vote on March 10, 2021.

2. Provide the following information:
 - a. a description of proposed material revision that includes:
 - i. sufficient detail and background information as to why the material revision is necessary
 - ii. how it will impact charter and authorizing entity

AeroSTEM Academy is seeking to add grade 5 to the grade levels it teaches to serve as an introductory year to institute beginning STEM conceptual training for students so that they are better prepared to enter middle and high school Project Lead the Way, C-STEM, and aeronautical pathways. In addition, the community has expressed a desire for their students to enter a STEM education in grade 5 as a transitional year rather than wait for middle school or high school grade levels. Grade 5 has been an academically challenging year for many students historically, as the increased rigor of the standards causes some students to have difficulty keeping on pace. By choosing this year as a transitional year, AeroSTEM teachers can establish a rapport with students, provide a solid base of STEM procedures and concepts to start their STEM explorations, and bring families into the process of school-home relationship building and parent training in technology to ease the processes of learning in the adolescent developmental years.

There is an expected fiscal impact to AeroSTEM Academy in adding additional facility space, teachers and staff, curriculum, and supplies for students. This fiscal expense will be balanced by the increased enrollment of students and will be planned for in a fiscally responsible manner compliant with all state and local laws.

The Charter does not foresee any impact of the revision to add grade 5 to the school to the authorizing entity, as the AeroSTEM Academy currently operates independently and provides all of its own employees, fiscal management, and special education services.

- b. estimated fiscal impact of the material revision

There is no estimated fiscal impact of the material revision to the chartering authority.

- c. charter school governing board action related to this material revision

The AeroSTEM Academy Board approved the submission of the Charter Revision outlined within the Charter Renewal Petition to add grade 5 at their regular board meeting on December 14, 2020.

3. Requested Revision(s) to Existing Charter Document: Include
 - a. original language of the approved petition
 - b. the page number of the current approved petition for each change that you are requesting
 - i. This can be provided as a redline Word attachment to this template. Use track changes to strike out language to be deleted (~~language to be deleted~~) and underline language to be added (language to be added)
 - ii. Minor editing changes, formatting should not be included

Changes specific to the addition of grade 5 are found in the AeroSTEM Academy Charter Renewal Petition in the the pdf saved final redline version on the following pages, also attached:

Page 9- Introduction
Page 15- Philosophy
Page 17- Students to be Served
Pages 22-26- Middle School Proposed Course List
Page 36- Instructional Minutes

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Page 9- Introduction
Page 15- Philosophy
Page 17- Students to be Served
Pages 22-25- Middle School Proposed Course List
Page 33- Instructional Minutes

Material Revision requested by:

Katheryn Smith-McQuerry, Director of AeroSTEM Academy

Print name Title

Redline Version (saved as pdf)

Introduction

The Yuba-Sutter region is situated within the Sacramento Valley, lending itself to diverse STEM opportunities. First, it is not far from the Silicon Valley, home to the world's high-tech corporations. Second, it is less than an hour from Sacramento International Airport, and third, it is part of an agriculture community with field and water management programs, and it is adjacent to several community airports, all of which are expanding UAV applications as solutions to management and economic concerns. It is an area ripe for a new generation of technological performing civic citizens.

In the fall of 2018, the Charter School ~~will open~~ed its doors to 6th through 9th grades, adding the subsequent grade level with each successive year. In the fall of 2021, the final high school grade level will be incorporated so that students may graduate with a fully WASC Accredited high school education. AeroSTEM will be adding grade 5 also in the 2021-22 school year.

AeroSTEM Academy's founding team recognizes the career opportunities and is eager to raise up the future of our Yuba-Sutter homeland. We seek to strengthen the sense of pride young minds gain when they set goals for their dreams, discover possibilities and pathways, and design a satisfying and enriching course of action. Setting goals, establishing commitment, and persevering will be the primary "muscles" we exercise through academic rigor and hands-on experiences. We hope to further convey the need for such disciplines by involving families in the learning process. Families tend to have the most influence over children, and together we can strengthen community expectations.

Through this charter petition, the AeroSTEM Academy founders represent their mission and vision for providing an educational program conducive to the 21st Century technology-based society within the context of the Yuba-Sutter region and the surrounding Sacramento Valley. We invite Sutter County Board of Education to join us in this adventure by authorizing this charter.

School Leadership Biographies

Utilizing the expertise of our leadership group and the input of our excellent teaching staff, we have laid out our unique educational approach that will be available to students attending.

Leadership in School Organization and Administration

~~Chris Mahurin, Executive Director, has worked in education for over 17 years as a group home tutor, classroom teacher, alternative program developer, personalized learning teacher and administrator for CORE. Chris graduated with Highest Honors from the University of California, Santa Barbara with a double major in Philosophy and Religious Studies. He holds a Single Subject Teaching Credential in Social Science and an Administrative Services Credential. Chris continues to advocate for alternative education with every opportunity.~~

Kathy Smith-McQuerry, School Director and Special Education Director for AeroSTEM Academy, has worked in education for over 20 years as a Foster Parent and Group Home Manager, Special Education and General Education Teacher, and Science Based Charter School Director and Program Developer. Kathy graduated from the California State University, Chico with a double Master's degree in Educational Leadership and Curriculum and Instruction. She holds

Philosophy

AeroSTEM Academy provides an educational model for 6th-8th 5th-12th grade students who value learning and want to prepare for their future career now. By setting goals, mapping learning pathways, and committing to academic rigor, students will create advanced multiple career opportunities for themselves. Consistent with charter school law, the Charter School utilizes a hybrid learning approach that integrates both classroom instruction and independent learning. All students are expected to become proficient in the following:

- California State Content Standards: All students will demonstrate course-work knowledge and performance that is consistent with the Common Core State Standards ("CCSS"), Next Generation Science Standards ("NGSS"), English Language Development Standards ("ELD" and remaining State Content Standards (collectively referred to herein as "State Standards").
- Performance-based skills: All students will be effective readers, communicators, and critical thinkers, and will be able to work collaboratively with others and develop relevant STEM skill sets toward accomplishing goals.
- Character Development: All students will respect themselves and others. They will develop a Growth Mindset—showing a desire to learn, embracing challenges and overcoming obstacles.

Our educational philosophy will well serve those who are seeking a different educational option and want to be prepared for next steps in their education. It includes a strong emphasis on parental involvement, student interaction, student interest, technology acquisition, computer-based learning, laboratory work, and real-world learning environments.

What It Means to be an "Educated Person" in the 21st Century

AeroSTEM Academy believes that an educated person in the 21st century is someone who is a self-motivated, competent, and a lifelong learner. The learner has achieved proficiency with the State Standards in all core academic areas, and is able to read, write, speak, and problem solve with clarity and precision. The learner is able to use digital technology and communication tools to access, manage, integrate, and evaluate information; to construct new knowledge; and to communicate effectively. The learner is able to think critically as well as to challenge and to question. Such a person understands the interrelationship of history, science, literature, and the arts. The learner has determined goals and direction for the future. It is the goal of the Charter School to help instill in students a desire to use their acquired knowledge and skills to benefit their local community as well as the world in which they live.

AeroSTEM Academy subscribes to Stanford psychologist Carol Dweck's "Growth Mindset" philosophy for learners. Counter to the self-esteem movement in which students are praised for their effort, which may inadvertently cover achievement gaps, Growth Mindset intends to expose and close those gaps by *praising learning*. When students realize that, like a muscle, they can grow their brains, improve their intelligence, and learn a skill that once seemed impossible, their refocused perception "plays a key role in their motivation and achievement." Response to mistakes is the gym where a growth mindset exercises. When seen as a springboard to learn, overcome, and bolster abilities, students actually welcome mistakes. Dr. Dweck adds: "This *growth mindset* is based on the belief that your basic qualities are things you can cultivate through your efforts. Although people may differ in every which way — in their initial talents and aptitudes,

- AeroSTEM Academy will offer a distinctly different choice in public education for families in Yuba City Unified School District, Sutter County, and its contiguous counties.
- AeroSTEM Academy will enable students to understand the importance of their work and how it connects to their future plans.
- AeroSTEM Academy will empower each student to become college and career ready.

Students to be Served

The AeroSTEM Academy independent study program is available to all students in grades 56-12 who reside in Yuba City Unified School District, Sutter County, and its contiguous counties (Yuba, Yolo, Colusa, Sacramento, Butte, and Placer), as required by Education Code Section 51747.3. The AeroSTEM Academy site-based program is open to all students in California. We offer our parent and student constituents alternatives to traditional schools. The Charter School will serve families who desire a standards-based approach to education, with STEM emphasis.

Beginning in 2018-19 school year, a full range of educational services will be available to students in grades 6 – 9. An additional high school grade will be offered each subsequent year: 10th grade in 2019-20, and 11th grade in 2020-21. Finally, in school year 2021-22, AeroSTEM Academy will add grades 5 and 12 to complete the build-out, servinge grades 56 – 12. Enrollment projections by grade level are as follows:

Enrollment Projections					
Grade level	2018-19	2019-20	2020-21	2021-22	2022-23
6 th	25	25	25	25	25
7 th	25	25	25	25	25
8 th	25	25	25	25	25
9 th	20	25	25	25	25
10 th		20	25	25	25
11 th			20	25	25
12 th				20	25
Total Enrollment:	95	120	145	170	175

Enrollment Projections:

Grade Level	2020-21 (current)	2021-22	2022-23	2023-24	2024-25	2025-26
5		25	30	40	50	50
6	29	40	50	50	50	50
7	32	35	45	50	50	50
8	26	40	35	45	50	50
9	24	26	30	30	30	30
10	16	24	26	30	30	30
11	9	16	24	26	30	30
12		9	16	24	26	30
Independent study (20% max. ad.)	2	Up to 42	Up to 50	Up to 58	Up to 62	Up to 64

Middle School Proposed Course List			
	Course	Grades Offered	Grading
	<u>US History and Geography</u>	<u>5</u>	<u>A-F</u>
History / Social Science	World History (Ancient Civilizations)	6	A-F
	World History (Medieval and Modern Times)	7	A-F
	U.S. History	8	A-F
English Language Arts	ELA <u>5, 6, 7, 8</u>	<u>5, 6, 7, 8</u>	A-F
Mathematics	Math <u>5, 6, 7, 8</u>	<u>5, 6, 7, 8</u>	A-F
Science	Science <u>5, 6, 7, 8</u>	<u>5, 6, 7, 8</u>	A-F
STEM	Design and Modeling	6	A-F
	Flight and Space	7	A-F
	Automation and Robotics	8	A-F

History / Social Science

US History and Geography – This fifth-grade course covers American history from the first migrations into the Americas through the 20th century. Intense interaction with the personalities, places, and events that structured our nation leads students to be both keen observers of and informed participants in U.S. history.

Curriculum: *History Alive! - America's Past!*, TCI

Discovering Our Past - A History of the United States, Glencoe

World History (Ancient Civilizations) – This sixth-grade course develops student knowledge of ancient civilizations throughout the world and world geography. Students study the development of human civilizations, exploring: (1) human movement; (2) political and legal institutions; (3) trade networks; (4) human technology; and (5) religious and philosophical systems. Students will have the opportunity to explore primary and secondary resources in this course.

Curriculum: *History Alive! – The Ancient World*, TCI

Discovering Our Past - Ancient Civilization, Glencoe

World History (Medieval and Modern Times) – In the seventh grade, students will examine the development and influence of major world cultures in history from the end of the Roman Empire through the Middle Ages including the Renaissance, the Reformation, and the Enlightenment. Particular emphasis will be placed on the synthesis of the history of humanity during the timeframe.

Curriculum: *History Alive! – The Medieval World and Beyond*, TCI

Discovering Our Past - Medieval and Early Modern Times, Glencoe

U.S. History – In the eighth grade, students will examine the development and influences surrounding the birth and early history of the United States of America. The course begins with the Declaration of Independence and its assertions, presumptions, and claims; then, students look back to the Enlightenment and Age of Exploration to trace the development of the document and its effect on later events in U.S. history.

Curriculum: *History Alive! – The United States Through Industrialism*, TCI
Discovering Our Past - The American Journey, Glencoe

English Language Arts (“ELA”)

ELA 5- Our complete 5th grade English Language Arts curriculum is made up of three main components: Literature units, Science and Social Studies units, and independent reading. Together, these three components build students' knowledge and understanding of the world, and support student mastery of all literature, informational, writing, speaking and listening, language, and foundational skills standards.
Curriculum: *Journeys*, Houghton Mifflin Harcourt

ELA 6 – Grade six ELA focuses on four main areas: (1) citing textual evidence to support analysis and interpretation of texts; (2) determining the themes, main ideas, and purposes of texts; (3) understanding and describing the development of textual elements; and (4) analyzing and evaluating arguments based on strength of evidence and logical reasoning. Students will be transitioning from elementary to middle school and the level of academic expectation and rigor is likely to be a significant departure from what they have previously experienced. ELA 6 is structured so that students develop gradual comfort with the increased academic expectations of middle school ELA. This course introduces student to AeroSTEM Academy's college preparatory expectations for reading and writing.

Curriculum: *My Perspective*, Pearson

ELA 7 – Students will focus on comprehending, analyzing, and evaluating complex texts, both fiction and nonfiction. Students practice writing, speaking, listening and utilizing skills needed for success in college and career. Moreover, the course will integrate grammar, sentence structure, and vocabulary lessons.

Curriculum: *My Perspective*, Pearson

ELA 8 – In the culminating middle school ELA course, students will focus on reading and writing fluency in preparation for high school, college, and career readiness. Special emphasis is placed on historical fiction and primary sources. Additionally, the course will integrate grammar, sentence structure, and vocabulary lessons.

Curriculum: *My Perspective*, Pearson

Mathematics

Math 5- This course develops student understanding of fractions, decimals, patterns, and measurement. It is broken into three focus areas: (1) solving addition, subtraction, multiplication, and division of fractions and decimals; (2) graph and analyze data while recognizing relationships and patterns; and (3) understand, identify, and compare area and volume of shapes and figures, and begin using conversions to solve problems. Students will explore mathematical concepts through practical applications with hands-on computing, engineering, and robotics activities. The hands-on computing, engineering, and robotics activities help students make meaningful connections between abstract math concepts and real-life applications.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt
C-STEM Math, UC Davis

Math 6 – This course develops student understanding of ratios, proportions, and basic equations and functions. It is broken into four focus areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt
C-STEM Math, UC Davis

Math 7 – This course develops student understanding of ratios and proportional reasoning and arithmetic with rational numbers. It is broken into four focus areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) 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 (4) drawing inferences about populations based on samples.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt
C-STEM Math, UC Davis

Math 8 – This course develops student understanding of linear algebra. It is broken into three focus areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean theorem.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt
C-STEM Math, UC Davis

Science

Science 5 - In this integrated Science course, aligned with the Next Generation Science Standards, students will begin exploring the cross-cutting concepts of energy and matter, including cause and effect principles, and how empirical evidence is important to the scientific method. Next, through inquiry students will begin to explore Earth's organisms and their place within Earth's ecosystem. Students will then start to understand Earth's place in the universe including stars and the solar system, and they will finish with an introduction to how human activity plays a role within the Earth systems.

Curriculum: *Inspire Science*, McGraw-Hill
Science Techbook, Discovery Education

Science 6 - In this Integrated Science course, aligned with the Next Generation Science Standards, students explore the cross-cutting concepts of structure and function, patterns, systems, and system models while learning about weather and climate, energy, and the organization of living things. The year begins with an introduction to

structure of living things from cell to organism. Students discover the ways in which behavior, environment, and genetic factors impact the survival and growth of organisms. The second half of the year focuses on learning about the weather and climate, including the underlying causes of Earth's weather patterns. Finally, students embark on an inquiry of global climate change and engage in engineering activities to explore ways in which to minimize human impact on the environment.

Curriculum: Inspire Science, McGraw-Hill

Science Techbook, Discovery Education

Science 7 - In this Integrated Science course, aligned with the Next Generation Science Standards, students explore the crosscutting concepts of energy and matter, including cause and effect and flows, cycles, and conservation. Students will engage these crosscutting concepts while learning about matter and energy travels through an ecosystem. Next students will explore the history of the earth in relationship to natural resources. The second half of the year, students will be able to explain structures and properties of matter using major principles of chemistry. Finally, students will consider human impact on these systems and explore engineering approaches to these concepts.

Curriculum: Inspire Science, McGraw-Hill

Science Techbook, Discovery Education

Science 8 - In this Integrated Science course, aligned with the Next Generation Science Standards, students explore the cross-cutting concepts of stability and change along with scale, proportion, and quantity. These concepts inform their study of the history of the earth, space systems, waves and electro-magnetic radiation, energy, forces and interactions, and natural selection/ inheritance. Students consider human impact on these systems and explore engineering approaches to these concepts.

Curriculum: Inspire Science, McGraw-Hill

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STEM

5th grade STEM:

Students will start with building projects/challenges that promote teamwork while structuring the foundations of design. They will then move on to basics in circuitry, where they will build projects with circuit components and will learn block coding for some of these projects. Using code.org, LEGO Mindstorms and CSTEM, students will combine their knowledge and build robots to aid them in survivalist theme challenges.

6th Grade STEM:

Students start the year learning the basics of team work by working through timed challenges and learning entrepreneurial skills. They then learn to work together to design projects that follow the history of innovation and contribution to engineering. Students apply their knowledge to build and code robots and prepare for competition level challenges.

7th grade STEM:

Flight and Space, Venture Lab, Code.org and C-STEM

8th grade STEM:

Automation and Robotics, Code.org, App Creators, CSTEM

Design and Modeling — Sixth grade students will discover the design process and develop an understanding of the influence of creativity and innovation in their lives. They are then challenged and empowered to use and apply what they've learned throughout the unit to design a therapeutic toy for a child who has cerebral palsy.

Curriculum: *Project Lead the Way*

Flight and Space — The exciting world of aerospace comes alive through flight and space. Seventh grade students will explore the science behind aeronautics and use their knowledge to design, build, and test an airfoil.

Curriculum: *Project Lead the Way*

Automation and Robotics — Students will learn about the history and impact of automation and robotics as they explore mechanical systems, energy transfer, machine automation, and computer control systems. Using the VEX Robotics platform, eighth grade students will apply what they know to design and program traffic lights, robotics arms, and more.

Curriculum: *Project Lead the Way*

Instructional Minutes

AeroSTEM Academy offers, at a minimum, the number of minutes of instruction required by Education Code Section 47612.5(a) and its implementing regulations. AeroSTEM Academy reserves the right to refine its master calendar at any time. (Appendix G: 2018-2019 Master Calendar)

Instructional Minutes

Unless otherwise required by law, sStudents in AeroSTEM Academy must meet the same required number of minimum annual instructional minutes as their peers in any public school. The following minimum minutes of instruction are offered annually:

- Grades 56-8: 54,000 Minutes
- Grades 9-12: 64,800 Minutes

In addition, AeroSTEM Academy will maintain an annual school calendar with no fewer than 175 of instructional days.

Independent Study

AeroSTEM Academy's Personalized Learning structure uses independent study to meet the educational needs of pupils enrolled in the Charter School. Independent study is an alternative education program designed to supplement the knowledge and skills of the core curriculum. AeroSTEM Academy shall provide appropriate services and resources to enable pupils to complete their independent study successfully. The following written policies have been adopted by the Board for implementation at the Charter School:

1. For pupils in all grade levels and programs offered by the Charter School, the maximum length of time that may elapse between the time an assignment is made and the date by which the pupil must complete the assigned work shall be twenty (20) school days.
2. A pupil may miss two (2) assignments during any period of twenty (20) school days before an evaluation is conducted to determine whether it is in the best interests of the pupil to remain in independent study. Therefore, when any pupil fails to complete three (3) assignments during any period of twenty (20) school days, the Executive Director or his or her designee shall conduct an evaluation to determine whether it is in the best interests of the pupil to remain in independent study. A written record of the findings of any evaluation conducted pursuant to this policy shall be treated as a mandatory interim pupil record. This record shall be maintained for a period of three years from the date of the evaluation and if the pupil transfers to another California public school, the record shall be forwarded to that school.
3. A current written agreement shall be maintained on file for each independent study pupil, including but not limited to, all of the following:
 - The manner, time, frequency, and place for submitting a pupil's assignments and for reporting his or her progress.

Clean Version (saved as pdf)

Introduction

The Yuba-Sutter region is situated within the Sacramento Valley, lending itself to diverse STEM opportunities. First, it is not far from the Silicon Valley, home to the world's high-tech corporations. Second, it is less than an hour from Sacramento International Airport, and third, it is part of an agriculture community with field and water management programs, and it is adjacent to several community airports, all of which are expanding UAV applications as solutions to management and economic concerns. It is an area ripe for a new generation of technological performing civic citizens.

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Philosophy

AeroSTEM Academy provides an educational model for 5th-12th grade students who value learning and want to prepare for their future career now. By setting goals, mapping learning pathways, and committing to academic rigor, students will create advanced multiple career opportunities for themselves. Consistent with charter school law, the Charter School utilizes a hybrid learning approach that integrates both classroom instruction and independent learning. All students are expected to become proficient in the following:

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What It Means to be an “Educated Person” in the 21st Century

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Middle School Proposed Course List			
	Course	Grades Offered	Grading
	US History and Geography	5	A-F
History / Social Science	World History (Ancient Civilizations)	6	A-F
	World History (Medieval and Modern Times)	7	A-F
	U.S. History	8	A-F
English Language Arts	ELA 5, 6,7,8	5, 6,7,8	A-F
Mathematics	Math 5, 6,7,8	5, 6,7,8	A-F
Science	Science 5, 6,7,8	5, 6,7,8	A-F
STEM	Design and Modeling	6	A-F
	Flight and Space	7	A-F
	Automation and Robotics	8	A-F

History / Social Science

US History and Geography – This fifth-grade course covers American history from the first migrations into the Americas through the 20th century. Intense interaction with the personalities, places, and events that structured our nation leads students to be both keen observers of and informed participants in U.S. history.

Curriculum: *History Alive! - America's Past!*, TCI

Discovering Our Past - A History of the United States, Glencoe

World History (Ancient Civilizations) – This sixth-grade course develops student knowledge of ancient civilizations throughout the world and world geography. Students study the development of human civilizations, exploring: (1) human movement; (2) political and legal institutions; (3) trade networks; (4) human technology; and (5) religious and philosophical systems. Students will have the opportunity to explore primary and secondary resources in this course.

Curriculum: *History Alive! – The Ancient World*, TCI

Discovering Our Past - Ancient Civilization, Glencoe

World History (Medieval and Modern Times) – In the seventh grade, students will examine the development and influence of major world cultures in history from the end of the Roman Empire through the Middle Ages including the Renaissance, the Reformation, and the Enlightenment. Particular emphasis will be placed on the synthesis of the history of humanity during the timeframe.

Curriculum: *History Alive! – The Medieval World and Beyond*, TCI

Discovering Our Past - Medieval and Early Modern Times, Glencoe

U.S. History – In the eighth grade, students will examine the development and influences surrounding the birth and early history of the United States of America. The course begins with the Declaration of Independence and its assertions, presumptions, and claims; then, students look back to the Enlightenment and Age of Exploration to trace the development of the document and its effect on later events in U.S. history.

Curriculum: *History Alive! – The United States Through Industrialism*, TCI
Discovering Our Past - The American Journey, Glencoe

English Language Arts (“ELA”)

ELA 5- Our complete 5th grade English Language Arts curriculum is made up of three main components: Literature units, Science and Social Studies units, and independent reading. Together, these three components build students' knowledge and understanding of the world, and support student mastery of all literature, informational, writing, speaking and listening, language, and foundational skills standards.

Curriculum: *Journeys*, Houghton Mifflin Harcourt

ELA 6 – Grade six ELA focuses on four main areas: (1) citing textual evidence to support analysis and interpretation of texts; (2) determining the themes, main ideas, and purposes of texts; (3) understanding and describing the development of textual elements; and (4) analyzing and evaluating arguments based on strength of evidence and logical reasoning. Students will be transitioning from elementary to middle school and the level of academic expectation and rigor is likely to be a significant departure from what they have previously experienced. ELA 6 is structured so that students develop gradual comfort with the increased academic expectations of middle school ELA. This course introduces student to AeroSTEM Academy's college preparatory expectations for reading and writing.

Curriculum: *My Perspective*, Pearson

ELA 7 – Students will focus on comprehending, analyzing, and evaluating complex texts, both fiction and nonfiction. Students practice writing, speaking, listening and utilizing skills needed for success in college and career. Moreover, the course will integrate grammar, sentence structure, and vocabulary lessons.

Curriculum: *My Perspective*, Pearson

ELA 8 – In the culminating middle school ELA course, students will focus on reading and writing fluency in preparation for high school, college, and career readiness. Special emphasis is placed on historical fiction and primary sources. Additionally, the course will integrate grammar, sentence structure, and vocabulary lessons.

Curriculum: *My Perspective*, Pearson

Mathematics

Math 5- This course develops student understanding of fractions, decimals, patterns, and measurement. It is broken into three focus areas: (1) solving addition, subtraction, multiplication, and division of fractions and decimals; (2) graph and analyze data while recognizing relationships and patterns; and (3) understand, identify, and compare area and volume of shapes and figures, and begin using conversions to solve problems. Students will explore mathematical concepts through practical applications with hands-on computing, engineering, and robotics activities. The hands-on computing, engineering, and robotics activities help students make meaningful connections between abstract math concepts and real-life applications.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt
C-STEM Math, UC Davis

Math 6 – This course develops student understanding of ratios, proportions, and basic equations and functions. It is broken into four focus areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt

C-STEM Math, UC Davis

Math 7 – This course develops student understanding of ratios and proportional reasoning and arithmetic with rational numbers. It is broken into four focus areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) 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 (4) drawing inferences about populations based on samples.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt

C-STEM Math, UC Davis

Math 8 – This course develops student understanding of linear algebra. It is broken into three focus areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean theorem.

Curriculum: *GO MATH!*, Houghton Mifflin Harcourt

C-STEM Math, UC Davis

Science

Science 5 - In this integrated Science course, aligned with the Next Generation Science Standards, students will begin exploring the cross-cutting concepts of energy and matter, including cause and effect principles, and how empirical evidence is important to the scientific method. Next, through inquiry students will begin to explore Earth's organisms and their place within Earth's ecosystem. Students will then start to understand Earth's place in the universe including stars and the solar system, and they will finish with an introduction to how human activity plays a role within the Earth systems.

Curriculum: *Inspire Science*, McGraw-Hill

Science Techbook, Discovery Education

Science 6 - In this Integrated Science course, aligned with the Next Generation Science Standards, students explore the cross-cutting concepts of structure and function, patterns, systems, and system models while learning about weather and climate, energy, and the organization of living things. The year begins with an introduction to

structure of living things from cell to organism. Students discover the ways in which behavior, environment, and genetic factors impact the survival and growth of organisms. The second half of the year focuses on learning about the weather and climate, including the underlying causes of Earth's weather patterns. Finally, students embark on an inquiry of global climate change and engage in engineering activities to explore ways in which to minimize human impact on the environment.

Curriculum: *Inspire Science*, McGraw-Hill

Science Techbook, Discovery Education

Science 7 - In this Integrated Science course, aligned with the Next Generation Science Standards, students explore the crosscutting concepts of energy and matter, including cause and effect and flows, cycles, and conservation. Students will engage these crosscutting concepts while learning about matter and energy travels through an ecosystem. Next students will explore the history of the earth in relationship to natural resources. The second half of the year, students will be able to explain structures and properties of matter using major principles of chemistry. Finally, students will consider human impact on these systems and explore engineering approaches to these concepts.

Curriculum: *Inspire Science*, McGraw-Hill

Science Techbook, Discovery Education

Science 8 - In this Integrated Science course, aligned with the Next Generation Science Standards, students explore the cross-cutting concepts of stability and change along with scale, proportion, and quantity. These concepts inform their study of the history of the earth, space systems, waves and electro-magnetic radiation, energy, forces and interactions, and natural selection/ inheritance. Students consider human impact on these systems and explore engineering approaches to these concepts.

Curriculum: *Inspire Science*, McGraw-Hill

Science Techbook, Discovery Education

STEM

5th grade STEM:

Students will start with building projects/challenges that promote teamwork while structuring the foundations of design. They will then move on to basics in circuitry, where they will build projects with circuit components and will learn block coding for some of these projects.

Using code.org, LEGO Mindstorms and CSTEM, students will combine their knowledge and build robots to aid them in survivalist theme challenges.

6th Grade STEM:

Students start the year learning the basics of team work by working through timed challenges and learning entrepreneurial skills. They then learn to work together to design projects that follow the history of innovation and contribution to engineering. Students apply their knowledge to build and code robots and prepare for competition level challenges.

7th grade STEM:

Flight and Space, Venture Lab, Code.org and C-STEM

8th grade STEM:

Instructional Minutes

AeroSTEM Academy offers, at a minimum, the number of minutes of instruction required by Education Code Section 47612.5(a) and its implementing regulations. AeroSTEM Academy reserves the right to refine its master calendar at any time. (Appendix G: 2018-2019 Master Calendar)

Instructional Minutes

Unless otherwise required by law, students in AeroSTEM Academy must meet the same required number of minimum annual instructional minutes as their peers in any public school. The following minimum minutes of instruction are offered annually:

- Grades 5-8: 54,000 Minutes
- Grades 9-12: 64,800 Minutes

In addition, AeroSTEM Academy will maintain an annual school calendar with no fewer than 175 of instructional days.

Independent Study

AeroSTEM Academy's Personalized Learning structure uses independent study to meet the educational needs of pupils enrolled in the Charter School. Independent study is an alternative education program designed to supplement the knowledge and skills of the core curriculum. AeroSTEM Academy shall provide appropriate services and resources to enable pupils to complete their independent study successfully. The following written policies have been adopted by the Board for implementation at the Charter School:

1. For pupils in all grade levels and programs offered by the Charter School, the maximum length of time that may elapse between the time an assignment is made and the date by which the pupil must complete the assigned work shall be twenty (20) school days.
2. A pupil may miss two (2) assignments during any period of twenty (20) school days before an evaluation is conducted to determine whether it is in the best interests of the pupil to remain in independent study. Therefore, when any pupil fails to complete three (3) assignments during any period of twenty (20) school days, the Executive Director or his or her designee shall conduct an evaluation to determine whether it is in the best interests of the pupil to remain in independent study. A written record of the findings of any evaluation conducted pursuant to this policy shall be treated as a mandatory interim pupil record. This record shall be maintained for a period of three years from the date of the evaluation and if the pupil transfers to another California public school, the record shall be forwarded to that school.
3. A current written agreement shall be maintained on file for each independent study pupil, including but not limited to, all of the following:
 - The manner, time, frequency, and place for submitting a pupil's assignments and for reporting his or her progress.