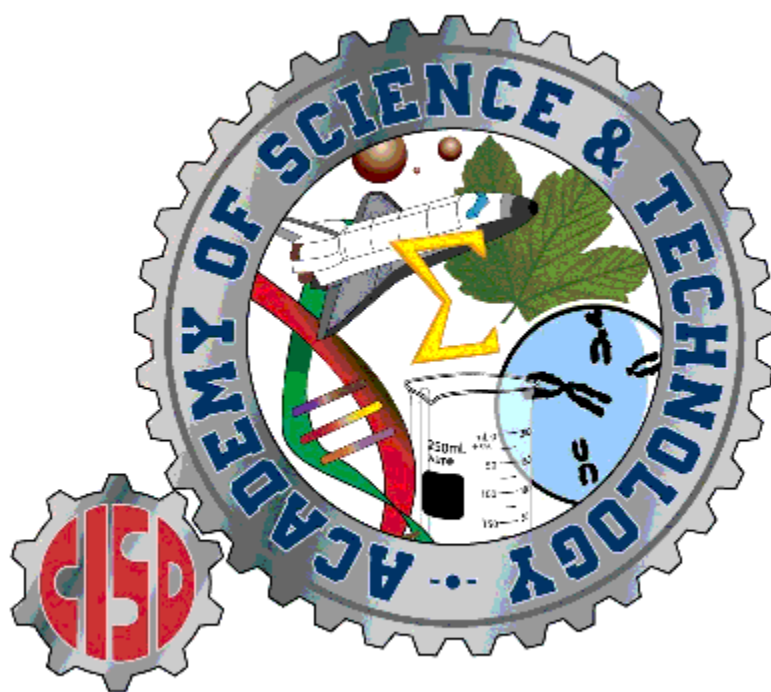


Conroe Independent School District

Academy of Science and Technology

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The Woodlands College Park HS

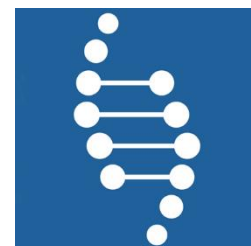


2017-2018

Course Description Guide

The Academy of Science and Technology is a member of The National Consortium for Specialized Secondary Schools (NCSSS).

Revised 1/3/17



The Conroe Independent School District (District) as an equal opportunity educational provider and employer does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in educational programs or activities that it operates or in employment matters. The District is required by Title VI and Title VII of the Civil Rights Act of 1964, as amended, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, as amended, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, as well as Board policy not to discriminate in such a manner.

For information about **Title IX rights or Section 504/ADA rights**, contact the Title IX Coordinator or the Section 504/ADA coordinator at 3205 W. Davis, Conroe, Texas 77304; (936) 709-7752.

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General Information

This Course Description Booklet is designed to assist Academy students and parents in planning Academy course selections for the 2017-2018 school year. A wide variety of Academy courses are offered. Each course is described along with its prerequisites and amount and type of credit. As an Academy student, you should use this booklet along with your TWCP Course Selection Booklet to develop a four-year plan. It is **your** responsibility to be sure that your course selection helps you meet Conroe ISD and Academy graduation requirements.

The information in this booklet should be consulted as you select courses for next year. However, printed descriptions cannot replace the value of talking about courses and plans with teachers, counselor, and your parents. If you have questions regarding courses and the implication of selecting them, you are encouraged to consult your class counselors listed below and the Academy Headmaster. Please feel free to contact us at any time during the registration process.

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Junette Mihelich
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Vision, Mission, and Goals

Graduates of the Academy of Science and Technology, a nationally recognized learning community and college preparatory program, will be socially responsible citizens who make major contributions to the future. The mission of the CISD Academy of Science and Technology is to prepare students having a strong interest in science, technology, computers, and mathematics for success in college and life. The Academy provides a challenging and innovative program designed to develop student responsibility, motivation, and commitment to learning within an ethical learning community that emphasizes trust and cooperation. We commit that our vision, mission, and beliefs will drive our decisions set in a context of continuous improvement.

The Academy is housed at The Woodlands College Park High School for grades 9 – 12. It enrolls students in grades 9-12 from the South Montgomery County CISD high school attendance zones. Students enroll in The Woodlands College Park High School as their home campus and take their science, mathematics, and technology classes in the Academy and their English, Social Studies, Foreign Language, and electives in College Park. The program requires a high commitment to academic excellence from students. Those selected may earn up to 30 or more credits during their four years of high school.

The primary goals of the Academy are:

- to develop an ethical learning community;
- to offer students specialized courses in mathematics, science, and computer science;
- to provide a classroom environment that is stimulating while rigorous and which maximizes opportunity for all students to succeed;
- to develop positive self-concepts in students through meeting individual and group challenges;
- to support students as they conduct research and participate in science fairs and other competitions in science, mathematics, technology, and computer science;
- to explore the wide range of opportunities in science and technology by means of Saturday and vacation trips and classes;
- to provide hands-on experience in science and technology by means of an internship program;
- to involve parents and area universities, business, and industry in support of our program and students.

Beliefs

Our beliefs are statements of our fundamental convictions, our values, and our character as an organization.

We believe that:

The Academy is an integrated, interdependent learning community.
We share a commitment to truth, ethical behavior, and doing our best.
Success depends on cooperation and teamwork.
All students have unique abilities, needs, and goals.
Growth can result from failure as well as success.

We benefit from diversity.

Trust fosters a safe and productive environment for learning and working.
Students benefit from diverse experiences
High expectations promote success.
Success is measured by more than grades.
We want to students to be well rounded.

We make decisions involving all stakeholders.

School experiences should mirror real-life experiences.

Communication and cooperation with similar programs benefit our school.

Students are responsible for managing their learning processes; teachers are their guides.

Statement of Ethics and Responsibilities

The Academy of Science and Technology is a learning community in which knowledge is the ultimate quest. However, the pursuit of knowledge is diminished unless it is combined with a parallel quest for honesty, compassion, and respect for others. The Academy community defines this quest in the following statement of ethics and responsibilities.

Academy students are committed to:

- Learning for the sake of learning rather than simply to “get the grades.”
- Taking advantage of the learning opportunities provided.
- Being responsible for their choices and actions.
- Following through with their obligations in private as well and in public.
- Being involved in Academy activities.

Academy parents are committed to:

- Supporting and encouraging students, faculty, and administration.
- Providing support to students without undue pressure or assistance.
- Accepting the grades or results that their students have earned.
- Being involved members of the Academy community through their time and talents.

Academy faculty members are committed to:

- Providing meaningful educational classroom activities and homework.
- Striving to clearly communicate their expectations to students.
- Establishing fair and consistent grading practices for students.
- Being receptive to ideas and issues expressed by students.

Academy administration is committed to:

- Providing an environment that promotes ethical behavior and learning
- Developing, communicating, and enforcing clear and consistent policies.
- Investigating and resolving problems in a timely, confidential, and appropriate manner.

All members of the Academy community are committed to respecting themselves and each other and to striving for high personal and academic standards. In this way, each individual will be a positive influence and role model for others and for society.

Graduation Requirements

Academy of Science and Technology

Academy graduates are recognized by a plaque presented at our annual Senior Banquet and by a medallion to be worn at graduation. In addition, an Academy Class Profile and letter describing the program are enclosed with students' transcripts sent to colleges and universities. TWCPHS graduates (Classes 2015-2017) are eligible to be recognized under the Texas Distinguished Achievement Program (DAP). Information on DAP is contained in the TWCPHS Course Selection Booklet. Most Academy students graduate on the Distinguished Achievement Plan. Students beginning with the Class of 2018 will earn Endorsements and are eligible to earn the Distinguished Level of Achievement as well as Performance Acknowledgments as part of the Foundation Graduation Plan.

The minimum graduation requirements for the Academy for all students appear below. We expect that many Academy students will exceed them.

NOTE: The Academy reserves the right to modify course offerings and graduation requirements based on staffing, funding, enrollment, and scheduling.

- (1) Completion of the **CISD 26-Credit Plan**. Refer to the TWCPHS *Course Selection Book*. We **recommend** that Academy students plan to complete **three years of the same foreign language** in order to qualify for the Texas Distinguished Achievement Program Graduation Plan and to better qualified for the college admissions process.
- (2) The **Science Core**:
 - (a) Scientific Research and Design (9), Biology pre-AP (9), Chemistry pre-AP (10), AP Physics I (11); and
 - (b) AP Chemistry (11), AP Biology (12), **or** AP Physics C (12).
- (3) The **Mathematics Core**:

Four years of mathematics (one course per year) taught in the Academy or otherwise pre-approved. Students will earn at least five credits in math beginning with Algebra I in junior high school. Courses planned for 2017-2018 are: Geometry pre-AP, Algebra II pre-AP, Pre-calculus pre-AP, AP Calculus AB, AP Statistics, and AP Calculus BC.
- (4) The **Technology Core**:
 - (a) AP Computer Science Principles (10th grade)
 - (b) One elective technology course: AP Computer Science, SRD II (Electronics and Robotics), Digital Art and Animation, or other approved TWCPHS technology application course. Students may enroll in the *Introduction to Biotechnology* course offered at Lone Star College during the summer to count as a second technology credit.
 - (c) Note: A second Computer Science course cannot count for both (4) and (5).
- (5) **Specialization Requirement**:

At least one additional advanced course: (chosen from AP Chemistry, AP Physics, AP Biology, AP Environmental Science, AP Statistics, Organic Chemistry (H), or Anatomy and Physiology (H).
- (6) **Career Path Emphasis**

As juniors, Academy students are asked to declare a career path emphasis, such as engineering, medicine, biotechnology, etc., and to select classes consistent with that emphasis.
- (7) The **Career Requirement** (co-curricular)
 - (a) *Explorations in Science and Technology* – completed by the end of 10th grade
 - (b) *Internship* - usually done between the junior and senior years.
- (8) The **Independent Project** Component (co-curricular):

Research and Problems I, II, and III for independent, co-curricular projects done in grades 10, 11, and 12, as appropriate. Projects should be completed by the end of the third nine weeks each year for credit to be given.
- (9) The **Enrollment** Component

To be considered an Academy student, i.e. enrolled in the Academy and making satisfactory progress towards graduation, the student must:

- (a) Be enrolled in the required Academy courses for **four** years; early graduation from the Academy is NOT an option.
- (b) For grades 10, 11, and 12, earn 1/2 credit of *Research and Problems*. If credit is denied or otherwise not earned during the school year the student is subject to dismissal review. A summer IERP may be required, which would have to be presented to an appropriate panel by September 15th of the following school year.
- (c) For grades 11 and 12, be enrolled in at least **three** courses meeting the following criteria:
 - 1 **At least two** courses taught in the Academy (i.e. by an Academy teacher).
Note: Lab Management may **NOT** be used to meet this requirement.
 - 2 **One or more** courses in TWCPHS those are pre-approved for maintaining enrollment. Currently approved are Computer Maintenance, Internetworking Technologies, Engineering Graphics, and Architectural Graphics. Other course requests will be considered upon submission of a written waiver request (see below).

NOTE: An Academy student is expected to enroll in an available Academy course unless an irresolvable scheduling conflict or other documented need exists. Under these circumstances, the course taken would count as a course “taught” in the Academy.

Students not meeting Academy enrollment requirements are subject to dismissal.

- (10) The **Senior** Component: complete, pass, and receive credit for **all** Academy courses (i.e. taught by Academy teachers or approved as “Academy” courses) the senior year.

Waivers: Modifications to the above requirements may be granted to students who enter the Academy after the ninth grade, or in recognition of special circumstances, as long as all other requirements are met. Waiver requests must be submitted in writing and signed by student and parent. The specific graduation plan of any student granted a waiver as approved by the faculty and Headmaster will be placed in the student's file.

STATE REQUIREMENTS

Class of 2018 and beyond

The graduation requirements are specified in the Foundation Graduation Plan (FGP).

<u>Foundation Statutory Requirements</u>		<u>CISD Recommended</u>
English	4 credits	4 credits
Mathematics	3 credits	4 credits
Science	3 credits	4 credits
Social Studies	4 credits	4 credits
LOTE	2 credits	2 credits
Fine Arts	1 credit	1 credit
PE	1 credit	1 credit
Health	½ credit	½ credit
Electives	1.5	
Endorsements	1-4	

Endorsements may be earned by successfully completing:

- Curriculum requirements for the endorsement
- Four credits in mathematics
- Four credits in science
- Two additional elective credits

Successful completion of Academy requirements would make a student eligible for the following endorsements:

STEM

Requires Algebra II, Chemistry, Biology, Physics AND

- Coherent sequence of 4 credits in CTE STEM courses, OR
- Coherent sequence of four courses in computer science, OR
- Three credits in mathematics (Algebra II plus two for which Algebra II is the prerequisite, OR
- Five courses in science (two in addition to Biology, Chemistry and Physics), OR
- In addition to Algebra II, Biology, Chemistry and Physics, three credits from no more than two of the above categories.

Multidisciplinary Studies

- Four advanced courses that prepare a student to enter the Workforce successfully, or post-secondary education without remediation (no coherent sequence required), OR
- Four credits in each of the four Foundation subject areas to include English IV and Chemistry and/or Physics, OR
- Four AP, IB, or dual credit courses selected from English, Mathematics, Science, Social Studies, Economics, LOTE or Fine Arts.
-

Arts and Humanities

- Five social studies credits, OR
- Four levels of the same language other than English (LOTE), OR
- Two levels of the same LOTE and two more levels of a different LOTE, OR
- Coherent sequence of 4 credits in one or two categories or disciplines of Fine Arts (Art, Dance, Theater Arts, Band, Choir, Orchestra).

Additionally, a student may earn the **Distinguished Level of Achievement** (and be eligible for automatic college admissions under the top 10% rule) by successfully completing:

- Foundation Program requirements
- Four credits in science
- Four credits in math including Algebra II
- the curriculum requirements for at least one endorsement

Under the Foundation Graduation Plan a student may earn a **performance acknowledgment**:

- For outstanding performance
 - in a dual credit course
 - in bilingualism and bi-literacy
 - on an AP test or IB exam
 - on the PSAT, the ACT-Plan, the SAT, or the ACT
 - Earning a nationally or internationally recognized business or industry certification or license

More information may be found at the Texas Agency Website <http://www.tea.state.tx.us/>. An overview of HB 5 can be found on the website in PowerPoint form.

Satisfactory Graduation Progress

Satisfactory graduation progress means that a student is completing his or her graduation requirements in a timely manner. These requirements include courses, Explorations, Internship, and Research & Problems projects. Teachers who write letters of recommendation will be kept informed of your graduation progress. In addition:

- If a senior is determined to be making satisfactory graduation progress, a letter and an Academy Class Profile will be included with your official transcript for college and/or for scholarship applications. The letter explains the special nature of the Academy program. The Class Profile provides further information about the Academy and your class.
- If a senior is **not** making satisfactory progress, these items will **not** be sent with your transcript.

Following are specifics for *satisfactory graduation progress*.

- **Courses:** Required courses have been taken and passed; passing averages in all current Academy classes.
- **Explorations:** all **14 Exploration Credits** should be completed by the end of the sophomore year. You will not be allowed to do an internship and earn internship hours until your Exploration requirement is complete. If you **start** your *senior* year needing Exploration credits, you are **not** making satisfactory graduation progress. If you have questions, see The Headmaster.

Note: You will be eligible for an Academy letter jacket patch upon completion of your Exploration requirement.

- **Internship:** The student must complete all Internship requirements by the end of the nine-weeks following completion of your Internship time requirement. For example, if you do your Internship in the summer of 2015, you have until the end of the first nine weeks of the 2015 fall semester to complete all of the other requirements. If you have questions, see the Academy Internship Coordinator.
- **Research & Problems Projects:** The student must complete the Research and Problems project requirements by the end of the **third nine weeks** each year (unless competition occurs after this date).
- **End of Senior Third Nine Weeks:** The student must be passing all Academy courses (i.e. used for maintaining enrollment) and must have completed all Internship, Explorations, and Research & Problems requirements by this date to receive your Academy Plaque at the Banquet in April and your Academy graduation medallion at the TWCP Senior Awards Ceremony in May.
- **Last Senior Progress Report Date:** The student must be passing all Academy courses and must have completed Internship, Explorations, and Research & Problems requirements by this date to receive your Academy Plaque and medallion and to be recognized as an Academy graduate at TWCP graduation. Any student who does not meet this final deadline or who subsequently fails or is denied credit for an Academy course will not be recognized as an Academy graduate.

Course Selections for Career Emphasis

Students and parents should be familiar with the Academy and CISD graduation requirements and make careful plans for taking required and elective courses. The sample four-year Academy plans with seven courses per year suggest sequences for taking required courses. All plans meet the CISD 26 credit graduation requirements and are consistent with the planned TWCP master schedule. Courses that meet Academy graduation requirements are listed in **bold**. Co-curricular Academy requirements that are accomplished outside the school day are listed in *italics*. Class work outside the school day is boxed.

We expect Academy students to NOT take early release and that they take as many Academy courses as possible

Sample Academy 4-Year Plans / Health Professions

Sample Plan Ia: Health Professions Emphasis Note: 2 courses above Academy requirements	Grade 9 English. I Mathematics Biology Pre-AP W .Geo. or AP Human Geo* Foreign Lang. I Sci. Res. & Des. PE <i>Explorations</i> <i>Health in SS</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Com. Sci. Princ AP Fine Art <i>Explorations</i> <i>R/P Project</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP³ Chemistry or AP Env Science <i>Internship</i> <i>R/P Project</i>	Grade 12 English IV AP Statistics AP Biology Govt./Econ. Anatomy/Physio. Health Science Tech (with approval) <i>R/P Project</i>

Sample Plan Ib: Health Professions Emphasis (with 4 years of band, drill team, color guard) NOTE: 1 course above requirements	Grade 9 English. I Mathematics Biology Pre-AP W Geo or AP Human Geo* Foreign Lang. I Sci. Res. & Des. Band Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin-AP Band <i>Explorations</i> <i>R/P Project</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP³ Chemistry or AP Env Science Band <i>Internship</i> <i>R/P Project</i>	Grade 12 English IV AP Statistics AP Biology Govt./Econ. Digital Art & Anim Anatomy/Physio. Band <i>R/P Project</i>

Sample Plan Ic: Health Professions Emphasis (with 4 years of athletics) NOTE: meets all requirements	Grade 9 English. I Mathematics Biology Pre-AP W. Geo or AP Human Geo* Foreign Lang. I Sci. Res & Des. Athletics Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Athletics <i>Explorations</i> <i>Research/Problems</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ² Fine Arts ⁴ or AP Chemistry or AP Env Science Athletics <i>Internship</i> <i>Research/Problems</i>	Grade 12 English IV AP Statistics AP Biology Govt./Econ. Digital Art & Anim Anatomy/Phys or Organic Chemistry Fine Arts ⁴ <i>Research/Problems</i>

Sample Plan Id: Health Professions Emphasis (with 4 years of orchestra, choir, Fine arts, etc.) NOTE: meets all requirements	Grade 9 English. I Mathematics Biology Pre-AP World. Geog. Foreign Lang. I Sci. Res & Des. Orchestra/Choir Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci Prin AP Orchestra/Choir <i>PE in summer</i> <i>Explorations</i> <i>Research/Problems</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ² Anat & Physiology Orchestra/Choir <i>Internship</i> <i>Research/Problems</i>	Grade 12 English IV AP Statistics AP Biology Govt./Econ. Digital Art & Anim AP Env Science Orchestra/Choir <i>Research/Problems</i>

¹Summer School Health is one option; other options are credit by exam or correspondence. Outside PE also will make room in the schedule.

²Students who take Spanish I in junior high will be eligible for DAP if they complete Spanish II and III in 9th and 10th grades. They may then take AP Spanish IV their junior year, or they may take another required course, take an elective, or take another Academy course.

³AP Chem Lab meets Wednesday after school or evening

Sample 4-Year Plan / Engineering

<p>Sample Plan Ia: Engineering Emphasis</p> <p>2 courses above requirements</p>	<p>Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res. & Des. P.E. <u>Health in Sum.</u>¹ <i>Explorations</i></p>	<p>Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Speech/ Health. <i>Explorations</i> <i>R/P Project</i></p>	<p>Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP Chemistry³ Fine Arts <i>Internship</i> <i>R/P Project</i></p>	<p>Grade 12 English IV Mathematics AP Physics C Govt. /Econ. Elect/Robotics AP Comp Sci AP Statistics <i>R/P Project</i></p>
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<p>Sample Plan Ib: Engineering Emphasis (with 4 years of band, drill team, color guard)</p> <p>1 course above requirements</p>	<p>Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human. Foreign Lang. I Sci. Res. & Des. Band <u>Health in Sum.</u>¹ <i>Explorations</i></p>	<p>Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Band <i>Explorations</i> <i>R/P Project</i></p>	<p>Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP Chemistry³ Band <i>Internship</i> <i>R/P Project</i></p>	<p>Grade 12 English IV Mathematics AP Physics C Govt. /Econ. Elect/Robotics AP CS or AP Stats Band <i>R/P Project</i></p>
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<p>Sample Plan Ic: Engineering Emphasis (with 4 years of athletics)</p> <p>meets all requirements</p>	<p>Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res. & Des. Athletics <u>Health in Sum.</u>¹ <i>Explorations</i></p>	<p>Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin-AP Athletics <i>Research/Problems</i></p>	<p>Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ² AP Chemistry³ Athletics <i>Internship</i> <i>Research/Problems</i></p>	<p>Grade 12 English IV Mathematics AP Physics C Govt. /Econ. Digital Art & Anim or AP Com Science Fine Arts Athletics <i>Research/Problems</i></p>
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<p>Sample Plan Id: Engineering Emphasis (with 4 years of orchestra, choir, fine arts, etc.)</p> <p>meets all requirements</p>	<p>Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res. & Des. Orchestra/Choir Health in Summer <i>Explorations</i></p>	<p>Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Orchestra/Choir <i>Explorations</i> <i>Research/Problems</i></p>	<p>Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ² AP Chemistry³ Orchestra/Choir <u>PE outside</u>¹ <i>Internship</i> <i>Research/Problems</i></p>	<p>Grade 12 English IV Mathematics AP Physics C Govt. /Econ. AP Com Science P.E. Orchestra/Choir <i>Research/Problems</i></p>
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¹Summer School- Health is one option; other options are credit by exam or correspondence. Outside PE also will make room in the schedule.
²AP Chem Lab meets Wednesday after school or evening

Sample 4-Year Plan / Computer Science

Sample Plan Ia: Computer Science Emphasis 2 courses above requirements	<u>Grade 9</u> English. I Mathematics Biology Pre-AP W.Geo. /AP Human Foreign Lang. I Sci. Res. &Des. P.E. Health in Summer <i>Explorations</i>	<u>Grade 10</u> English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci.Prin-AP Fine Art <i>Explorations</i> <i>R/P Project</i>	<u>Grade 11</u> English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP Chemistry ³ AP Env Science <i>Internship</i> <i>R/P Project</i>	<u>Grade 12</u> English IV Mathematics AP Physics C Govt. /Econ. Digital Art or Electronics/Robot AP Comp Science CS Special Topics <i>R/P Project</i>
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Sample Plan Ib: Computer Science Emphasis (with 4 years of band, drill team, color guard) 1 course above requirements	<u>Grade 9</u> English. I Mathematics Biology Pre-AP W.Geo /AP Human Foreign Lang. I Sci. Res. &Des. Band <i>Health in Sum.</i> ¹ <i>Explorations</i>	<u>Grade 10</u> English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Band <i>Explorations</i> <i>R/P Project</i>	<u>Grade 11</u> English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP Chemistry ³ Ban <i>Internship</i> <i>R/P Project</i>	<u>Grade 12</u> English IV Mathematics AP Physics C Govt. /Econ. AP Comp Science CS Special Topics Band <i>R/P Project</i>
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Sample Plan Ic: Computer Science Emphasis (with 4 years of athletics) meets all requirements	<u>Grade 9</u> English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res. & Des. Athletics <i>Health in Sum.</i> ¹ <i>Explorations</i>	<u>Grade 10</u> English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Athletics <i>Explorations</i> <i>Research/Problems</i>	<u>Grade 11</u> English III Mathematics AP Physics I U.S. History Foreign Lang. III ² AP Chemistry ³ Athletics <i>Internship</i> <i>Research/Problems</i>	<u>Grade 12</u> English IV Mathematics AP Physics C Govt. /Econ. AP Comp Science Fine Arts Athletics <i>Research/Problems</i>
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Sample Plan Id: Computer Science Emphasis (with 4 years of orchestra, choir, fine arts, etc.) meets all requirements	<u>Grade 9</u> English. I Mathematics Biology Pre-AP World. Geog. Foreign Lang. I Sci. Res. & Des. Orchestra/Choir <i>Explorations</i>	<u>Grade 10</u> English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Orchestra/Choir <i>Health in Sum.</i> ¹ <i>Explorations</i> <i>Research/Problems</i>	<u>Grade 11</u> English III Mathematics AP Physics I U.S. History Foreign Lang. III ² AP Chemistry ³ Orchestra/Choir <i>PE outside</i> ¹ <i>Internship</i> <i>Research/Problems</i>	<u>Grade 12</u> English IV Mathematics AP Physics C Govt. /Econ. AP Comp Science P.E. Orchestra/Choir <i>Research/Problems</i>
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¹Summer School Health is one option; other options are credit by exam or correspondence. Outside PE also will make room in the schedule.

²Students who take Spanish I in junior high will be eligible for DAP if they complete Spanish II and III in 9th and 10th grades. They may then take AP Spanish IV their junior year, or they may take another required course, take an elective, or take another Academy course.

³AP Chem Lab meets Wednesday after school or evening

Sample 4-Year Plan / Biotechnology

Sample Plan Ia: Biotechnology Emphasis 2 courses above requirements	Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res. & Des. P.E. Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Fine Art <i>Explorations</i> <i>R/P Project</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP Chemistry³ Or AP Env Science AP Statistics <i>Internship</i> <i>R/P Project</i>	Grade 12 English IV Mathematics AP Biology Govt. /Econ. AP Env Science Organic Chemistry AP Comp Sci <i>R/P Project</i>
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Sample Plan Ib: Biotechnology Emphasis (with 4 years of band, drill team, color guard) 1 course above requirements	Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res & Des. Band Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Band <i>Explorations</i> <i>R/P Project</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ¹ AP Chemistry³ Band <i>Internship</i> <i>R/P Project</i>	Grade 12 English IV Mathematics AP Biology Govt. /Econ. Organic Chem Digital Art & Anim Band <i>R/P Project</i>
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Sample Plan Ic: Biotechnology Emphasis (with 4 years of athletics) meets all requirements	Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res & Des Athletics Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Athletics <i>Explorations</i> <i>Research/Problems</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ² AP Chemistry³ Or AP Env Science Athletics <i>Internship</i> <i>Research/Problems</i>	Grade 12 English IV Mathematics AP Biology Govt. /Econ. Digital Art & Anim Fine Arts Athletics <i>Research/Problems</i>
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Sample Plan Id: Biotechnology Emphasis (with 4 years of orchestra, choir, or fine arts, etc.) meets all requirements	Grade 9 English. I Mathematics Biology Pre-AP W Geo/AP Human Foreign Lang. I Sci. Res. & Des. Orchestra/Choir Health in Sum. ¹ <i>Explorations</i>	Grade 10 English II Mathematics Chemistry Pre-AP World History Foreign Lang. II Comp. Sci. Prin AP Orchestra/Choir <i>Explorations</i> <i>Research/Problems</i>	Grade 11 English III Mathematics AP Physics I U.S. History Foreign Lang. III ² AP Chemistry³ Orchestra/Choir PE outside ¹ <i>Internship</i> <i>Research/Problems</i>	Grade 12 English IV Mathematics AP Biology Govt. /Econ. Digital Art & Anim Anatomy & Phys Orchestra/Choir <i>Research/Problems</i>
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¹Summer School- Health is one option; other options are credit by exam or correspondence. Outside PE also will make room in the schedule.

²Students who take Spanish I in junior high will be eligible for DAP if they complete Spanish II and III in 9th and 10th grades. They may then take AP Spanish IV their junior year, or they may take another required course, take an elective, or take another Academy course.

³AP Chem Lab meets Wednesday after school or evening

Student Name _____ ID _____ Class of ____ 2016 ____ 2017
 Program of Study ____ Rec Plan ____ DAP

Post Secondary Plans: _____ 4 year institution Area of interest ____ Engineering ____ Medicine
 Biotechnology ____ Computer Science ____ Other _____

Course	Credits	Junior High	SS	9 th	SS	10 th	SS	11 th	SS	12 th
English	4			English I Pap, H, L		English II Pap, H, L		English III AP, DC, H, L		English IV AP, DC, H, L
Math**	4			Academy Math Geom. Pap Alg II Pap Pre-Calc Pap		Academy Math Alg II Pap Pre-Cal Pap AP Calc AB		Academy Math Pre-cal Pap AP Calc AB		Academy Math AP Calc BC
Science**	4			Biology Pap		Chemistry Pap		Physics Pap or AP Physics I		AST Sci I
Social Studies	4			W. Geog Pap		W. History AP, H, L		US History AP, H, L		Gov/Eco AP, H, L
Foreign Lang.	2									
Health	.5									
PE (2014, 2015, etc)	1									
Fine Arts	1									
Electives	5									
Academy courses**				SRD*** required		Computer Science Principles AP** required		AP Chemistry		AP Biology
								AP Env Science		AP Env Science
								Anatomy & Phys- H		Anatomy & Phys
								AP Statistics		AP Statistics
								SRD II Elect & Robotics		SRD II Elect & Robotics
								AP Computer Science A		AP Physics
										Organic Chemistry
Credit	26									
CTE Coding				0 1 2 3		0 1 2 3		0 1 2 3		0 1 2 3

ACADEMY OF SCIENCE AND TECHNOLOGY FOUR-YEAR PLAN Class of 2018 and Beyond

Student Name _____ ID _____ Class of ___ 2018 ___ 2019
 Program of Study X Foundation Graduation Plan _____ Performance Acknowledgements
 Endorsements: X STEM X Multidisciplinary X Arts and Humanities

Course	Credits	JHS	SS	9 th	SS	10 th	SS	11 th	SS	12 th
English	4			English I Pap, H, L		English II Pap, H, L		English III AP, DC, H, L		English IV AP, DC, H, L
<i>Math**</i>	4	<i>Alg</i>		<i>Academy Math Geom. Pap Alg II Pap Pre-Calc Pap</i>		<i>Academy Math Alg II Pap Pre-Cal Pap AP Calc AB</i>		<i>Academy Math Pre-cal Pap AP Calc or BC</i>		<i>Academy Math AP Calc AB or BC</i>
<i>Science**</i>	4			<i>Biology Pap</i>		<i>Chemistry Pap</i>		<i>AP Physics I</i>		<i>AST Sci 1</i>
Social Studies	4			W. Geo Pap/ AP Human Geography		W. History AP, H, L	*	US History AP, H, L		Gov/Eco AP, H, L
Foreign Lang.	2			Foreign Language		Foreign Language				
Health	.5		SS							
PE	1									
Fine Arts	1									
Electives	5									
<i>Academy courses**</i>				<i>SRD*** required</i>		<i>Computer Science Pap** required</i>		<i>AP Chemistry</i>		<i>AP Biology</i>
								<i>AP Env Science</i>		<i>AP Env Science</i>
								<i>Anatomy & Phys- H</i>		<i>Anatomy & Phys</i>
								<i>AP Statistics</i>		<i>AP Statistics</i>
								<i>SRD II Elect & Robotics</i>		<i>SRD II Elect & Robotics</i>
								<i>AP Computer Science</i>		<i>AP Physics</i>
										<i>Organic Chemistr y</i>
										<i>Research Proj in Math*</i>
										<i>Indep Study Tech App*</i>

(1) Select a Career Emphasis: engineering, life science/health, computer science, biotechnology;

- (2) Select Extracurricular – band, orchestra, choir, theatre, athletics, debate, yearbook, etc.; enter as many years as needed
- (3) Choose a Foreign Language; enter type and years needed
- (4) If Health (1 semester each) is not taken in 8th grade plan to take in Summer School.
- (5) Select PE or PE substitute as necessary if needed (2 semesters PE or equivalent are needed). View the CISD website under PE to select an approved off-site PE.
- (6) Choose four math classes.
- (7) Choose a Fine Arts course.
- (8) Select a second technology course.
- (9) Choose at least one from AP Chemistry (11), AP Biology (12) or AP Physics (12).
- (10) Choose a second advanced course.
- (11) Select other courses as needed.
- (12) Decide what classes must be taken in summer school, by correspondence, etc.; enter in **Outside** as needed.

¹NOTE: Explorations, R&P Project and Internship are *co-curricular* - done outside of the school day.

CISD Summer School

Health, Art I, Dual Credit U.S. History, Spanish II, Spanish III pre-AP and possibly other required courses are being planned for CISD summer school. These options, together with correspondence, credit by exam, private/outside PE, and Montgomery College offerings provide opportunities for students to maximize their Academy experience. See your counselor for more information on these options

Prerequisites

Students must take all required courses in sequence. This is especially important in mathematics courses. No student will be allowed to take a mathematics course for which he/she has not successfully completed all of the prerequisite courses.

Gifted & Talented/Pre-Advanced Placement/AP

Gifted & Talented/Pre-Advanced Placement and Advanced Placement is the district's secondary sequence for gifted students. Students who meet the established criteria for admission are committed to developing an in-depth knowledge of the major discipline areas and anticipate pursuing post-secondary studies. In addition to complex and abstract bases of knowledge, students are provided opportunities to utilize the processes, methodologies, and techniques used by professionals in all Academy discipline areas as they experience greater depth, complexity and independent study.

While the Academy is **not** a gifted program, every attempt will be made to provide Academy students in the Gifted & Talented/Pre-Advanced Placement program with appropriate course experiences consistent with availability within the Academy and The Woodlands College Park High School.

Advanced Placement Courses and Testing

Advanced Placement (AP) Courses are among the most rigorous academic courses offered by the district. This program gives students the opportunity to pursue college-level studies while still in secondary school and to receive advanced placement and/or credit upon entering college. Students should plan for 1 to 3 hours of homework per class period per course. Students are expected, but not required, to take the College Board Advanced Placement Tests in May. Contact TWCP HS for exam costs. Financial aid is available for students who sign up by the deadline.

Students must meet AP criteria to be placed in an AP class. Academic ability, motivation, and willingness to work are considered in placing students. **Academy students planning to take more than four AP courses in a school year should consult with the Academy Headmaster and their TWCP counselor.**

Dual Credit Courses

Through a direct partnership with Montgomery College, TWCP students successfully completing a specified high school course will receive college credit as well as credit toward high school graduation. The student must receive approval from the TWCP College and Career Counselor to enroll in courses with Lone Star College-Montgomery. The student must take the *TSI Assessment*, must pay applicable fees, and must enroll in the college course prior to the beginning of the course on the college campus in order to receive college credit for the course. Refer to the 2015-2016 TWCP Course Selection Book and to TWCP website for Dual Credit instructions.

Local Credit/ No Pass/No Play

A number of Academy required and elective courses are listed as *local credit*. Academy courses receiving local credit do not meet for state requirements for graduation - they do not count toward high school graduation. Nor do they earn grade points to be calculated in a GPA. Nevertheless, all **required** Academy local credit courses (Explorations, Internship, Research and Problems) must be completed satisfactorily in order for the student to be recognized as an Academy graduate. By district policy, Incompletes and Failures in local credit courses **do** have UIL no-pass, no-play consequences.

Academy Application and Selection Criteria

Application information is made available during the fall to all eligible eighth grade students interested in the Academy program. The regular application deadline for the Class of 2020 is November 2, 2015. **Resident students must apply during their 8th-grade year.** No applications from resident students will be accepted after this time. Late and move-in applications will be taken March –April 2016. Out-of-district eighth grade and high school transfer students interested in the Academy should contact the Academy office at 936-709-3250 for further information. No applications for the Class of 2016 or 2017 will be accepted.

There is no additional cost for the program. All students are provided equal opportunity to apply for the Academy. We will have accepted about 75 students into the class of 2020. Students residing in the McCullough, Knox, Irons and York attendance zones and who will be 8th-grade students in the fall of 2015 will be eligible to apply for the Academy Class of 2020 at TWCP in the fall of 2015.

Junior high grades and standardized test scores are used to qualify students for the Academy. Minimum averages in junior high English, social studies, math and science courses are required. Minimum percentile scores each in math, science, and reading are also required for consideration. A problem solving test and a writing sample are also administered. The Academy selection committee uses the student's application letters, teacher evaluations, test results, writing sample, and an interview to assess the student's interest in and commitment to succeeding in a rigorous academic program. Parental understanding of the program and support of the student are vital to this success. We want to choose students who will bring something special to the program and who will benefit from it. Not all applicants may be interviewed.

A student must have completed Algebra I to enter the Academy.

Summer School Algebra

Conroe ISD will be offering an accelerated summer school algebra program at Conroe HS through the Academy for Science and Health Professions for students accepted into the Academy. More information will be available in mid-April and will be sent to students needing the course.

Maintenance Criteria for Academy Membership

The Academy program of courses involves intensive study at an increased pace, requiring extra student effort in order to successfully complete the program. To graduate from the Academy, each student must complete **all** requirements of CISD's **26-Credit Graduation Plan** as well as **all** Academy requirements.

A student is eligible to continue in the Academy if he/she maintains a grade average of 75 or above in each Academy course. A semester grade below 75 in an Academy class will result in the student being placed on Academy Academic Probation. Chronic probation status or any semester grade in an Academy course less than 70 (failing) will result in review of the advisability of the student's continuing in the Academy. (See the *Academy Student Handbook Addendum* for details.)

Resignation or Dismissal from the Academy

A student who resigns from the Academy, or who is dismissed from the Academy for academic or behavioral reasons, will be reassigned to his or her attendance zone high school **only** at the semester (unless requested otherwise by the parents and approved by both principals). The only exceptions will be for rising seniors, who will be allowed to complete their senior year at TWCP.

Course Information

Codes for Courses

To facilitate student needs and wants with scheduling, courses will be scheduled by years. Therefore, each full-year course will have a “1” as the last number in the course code. One-semester courses will be indicated by “H”, with an “F” or “S” identifying the semester offered. U refers to a Dual Credit (DC) course.

Courses that begin with “F” are Academy courses. Please be sure to use these numbers as appropriate on your TWCP Course Selection Form.

Schedule Change Requests, Changes, and Choices

You should choose your electives carefully. Requests for changes in a schedule will be allowed **per the TWCP deadlines**. Requests for changes after that date will **not** be honored. **You** are responsible for meeting your TWCP *and* Academy graduation requirements.

Be sure to indicate as many second choice courses as possible. Every reasonable attempt will be made to honor your course requests. Should any Academy course not have sufficient enrollment, you will be scheduled into either your second choice course or one that is available.

Academy Computer Science/Technology Application Courses

Computer Science pre-AP is required of **all** Academy students. In addition, a second course in technology is required. Students may choose from AP Computer Science, SRD II (Electronics and Robotics), Digital Art and Animation, Health Science Technology, a Technology Applications Independent Study course. Students may also take the Introduction to Biotechnology course offered at Lone Star College-Montgomery in the summer.

AP Computer Science Principles

F8601 1 Credit Grade 10
Prerequisite: Enrollment in or Completion of Algebra II
Class Rank Category: AP (6)
Cost of Materials and Supplies: approximately \$10

AP Computer Science Principles introduces the student to the foundations of computer science with a focus on how computing powers the world. Students will learn the fundamentals of computing, and to analyze data, create technology that has a practical impact, and gain a broader understanding of how computer science impacts people and society. The course is organized around seven ideas: creativity, abstraction, data and information, algorithms, programming, the internet, and global impact.

Advanced Placement Computer Science

F8631 1 Credit Grades 11-12
Prerequisite: Enrollment in or Completion of Pre-Calculus Pre-AP
Class Rank Category: AP (6)
Cost of Materials and Supplies: \$25

AP Computer Science emphasizes object-oriented programming methodology with an emphasis on problem solving and algorithm development and is meant to be the equivalent of a first-semester course in computer science. The course covers the following topics: Object-Oriented Program Design; Program and Class Design; Program Analysis; Standard Data Structures; Algorithms; and Computing in Context.

Digital Art and Animation

K866	1 Credit	Grades 11-12
	Class Rank Category	Level (4)
	Cost of Computer Lab Supplies	\$15

Students will explore the world of digital imagery, putting their creativity and imaginations to work and translating their ideas into graphic designs and animations. Using industry-leading software tools they learn to take their ideas from visualization to design, using their computer skills to produce a wide variety of finished projects. The course includes introduction to Adobe's Illustrator and Photoshop and Macromedia.

Technology Applications Independent Study I - Special Topics I

F8701	1 Credit	Grades 10-12
	Prerequisite:	AP Computer Science or Computer Science pre-AP
	Class Rank Category:	Level (4)

Technology Applications Independent Study II- Special Topics II

F8721	1 Credit	Grades 11-12
	Prerequisite:	Technology Applications I
	Class Rank Category:	Level (4)

Technology Applications Independent Study III – Special Topics III

F8741	1 Credit	Grade 12
	Prerequisite:	Technology Applications II
	Class Rank Category:	Level (4)

These project-based courses are intended to provide opportunities for students to either explore topic areas in computer science in greater depth and/or breadth than is possible in the pre-AP /AP Computer Science sequence. Programming topics will center on object-oriented programming (OOP) with languages such as C++, Turbo C++, Perl, Visual Basic, Visual C++, and Professional Builder C++. Multifile programming, which involves the use of class libraries, the organization of programmers working on a project, and the conceptual design of programs may also be included. Other possible projects include networking, web mastering, advanced digital graphics and animation, and game design. A notebook and project presentation(s) are required.

Electronics and Robotics (SRD II)

FK5361	1 Credit	Grades 11-12
	Prerequisite:	Physics pre-AP or concurrent enrollment
	Class Rank Category:	Honors (5)

The first semester of this course will introduce students to the fundamentals of electronic circuits. Students will build analog and digital direct-current circuits using breadboards. There will also be limited exposure to programmable logic chips. Each student will design and prototype a battery-powered device. During the spring, the students will apply the principles learned in the fall to the design and construction of robots. They will explore the ways robots interact with their surroundings by testing a variety of sensors and interfacing them with programmable logic chips. Some simple programming experience is desirable.

Academy Mathematics Courses

Four credit units of Academy mathematics are required to meet Academy core requirements. If Algebra I has been satisfactorily completed in Grade 8 or summer school, the student must complete Geometry (9), Algebra II (10), Pre-Calculus (11), and one additional Academy mathematics course (12). If Geometry has been successfully completed in Grade 8, the student must complete Algebra II (9), Pre-Calculus (10), a Calculus (11), and one additional Academy mathematics course (12).

The expectation is that all students take Calculus! When the student is having great difficulty, other sequence arrangements may be made by waiver.

Math Options - Starting with Geometry

Grade 9	Grade 10	Grade 11	Grade 12
Geometry	Algebra II	Pre-Calculus and AP Statistics	AP Calculus AB or AP Calculus BC and AP Statistics

Math Options - Starting with Algebra II

Grade 9	Grade 10	Grade 11	Grade 12
Algebra II	Pre-Calculus	AP Calculus AB and AP Statistics	AP Calculus AB and AP Statistics AP Calculus BC and AP Statistics

Geometry Pre-AP

F1651	1 Credit	Grade 9
	Prerequisite:	Algebra I
	Class Rank Category:	Pre-AP (5)

This course stresses the logical structure of geometry, the application of geometric concepts, and includes special emphasis on developing proficiency in writing formal proofs. Concepts of space geometry are integrated throughout the course. Algebraic skills are reviewed and strengthened as they are needed to solve problems in geometry. The course serves as a foundation for higher-level mathematics courses. Memorizing basic theorems and postulates is necessary.

Algebra II Pre-AP

F1681	1 Credit	Grade 10
	Prerequisite:	Geometry Pre-AP
	Class Rank Category:	Pre-AP (5)

Algebra II provides the next foundation for higher-level mathematics courses. The preAP course requires a high level of thinking skills. The course extends Algebra I to include matrices, transformational geometry, functions, inverse functions, logarithms, exponential functions, conic sections, and trigonometric functions. Students will be expected to discover generalizations of concepts and apply these to stated problems. G/T students will be also expected to do independent study and to do research on topics involving areas of increased depth and complexity.

Pre-Calculus Pre-AP

F1711	1 Credit	Grades 10-12
	Prerequisite:	Algebra II Pre-AP
	Class Rank Category:	Pre-AP (5)

This course combines the elements of trigonometry, elementary analysis, and analytical geometry. Various functions such as polynomial, rational, exponential, logarithmic, circular, and trigonometry are presented. Included also are vectors, complex numbers, sequences and series, and second-degree relations. G/T students will also be expected to do independent study and to do research on topics involving areas of increased depth and complexity.

Advanced Placement Calculus AB

F1751	1 Credit	Grades 11-12
	Prerequisite:	Pre-Calculus Pre-AP
	Class Rank Category:	AP (6)

This is a course for advanced math students and is comparable to the first semester of a college calculus course. Guidelines for the AP course will be followed. The student is expected to take the AP Calculus AB examination.

Advanced Placement Calculus BC

F1761	1 Credit	Grades 11-12
	Prerequisite:	Pre-Calculus Pre-AP or AP Calculus AB
	Class Rank Category:	AP (6)

This is a course for advanced math students and it includes more topics than the Calculus AP AB course, comparable to the first two semesters of college calculus. Guidelines for the AP course will be followed. The student is expected to take the AP Calculus BC examination. This course may be taken by students who complete Pre-Calculus Pre-AP with strong teacher recommendation.

Advanced Placement Statistics

F1741	1 Credit	Grades 10-12
	Prerequisites:	Algebra II Pre-AP
	Class Rank Category:	AP (6)

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The purpose of the Advanced Placement course in Statistics is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students will observe patterns and departures from patterns of data; plan a study and decide what to measure and how; produce models using probability and simulation; and confirm models with statistical inference. Students expecting to major in the life sciences, social sciences, or pre-med. will benefit from this course. The student is expected to take the AP Statistics examination.

Independent Study: Research Project in Mathematics I Honors

F1183	1 Credit	Grades 11-12
	Prerequisites:	Pre-Calculus Pre-AP
	Class Rank Category:	Honors (5)

This course is survey of advanced mathematical topics, including Abstract Algebra, Non-Euclidean Geometry, Probability, and Basic Analysis. Students will be required to do and present a research project each nine weeks. Students will also participate in mathematics competitions.

Note: ISRPM may be used ONLY *with approval* as an alternative to Research and Problems II or III. It may NOT count toward meeting any other Academy graduation requirements. See the Research and Problems section, Note 3.

Academy Science Courses

Four units of science at the Pre-AP introductory level (Scientific Research and Design, Biology, Chemistry, and Physics) and two advanced-level courses are required for graduation from the Academy. See the graduation requirements section (page 5) for more information regarding which courses meet these requirements.

Scientific Research and Design

FK5351 1 Credit Grade 9
Prerequisites: concurrent enrollment in Biology pre-AP
Class Rank Category: Level (4)

This required course is an introduction to scientific research and serves to prepare students for their Individual Experimental Research Project (IERP). Students will learn problem identification, methods of library and computer searching, research methodologies, and data analysis and presentation. Students will also develop appropriate skills in computer applications, time management, and technical writing. Verbal and graphic communication opportunities will be provided. The concept of the research team will be explored, and importance of peer review and research ethics will be stressed.

Biology Pre-AP

F0141 1 Credit Grade 9
Prerequisite: None
Class Rank Category: Pre-AP (5)

Biology pre-AP is an accelerated laboratory/lecture course. Topics include the scientific method, biochemistry, cell structure and function, DNA structure and function, genetics, human body systems, taxonomy, kingdoms and ecology. Laboratory skills and safety are stressed. Students will perform investigations and create formal lab reports.

Advanced Placement Biology

F0151 1 Credit Grades 12
Prerequisites: Biology Pre-AP, Chemistry Pre-AP
Class Rank Category: AP (6)

AP Biology explores the many advanced principles and current aspects of biology. The topics investigated include cell biology, organisms, speciation, advanced genetics, bacteriology, biochemistry, and biotechnology. Students will become familiar with sophisticated instrumentation during the laboratory activities. The textbook is the same one used at the college level, the range and depth of topics covered is very extensive, and the laboratory work is equal to that experienced by college students. But most importantly, the time and effort required of students is significant. A summer assignment will be required. This course follows AP Guidelines. The student is expected to take the AP Biology examination.

Anatomy and Physiology of Human Systems Honors

FK3551 1 Credit Grades 11-12
Prerequisites: SRD, Biology, Chemistry
Class Rank Category: Honors (5)

This course is an in-depth study of the systems of the human body. Each system is investigated using illustrations, microscope slide studies, physiological experiments, computer simulations, and detailed dissections of the cat. Students may be expected to complete a supervised individual investigation. The course is available as either honors or dual credit. One or more projects required. **There is a Lab Fee for this course of \$12.00.**

Advanced Placement Environmental Science

F0441	1 Credit	Grades 11-12;
	Prerequisites:	Biology Honors, Chemistry Honors
	Class Rank Category:	AP (6)

The Advanced Placement course in Environmental Science is designed to be the equivalent of a one-semester, introductory college course in environmental science. Its goal is to provide students with the scientific principles, concepts, and methodologies 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. The student is expected to take the AP Environmental Science examination.

		Chemistry Pre-AP
F0231	1 Credit	Grade 10
	Prerequisites:	Biology Pre-AP; Completion of or current enrollment in Algebra II pre-AP
	Class Rank Category:	Pre-AP (5)

This is a survey course exploring chemical theories and concepts. The historical development of these theories and concepts is examined along with the experimental nature of chemistry. Properties of matter, atomic structure, quantum mechanics, bonding, the mole concept, stoichiometry, phases of matter, solutions, and acid-base chemistry are some of the topics studied. Laboratory investigations are integrated into the coursework. Students will have the opportunity to use sophisticated instrumentation and will apply their mathematical skills to solve chemistry problems. **There is a lab fee of \$12.**

Note about Advanced Chemistry Courses: AP Chemistry will be scheduled with a priority for *juniors*. Organic Chemistry is offered to seniors only.

		Advanced Placement Chemistry
F0241	1 Credit	Grades 11-12
	Prerequisites:	Chemistry pre-AP
	Class Rank Category:	AP (6)

The AP Chemistry course will provide opportunities to explore topics such as solubility, electrochemistry, equilibrium, kinetics, and thermodynamics. Students will perform qualitative and quantitative laboratory activities that will lead to an in-depth understanding of these topics. Laboratory work will be integrated into the course both to confirm relationships previously discussed and to lead to the development of new concepts. Quantitative and qualitative laboratory investigations will involve critical thinking skills and use of extensive lab equipment and instrumentation.

This course is designed to cover the objectives of a first-year college level general chemistry course. This course follows AP guidelines. The student is expected to take the AP examination.

In order to do all the required AP Chemistry labs, the Academy AP Chemistry student must plan on weekly lab sessions on Wednesdays 2:45- 5:30 or 6:15-9:00 p.m.?

		Organic Chemistry Honors
F0541	1 Credit	Grade 12
	Prerequisite:	Chemistry pre-AP
	Class Rank Category:	Honors (5)

Organic chemistry is a laboratory course that includes the topics in the typical one-semester college course: functional group nomenclature; reactions within functional groups; bonding theories; reaction mechanisms; stereochemistry, biomolecules (including DNA), and metabolic pathways. A college-level text will be used.

AP Physics I

F0281	1 Credit	Grades 11
	Prerequisites:	Algebra II, Chemistry I Pre-AP
	Class Rank Category:	Pre-AP (5)

AP Physics I is equivalent to a first-semester college level physics course. Major topic areas of study include Newtonian mechanics, work, energy, power, mechanical waves, and sound. Problem solving is rigorous. Laboratory investigations are emphasized along with formal lab reports.

Advanced Placement Physics C

F0351	1 Credit	Grade 12
	Prerequisite:	Physics Pre-AP. Completion of/concurrent enrollment in Calculus
	Class Rank Category:	AP (6)

The calculus-based AP Physics C Program provides an opportunity for high school seniors to study and pursue college level course work. The course includes topics in both classical electricity and magnetism and provides a systematic introduction to the main principles of physics. Laboratory activities require the application of higher mathematical skills and a high degree of sophisticated instrumentation. This course follows AP guidelines. The student is expected to take the AP examination.

Advanced Biotechnology

FK527	1 Local Credit	Grades 11-12
	Prerequisite:	SRD, Pre-AP Biology, Pre-AP Chemistry
	Class Rank Category:	Honors (5)

Students will apply advanced academic knowledge and skills to the emerging fields of biotechnology such as agricultural, medical, regulatory, and forensics. Students will have the opportunity to use sophisticated laboratory equipment, perform statistical analysis, and practice quality-control techniques.

Laboratory Management/Teacher Aide

F060HF	1/2 Local Credit per seem	Grades 12
F060HS	Prerequisite:	Headmaster approval
Class Rank Category:	Local (0)	

Laboratory Management/Teacher Aide is designed to prepare students to be competent in a science, computer laboratory, or math class setting. This course includes a study of laboratory safety procedures, stockroom maintenance, inventory, and basic equipment set-up. Students assist in the planning, preparation, presenting, and breakdown of laboratory demonstrations and experiments, as well as providing problem solving and programming tutorials.

A student may be co-assigned to an Academy math teacher and a College Park Algebra I teacher. The student would be required to tutor during math classes and/or help the teacher in providing additional instruction to students.

The lab management/teacher aide course will help the student attain the necessary skills needed to apply for a position as a college or research lab laboratory or teaching assistant.

Note: Laboratory Management/Teacher Aide does NOT meet any Academy graduation requirements.

Other Academy Requirements

Academy students earn credit for the following courses outside the regular curriculum. Therefore, students **DO NOT NEED TO REGISTER FOR THESE COURSES!** Successful completion results in the credit being placed on the student's transcript.

Research and Problems I

F064HS 1/2 Local Credit Grades 10-12 Co-curricular
Prerequisites: None
Class Rank Category: Local (0)

Research and Problems II

F065HS/F0651 1/2-1 Local Credit Grades 11-12 Co-curricular
Prerequisites: Research and Problems I
Class Rank Category: Local (0)

Research and Problems III

F066HS/F0661 1/2-1 Local Credit Grade 12 Co-curricular
Prerequisites: Research and Problems II
Class Rank Category: Local (0)

One half credit of Research and Problems will be earned each year that a student successfully completes the required Academy major project in grades 10-12. For their projects, students may solve design problems, do individual or group research, or participate in Destination Imagination or other approved competitions. Credit will be awarded upon completion of the course requirements.

NOTE 1: Research and Problems project requirements must be completed by the end of the 3rd nine weeks or an incomplete grade will be given. If Research and Problems credit is denied or otherwise not earned during the school year the student is subject to dismissal review. A summer IERP may be required, which would have to be presented to an appropriate panel by September 15th of the following school year.

NOTE 2: Juniors or seniors engaged in significant *external* research projects may be given early release to work and will earn 1 credit for their Research and Problems II or III project.

NOTE 3: A junior or senior who elects to take the Independent Study: Research in Mathematics I course may exempt either Research and Problems II or III. To earn the R&P exemption, the student must pass the course each semester, keep a journal or notebook, and enter all the math competitions offered.

Explorations in Science and Technology

F067HS	1/2 Local Credit	Grades 9-10	Co-curricular
	Prerequisites:	None	
	Class Rank Category:	Local (0)	

Academy students are required to earn **14 "Exploration Credits"** over two years that then generate one-half unit of local credit for the Explorations course. Lectures as well as trips that take place at night, on Saturdays, on holidays, over weekends, and during breaks, and will focus on developing self-reliance, responsibility, and a greater understanding of career opportunities and of the importance of science and technology in our world. Activities earning trip equivalents are announced during the year by flyer, e-mail, bulletin board and on our web site.

Note 1: By pre-arrangement, students may be given exploration credit for pre-approved travel experiences with parents or on their own. The Independent Exploration Approval Form is available in the Academy Office, at the Academy Web Site, or in the Academy Student Handbook Addendum. There is a list of pre-approved explorations for students on the website.

Note 2: Students are expected to complete their Explorations by the end of their sophomore year. Explorations MUST be completed before the Internship may be started. A letter jacket patch is awarded when Explorations are completed.

Internship

F061HS	1/2 Local Credit	Grades 11-12	Co-curricular
	Prerequisites:	Explorations in Science and Technology; Acceptance in EfTA Internship Program or Approval of Academy Internship Coordinator	
	Class Rank Category:	Local (0)	

The Education for Tomorrow Alliance (EfTA) Summer Internship Program places students into a variety of scientific, technical, medical, and other professional settings in the CISD community in June. Each student is evaluated by his/her mentor during the internship and is visited by a CISD internship sponsor. Students accepted into this program are offered the option of earning one-half unit of local credit.

Each Academy of Science and Technology student is required to complete at least one internship with a mentor during his or her junior or senior year or during the summer. The internship is designed to provide an in-depth experience in an area of student interest and 80 hours is the *minimum* time requirement. (An EfTA internship meets this requirement.) The Academy intern coordinator works with the student and mentor regarding placement and evaluation. A variety of settings and options are available.

To earn one-half unit of local credit for internship, the student must submit all required items to the Academy office and must make a presentation based on the internship. **DO NOT REGISTER FOR THIS COURSE.**

Upon successful completion the internship credit is placed on the student's transcript.

Note: To be making satisfactory graduation progress, all Internship requirements must be completed by the end of the nine-weeks following completion of the Internship time requirement or *no later than* the end of the third nine weeks of the senior year.