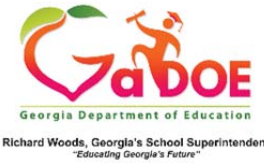


# Student Plan of Study – Heating, Ventilation, Air Conditioning & Refrigeration



Name \_\_\_\_\_ Date \_\_\_\_\_ School \_\_\_\_\_

Parent/Guardian Signature \_\_\_\_\_ Date \_\_\_\_\_ Advisor/Counselor Signature \_\_\_\_\_ Date \_\_\_\_\_

*Current Area of Interest: **Architecture & Construction/Heating, Ventilation, Air Conditioning & Refrigeration**- This PLAN OF STUDY should serve as a guide for the next four years. **Courses listed in this plan are only recommended coursework and should be individualized to meet each student's educational and career goals. All plans will meet minimum high school graduation requirements. Applicants to the University System of Georgia and the Technical College System of Georgia institutions should be advised that meeting minimum requirements will not guarantee admission. Postsecondary institutions may set additional requirements.***

Grade Level	I. English/Language Arts Total 4 credits	II. Math Total 4 credits	III. Science Total 4 credits	IV. Social Studies Total 3 credits	V. Health/Personal Fitness Total 1 credit	VI. Possible electives in additional pathways (students should check the local course description catalog for these and other electives) Total 4 credits
9	9 <sup>th</sup> Literature & Composition or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	1 CCGPS Cord Algebra 2 CCGPS Analytic Geom 3 CCGPS Accel Cord Alg/Analytic Geom 4 CCGPS Accel Analytic Geom B/Adv Alg 1 credit *  Credit Earned <input type="checkbox"/>	Biology or Approved Dual Enrollment Course  1 credit *  Credit Earned <input type="checkbox"/>	American Government/Civics or AP Government/ Politics US or Approved Dual Enrollment Course  ½ credit  Credit Earned <input type="checkbox"/>	Health ½ credit Credit Earned <input type="checkbox"/> Personal Fitness ½ credit Credit Earned <input type="checkbox"/>  <b>VI. CTAE Pathway</b> Total 3 credits	<b>Advanced Academic Pathways</b> English/Language Arts, Math, Science, Social Studies  An advanced academic pathway may be followed in any one of the content subjects listed above. Upon graduation, students earn an advanced academic pathway when they complete the required coursework to include at least one AP or one IB or one <a href="#">Dual Enrollment</a> course. An advanced academic pathway should also include at least two credits in one world language. AP, Dual Enrollment and <a href="#">Georgia Virtual School</a> courses may be available.
	10 <sup>th</sup> Literature & Composition or World Literature & Composition or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	1 CCGPS Analytic Geometry 2 CCGPS Adv Algebra 3 CCGPS Accel Analytic Geometry/Adv. Algebra 4 CCGPS Pre-Calculus 1 credit *  Credit Earned <input type="checkbox"/>	Physical Science or Physics or AP Physics or Approved Dual Enrollment Course  1 credit *  Credit Earned <input type="checkbox"/>	World History or AP World History or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	46.54500 Industry Fundamentals & Occupational Safety or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	
11	American Literature/ Composition or AP English Language & Composition/American Lit or Approved Dual Enrollment Course 1 credit Credit Earned <input type="checkbox"/>	1 CCGPS Adv. Algebra 2 CCGPS Pre-Calculus 3 CCGPS Accel Pre-Cal 4 CCGPS Cal or AP Cal  1 credit * Credit Earned <input type="checkbox"/>	Chemistry or Environmental Science or Earth Systems or AP/IB or Approved Dual Enrollment Course 1 credit * Credit Earned <input type="checkbox"/>	United States History or AP US History or IB History of the Americas or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	47.41400 Introduction to HVACR Systems or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	<b>Fine Arts/Performing Arts Pathways</b> Visual Arts, Dance, Music, Journalism, Theatre  A fine arts pathway may be followed in any one of the five areas listed above. Upon graduation, students complete a fine arts/performing arts pathway when three courses have been successfully completed in any one of the five areas. A student should consult a counselor or advisor for related coursework. AP, <a href="#">Dual Enrollment</a> and <a href="#">Georgia Virtual School</a> courses may be available.
	At the end of the 11 <sup>th</sup> grade, students planning to enter a University System of Georgia Institution or Technical College System of Georgia Institution should take the appropriate admissions test (SAT, ACT, Compass).					
12	Advanced Composition or British Literature or AP/IB English Literature & Composition or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	CCGPS Pre-Cal or Adv Math Decision Making or Math of Ind & Govern or AP Stats or IB Math or Approved Dual Enrollment Course 1 credit * Credit Earned <input type="checkbox"/>	Any other of the previous courses or Ecology or Geology or Approved Dual Enrollment Course  1 credit * Credit Earned <input type="checkbox"/>	Econ/Business/Free Enterprise or AP Macro Econ or AP Micro Econ or IB Econ or Approved Dual Enrollment Course  ½ credit Credit Earned <input type="checkbox"/>	47.41500 HVACR or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	NOTE: Local systems may offer core courses in a different sequence; not all local systems offer every pathway. Students should explore all credit possibilities including <a href="#">Georgia's Virtual School Program</a> , <a href="#">Dual Enrollment</a> , Advanced Placement (AP), International Baccalaureate (IB) and Work-Based Learning (WBL) to reach their educational and career goals.
Sample Electives	<b>Other English Elective Courses:</b> Literary Types/Composition Journalism Oral/Written Communication Speech	<b>Other Math Elective Courses:</b> Calculus AP Calculus Math of Finance	<b>Other Science Elective Courses:</b> *Energy & Power Tech or Appropriate & Alt Energy Technologies or AP/IB Science	<b>Other Social Studies Elective Courses:</b> Current Issues or AP/IB Soc Studies or Psychology or Sociology	<b>Other CTAE Elective Courses:</b> Other CTAE electives are available to complete a related pathway	

**Architecture & Construction**

SAMPLE Pathway OCCUPATIONS			
See * <a href="#">Georgia's HOT Careers to 2020</a> for more information on high-skilled, high-wage and high-demand occupations.			
Occupation Specialties	Entry Level of Education Needed	2012 Annual Wage	Annual Openings 2012-2020
*Cost Estimators	Bachelor's Degree	\$57,300	210
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	Some College No Degree Required	\$38,500	150
Helpers-Installation, Maintenance, & Repair Workers	High School	\$23,500	150

Source: Georgia Department of Labor/ONET

**For more information about your education and career planning, including valuable financial aid information that includes grants and scholarships, see your counselor.**

**** <a href="#">Current Georgia Graduation Rule</a>			
Coursework	Credits	Coursework	Credits
I. English/Language Arts	4	V. Health & Physical Education	1
II. Math	4	VI. **Career, Technical & Agricultural Education and/or ***World Languages, and/or Fine Arts	3
III. *Science	4	VII. Electives	4
IV. Social Studies	3	<b>TOTAL</b>	<b>23</b>

\*Selected [4th Science](#) courses may be used to meet both the required science and required elective in a CTAE sequence of courses.  
 \*\*Students must complete three credits to complete a CTAE pathway and take the end of pathway assessment.  
 \*\*\*Students must complete two credits of the same world language for admission to Georgia Board of Regents colleges/universities.  
 \*\*\*\* Current graduation requirements should be met in all content areas.  
 NOTE: This plan represents minimum graduation requirements. Local systems may require additional coursework.

**Postsecondary Transition:**

- Students who will continue their education in a Program of Study at one of the University System of Georgia institutions should prepare to take the ACT or SAT for admissions. Tests for admissions may vary from institution to institution. Contact the selected institution for specific testing information. Additional admissions information can be found at [Staying On Course](#). ([www.usg.edu/student\\_affairs/documents/Staying\\_on\\_Course.pdf](http://www.usg.edu/student_affairs/documents/Staying_on_Course.pdf))
- Students who will continue their education in a Program of Study at one of the Technical College System of Georgia institutions should prepare to take the COMPASS test for admissions.
- Students who will continue their education and training in the US Military should take the ASVAB assessment.
- Students should utilize electronic college and career data bases to select the most appropriate postsecondary opportunities to match their selected career field, including registered apprenticeships.
- Georgia's dual-credit programs have been combined into one program entitled Move on When Ready, in which high school students may earn their high school course credits while taking college courses.

**Possible Student Pathway Credentialing Opportunities:**  
 Students completing a pathway are eligible to take a Credentialing/End of Pathway Assessment (EOPA) upon successful completion of the three required courses in the pathway. For specific assessment information, refer to <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/CTAE-Georgia-Assessments.aspx>.

<p><b>*Related Pathway Occupations:</b>                  Heating, Air Conditioning, &amp; Refrigeration Mechanics &amp; Installers                  Sheet Metal Workers                  Pipe Fitters &amp; Steamfitters                  Helpers-Installation, Maintenance, &amp; Repair Workers                  Pipelayers</p>	<p><b>Other Related Architecture &amp; Construction Occupations:</b>                  Carpenters                  Stone Masons                  Welders                  Machinists                  Electrician Technicians</p>
---	--

\*ONET Online

**HVACR**

HVACR stands for heating, ventilation, air-conditioning, and refrigeration systems. These systems control the temperature, humidity, and total air quality of indoor environments and permit the storage and transport of food, medicine, and other perishable items. People who work in the HVACR industry install, maintain, and repair such systems. HVACR technicians are highly skilled workers because the systems on which they work consist of mechanical, electrical, and electronic parts, such as motors, compressors, pumps, fans, ducts, pipes, thermostats, and switches. Technicians must be proficient in reading and interpreting blueprints and manufacturers' specification manuals.

When mechanics install and service equipment, they must use care, which is especially true when working with cooling systems. The release of refrigerants causes damage to the Earth's atmosphere. Consequently, HVACR technicians must comply with several laws and regulations that protect the environment.

HVACR technicians usually train through one- or two-year professional-technical programs. Many heating and cooling system mechanics gain apprenticeship training, normally consisting of four years of on-the-job training. Conditioned air contractors must be licensed in Georgia.

Major employers are heating and cooling system installation companies, electrical contractors, and heating and cooling system retailers. Job prospects are excellent because of the growing focus on improving indoor air quality and the increasing use of refrigerated equipment by a growing number of stores and gasoline stations. In addition, environmental concerns will lead to the development of more efficient systems and a growing need for technicians to install, maintain, and repair new systems. If federal and state tax laws continue to encourage individuals and companies to install more efficient HVACR equipment, job growth for HVACR technicians becomes even more fast paced.

Employment of heating, air conditioning, and refrigeration mechanics and installers is expected to grow 34 percent from 2010 to 2020, much faster than the average for all occupations.