



Science, Technology, Engineering, and Mathematics Program of Study

Marquand-Zion High School Career Cluster Program of Study

This Program of Study Template can serve as a guide, along with other career planning materials, as you continue your career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. **Ask your high school counselor to help you fill in the required courses you need to graduate.**

Grade	English 8 semesters	Math 6 semesters	Science 6 semesters	Social Studies 6 semesters	Other Required Courses, Recommended Electives	Career & Technical Courses and/or Degree Major Courses	SAMPLE Occupations Relating to this Pathway
9	Comm Arts I	High School Math Course	High School Science Course	High School S.S. Course	Personal Finance Computer Science Math Courses Physical Sciences See high school counselor for additional options	See high school counselor for additional options	<ul style="list-style-type: none"> ▶ Aerospace Engineer ▶ Agricultural Engineer ▶ Analytical Chemist ▶ Anthropologist ▶ Architectural Engineer ▶ Astrophysicist ▶ Biomedical Engineer ▶ CAD Technician ▶ Civil Engineer ▶ Computer Programmer ▶ Ecologist ▶ Geologist ▶ Geothermal Engineer ▶ Math Teacher ▶ Mathematician ▶ Metallurgist ▶ Statistician ▶ Survey Technician ▶ Zoologist
10	Comm Arts II	High School Math Course	High School Science Course	High School S.S. Course	Personal Finance Computer Science Math Courses Physical Sciences See high school counselor for additional options	See high school counselor for additional options	
11	Comm Arts III *English Comp I *Public Speaking	High School Math Course, Pre-Algebra *College Algebra *College Trig *College Calculus	High School Science Course *MFH College General Biology –	High School S.S. Course *College Am. History I & II *College Political Systems	*Personal Finance *Computer Science *Math Courses *Physical Sciences (Available for Dual Enrollment)	*See high school counselor for additional college course offerings Calc I, II & III Differential Equations Physics Gen Chem I (Available for Dual Enrollment)	
12	Senior Comm Arts & Comm Arts elective *English Comp II *Intro to Literature	High School Math Course, Pre-College Algebra, *College Algebra, *College Trig *College Calculus	High School Science Course *MFH College Info to Chem *College Physics, Gen Chem	High School S.S. Course *College Am. History I & II *College Political Systems	*Personal Finance *Computer Science *Math Courses *Physical Sciences (Available for Dual Enrollment)	*See high school counselor for additional college course offerings Calc I, II & III Differential Equations Physics Gen Chem I (Available for Dual Enrollment)	

***Dual Credit courses can often be substituted for high school credit. Check with your Counselor.**

***Dual Enrollment courses can be taken online or on a MAC campus.**

Assessments/Certifications: College Placement Assessments, Compass, ACT, SAT

Clubs/Extracurricular Activities: Ask your Counselor what is available at your school.

CTSO(s): TSA FBLA Skills USA

Work-Based Learning: After School Employment Internship/Mentorship Job Shadowing Service Learning Supervised Business Experience

Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.

Sample Career Specialties / Occupations	Aerospace Engineer	Materials Engineer	Analytical Chemist	Materials Analyst
	Aeronautical Engineer	Materials Lab & Supply Technician	Anthropologist	Materials Scientist
	Agricultural Engineer	Mechanical Engineer	Applied Mathematician	Mathematician
	Agricultural Technician	Metallurgic Engineer	Archeologist	Mathematics
	Application Engineer	Mining Engineer	Astronomer	Metallurgist
	Architectural Engineer	Naval Engineer	Astrophysicist	Meteorologist
	Automotive Engineer	Network Technician	Atmospheric Scientist Biologist	Microbial Physiologist
	Biomedical Engineer	Nuclear Engineer	Botanist	Mycologist
	Biotechnology Engineer	Ocean Engineer	CAD Operator	Nanobiologist
	Chemical Engineer	Operations Research Engineer	Cartographer	Nuclear Chemists
	Civil Engineer	Packaging Engineer	Chemist	Nuclear Technician
	Communications Engineer	Packaging Technician	Communications Technologist	Numerical Analyst
	Computer Engineer	Petroleum Engineer	Conservation Scientist	Nutritionist
	Computer Hardware Engineer	Pharmaceutical Engineer	Cosmologist	Oceanographer
	Computer Programmer	Plastics Engineer	Cryptographer Crystallographer	Organic Chemist
	Computer Science Technician	Power Systems Engineer	Demographer	Ornithologist
	Computer Software Engineer	Product Design Engineer	Dye Chemist	Paleontologist
	Construction Engineer	Project Engineer	Ecologist	Physicist
	Consultant	Project manager	Economist	Polymer Scientist
	Development Engineer	Prototype Engineer	Electronmicroscopist	Programmer
	Drafter	Quality Engineer	Environmental Scientist	Protein Scientist
	Electrical Engineer	Quality Technician	Expert Systems Scientist	Protozoologist
	Electrician	Radio/TV Broadcast Technician	Geneticist	Quality-Control Scientist
	Electronics Technician	Radiology Engineer	Geologist	Radio Chemist
	Energy Transmission Engineer	Researcher	Geophysicist	Research Chemist
Environmental Engineer	Safety Engineer	Geoscientist	Research Technician	
Facilities Technician	Software Engineer	Herpetologist	Science Teacher	
Fire Protection Engineer	Sound Technician	Hydrologist	Lab Technician	
Geothermal Engineer	Structural Engineer	Ichthyologist	Scientific Visualization/Graphics Expert	
Hazardous Waste Engineer	Survey Technician	Inorganic chemist	Spectroscopist	
Hazardous Waste Technician	Systems Design Engineer	Laboratory Technician	Statistician	
Human Factors Engineer	Technical Sales Manager	Mammalogist	Technical writer	
Industrial Engineer	Technical Writer	Marine Scientist	Technologist	
Industrial Engineering Technician	Telecommunications Engineer		Toxicologist	
Licensing Engineer	Textile Engineer		Zoologist	
Manufacturing Engineer	Transportation Engineer			
Manufacturing Technician	Nuclear Engineer and Procurement Engineer			
Manufacturing Processes Engineer				
Marine Engineer				

Path-ways	Engineering and Technology	Science and Math
-----------	-----------------------------------	-------------------------

Career K&S	Cluster Knowledge and Skills •Academic Foundations •Communications •Problem Solving and Critical Thinking •Information Technology Applications • Systems • Safety, Health and Environment •Leadership and Teamwork •Ethics and Legal Responsibilities •Employability and Career Development •Technical Skills	
------------	---	--