

Agriculture, Food & Natural Resources Cluster

Business & Industry Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ have a fascination with all kinds of animals, be they found on ranches, farms, the zoo, household pets?
- ✓ have an interest in farming or ranching?
- ✓ ever consider becoming a veterinarian?
- ✓ love growing beautiful plants and creating landscape designs?
- ✓ ever think about going into genetic science for plants and animals?
- ✓ love the great outdoors and an interest in forestry, and state and national parks?
- ✓ love repairing mechanical equipment and also have an interest in welding?
- ✓ Sound interesting? Our food, clothing, shelter, transportation, medicine rely on Agriculture? Scientific research is also a huge part of plant and animal science. Even the Oil and Gas Industry! Get onboard with Ag. Science and expand your knowledge of careers in these areas!



Sample Fastest Growing AG, Food, Nat. Resources Careers- Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Veterinary Technologists & Technicians	\$20,380	\$28,780	\$40,900
Food Science & Technologists	\$39,330	\$59,620	\$115,940
Animal Scientists	\$30,730	\$55,580	\$147,700
Veterinarians	\$55,220	\$93,310	\$153,360
Zoologists & Wildlife Biologists	\$42,330	\$66,360	\$97,600
Park Naturalists	\$37,390	\$54,620	\$74,870
Game Wardens	\$52,340	\$63,830	\$76,510
Farm Equipment Mechanics	\$22,620	\$36,170	\$53,220
Environmental Engineering Technicians	\$34,470	\$58,630	\$86,340

Careers to Consider with a 4-Year College Degree and Higher:

- Environmental Science & Protection Technicians
- Agricultural Managers
- Range Manager

With a 2-Year College Degree:

- Veterinary Technologists
- Tractor Technician

Certificate or HS Diploma

- Animal Trainer
- Nonfarm Animal Caretakers
- Commercial Divers



Career Pathways in Agriculture, Food, & Natural Resources

Pathways and Required Courses					
Animal Science: Veterinary Technician Guthrie Center	Small Animal Mgmt. AND Equine Science (Taken concurrently.)	Veterinary Medical Applications	*Advanced Animal Science	Practicum in AFNR OR Internship with Veterinarian (Practicum or Internship must be the final course in the Pathways sequence.)	Certification: Certified Veterinary Assistant Level 1 (Must complete a 400 hr. Internship before graduation.)
General Agricultural Sciences Animal Focus Guthrie Center	Principles of Agriculture, Food and Natural Resources Wildlife Fisheries and Natural Resources.	Ag. Mechanics Livestock Production	*Advanced Animal Science OR Practicum in Agriculture (One of these courses must be the final course in the Pathways sequence.)		Certification: Texas Hunters Education, OSHA General 10 Hour Certification
General Agricultural Sciences Plant Focus Guthrie Center	Principles of Agriculture, Food and Natural Resources; Wildlife Fisheries and Natural Resources.	Ag. Mechanics Horticultural Science	*Advanced Plant and Soil Science OR Practicum in Agriculture (One of these courses must be the final course in this pathway sequence.)		Certification: Texas Hunters Education; OSHA General 10 Hour Certification
Oil & Gas Production Guthrie Center (Classes must be taken in the order listed.)	Principles of Agriculture, Food and Natural Resources	Oil & Gas Production 1 Oil & Gas Production 2	Practicum in Ag. OR Internship in Energy related area. (One of these courses must be final course in this pathway sequence)		Certification: International Association of Drilling Contractors Rig Pass ; OSHA General 10 Hour Certification
Plant Science: Plant Production Guthrie Center	Floral Design** Landscape Design and Management AND Turf Grass Mgmt. (Taken concurrently.)	Horticulture Science	*Advanced Plant and Soil Science Greenhouse Operation & Production (One of these courses must be the final course in this pathway sequence.)		Certification: Texas State Florists' Association High School Floral Design Certification

*Satisfies 3rd Year Science Graduation Requirement upon successful completion and required prerequisites.

** Satisfies your Fine Arts Graduation Requirement upon successful completion.

Consult your school's Program of Studies for more Ag. Science courses listings, prerequisites, and course descriptions.

Sources: Achieve Texas, O*Net Online, Labor Market and Career Information, CareerOneStop.org, U.S. Bureau of Labor & Statistics

Samples of the professional experiences that students will enjoy in our Agricultural courses:

- explore careers in the oil & gas industry • flower arranging • basics of veterinary medical profession • Hunter's Ed. Certification
- identify, manage and conserve wildlife and ecology • national FFA opportunities • Career Prep/Internship (w teacher recommendation)

For more information, contact your school counselor or:
Beverly Litton
 Guthrie Center & Career and Technical Education Counselor
 Spring Branch Independent School District
 The Guthrie Center
 10660 Hammerly Blvd., Houston, Texas 77043
 Office: 713-251-1303 Fax: 713-251-1315

Spring Branch ISD Notice of Non-Discrimination

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Architecture & Construction Cluster

Business & Industry Endorsement

Questions to Ask When Exploring Careers:

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ ever marvel at skyscrapers, sports venues or homes that are designed and built? How did they do that? Who designed that?
- ✓ ever wonder why buildings stand up or wonder why buildings fall down?
- ✓ enjoy drawing, colors or textures?
- ✓ like building models?
- ✓ like problem solving; helping someone realize their project?
- ✓ like to plan, execute, and deliver projects on time?
- ✓ like competition?
- ✓ want to win scholarship money?
- ✓ want to know what schematic design, design development, construction documents, bidding and construction management have to do with Architecture and Construction?
- ✓ want to own your own company related to this industry someday?

Discover Architecture & Construction careers!

The building you are in right now was first designed by an architect in collaboration with a client! The decisions of where to locate the building, the materials to use on the building, and the landscaping unify the exterior of the building to its surroundings. The interior design determines where to place the walls, doorways and windows. The infrastructure includes the electrical, plumbing, air conditioning and heating, which first came from the imagination of the architect! Drawings were developed into plans. Those plans guided the building team during construction taking them from paper to reality! Design your future today in a career in Architecture and Construction.



Sample Fastest Growing Information Technology Careers-Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Architects	\$42,460	\$73,780	\$128,620
Interior Designers	\$31,400	\$56,670	\$99,750
Landscape Architects	\$40,360	\$59,270	\$102,480
Brickmasons	\$29,760	\$40,520	\$50,170
Plumbers & Pipefitters	\$26,020	\$44,580	\$67,660
Carpenters	\$23,900	\$34,530	\$50,920
Electronic Drafters	\$41,300	\$71,650	\$118,250
Construction Workers	\$24,210	\$33,480	\$48,940
Heating, A/C, & Refrigeration	\$26,840	\$40,610	\$61,460

Careers to Consider with a 5+ Year College Degree

- Architect
- Civil Engineer

Careers to Consider with a 4-Year College Degree

- Construction Manager
- Surveyor

With a 2-Year College Degree:

- Architectural & Civil Drafter
- Electrician
- Landscaping & Lawn Service Manager
- Welder

Certificate or HS Diploma

- Construction Trades
- Woodworker



Career Pathways in Architecture & Construction

Pathways and Required Courses					
Architectural Design Guthrie Center Classes must be taken in order listed.	Architectural Design 1 AND Principles of Architecture (Taken concurrently.)	Architectural Design 2	Architectural Design Practicum		Certification: Autodesk AutoCAD Certified User, Autodesk REVIT Architecture Certified User
Construction Technology Classes must be taken in order listed. NHS, SWHS	Jack of All Trades	Construction Technology 1	Construction Technology 2		Certification: OSHA General 10 Hour Certification
Electrical Technician Guthrie Center	Math for Technical Professionals AND Electrical Technician1	Electrical Technician 2 Internship/ Practicum (Recommended)			Technical Certifications: OSHA General 10 Hour NCEER Level 1 NCEER Level 2
Interior Design Classes must be taken in order listed. SHS	Interior Design 1	Interior Design 2	Practicum in Interior Design or Internship in Interior Design related area		Certification: None

Refer to the Spring Branch ISD High School Program of Studies for more detailed information regarding course descriptions, prerequisites, career pathways, endorsements, and certifications.

Samples of the professional experiences that students will enjoy in our Architecture & Construction courses:

Architecture: • technical drawing and AutoCAD • architectural lettering styles • learn to read architectural drawings • create “as-built” drawings • edit a commercial tenant improvement set • residential design • interior design • exterior design • environmental design • architectural portfolio development

Construction and Jack of All Trades: • carpentry skills • building maintenance • construction management • construction technology skills • skills in safety tools usage, building materials, codes and framing • home repairs and maintenance • **Interior Design:** • develop skills to create beautiful living environments • learn trends and issues of interior design and housing design elements and principles • color theory • hands on activities related to residential and commercial interior designs

For more information, contact your school counselor or:

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Arts, Audio Video Technology & Communications Cluster Business & Industry Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you...

- ✓ enjoy creating designs and animations using computer programs?
- ✓ have a passion for creating movies or photographs?
- ✓ like to design clothes and imagine yourself creating costume designs for the movies?
- ✓ enjoy learning about the creation of special effects and video games?
- ✓ desire to be in TV broadcasting?

Turn your artistic talents into a career in Arts, AV Technology & Communications!

Whether it be playing your favorite video game, amazed at the realism of 3D computer animation, being inspired by a TV biography, intrigued with fashion design, people everywhere are motivated by what they see through the creations of visual arts and design! Want to be a part of this? Get a head start through our “state of the arts” courses!



Sample Fastest Growing Arts, AV Technology & Communications Careers- Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Art Directors	\$44,240	\$79,770	\$147,390
Multimedia Artists & Animators	\$34,100	\$58,540	\$100,320
Producers & Directors	\$26,660	\$51,480	\$106,310
Film & Video Editors	\$17,600	\$42,770	\$85,870
Set & Exhibit Designers	\$18,290	\$36,030	\$66,710
Graphic Designers	\$26,320	\$43,640	\$72,630
Camera Operators, TV, Video, & Movies	\$21,420	\$47,540	\$80,110
Sound Engineer Technicians	\$17,040	\$37,040	\$76,550

Careers to Consider with a 4-Year College Degree and Higher:

- Agents of Artists & Performers
- Multimedia Artists & Animators
- Broadcast News Analysts
- Talent Directors

With a 2-Year College Degree:

- AV Equipment Technicians
- Costume/Fashion Designers

Certificate or HS Diploma

- Sound Engineer Technicians
- Broadcast Technicians
- Actors



Career Pathways in Arts, AV Communications & Technology

Pathways and Required Courses					
3D Animation	Animation Game Art 3D 1 with Lab	Animation Game Art 3D 2 with Lab	Animation 3D Game Development Practicum		Certification: Autodesk 3Ds Max Certified User
Commercial Photography	Commercial Photography 1 with Lab	Commercial Photography 2 with Lab	Commercial Photography Practicum or Internship in Commercial Photo. related area		Certification: Adobe Photoshop Certified Associate, Adobe Certified Lightroom Expert during Practicum
Fashion Design SHS	Fashion Design 1 with Lab	Fashion Design 2 with Lab	Practicum in Fashion Design or Internship in Fashion related area		Certification: None
Film & Video Production	Film/Video Production 1 with Lab	Film/Video Production 2 with Lab	Film & Video Practicum or Internship in Film/Video related area		Certification: Apple Final Cut Pro
Graphic Design	Graphic Design 1 with Lab	Graphic Design 2 with Lab	Graphic Design Practicum or Internship in Graphic Design related area		Certifications: Adobe Illustrator and InDesign Certified Associate

Refer to the Spring Branch ISD High School Program of Studies for more detailed course information and prerequisites. Sources: Achieve Texas, O*Net Online, Labor Market and Career Information, CareerOneStop.org, U.S. Bureau of Labor & Statistics

Samples of the professional experiences that students will enjoy in our Arts/AV Technology & Communications courses:

Commercial Photography: • industry standard digital SLR cameras • professional techniques in composition, professional software and photo shoots • work with outside clients

Film & Video: • 5 time Emmy Award winning program • write, pitch, direct, edit and produce public service announcements, documentaries, short films, music videos and more • work with outside clients • develop demo reels and production portfolios

Graphic Design: • fundamentals of design and typography real-world projects • develop a digital portfolio

Animation Game Art 3D: •3D modeling, concept drawings, storyboards, virtual lights and cameras, scene design character development • video game development • motion capture lab access • industry standard software • portfolio development

Fashion Design: • utilize design elements and principles to create fashion garments • study trends of fashion

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Business Management & Marketing Clusters

Business & Industry Endorsement

Questions to Ask When Exploring Careers:

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2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ have a desire to create and run your own business?
- ✓ want to learn how huge corporations grow from small businesses?
- ✓ want to learn more about marketing, advertising and promotion to create successful businesses?
- ✓ aspire to become the CEO of a worldwide corporation?
- ✓ have dreams of being a manager or agent for professional athletes or entertainers?

Start now by exploring careers in Business and Marketing!

Business Management crosses over into every branch of our economy. Marketing is crucial to the businesses' success. Think Interested in managing people in a business setting, or be an entrepreneur, or starting your own company? *Jumpstart your road to success in the worlds of Business & Marketing through these programs.*



Sample Fastest Growing Business Mgmt. & Marketing Careers-Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Meeting, Convention, & Event Planners	\$26,210	\$45,500	\$77,890
Advertising & Promotions Mgrs.	\$42,870	\$96,920	\$187,200+
Survey Researchers	\$18,040	\$43,180	\$93,940
Sales Engineers	\$60,580	\$99,490	\$163,200
Wholesale & Retail Buyers	\$28,910	\$52,370	\$100,390
Sales Managers	63,650	\$126,290	\$187,200+
Logisticians	\$45,400	\$76,190	\$123,340
Operations Research Analysts	\$47,560	\$81,480	\$128,920
Real Estate Appraisers	\$32,840	\$56,200	\$110,860

Careers to Consider:

With a 4-Year College Degree and Higher:

- Economists
- Statistical Assistants
- Chief Executives

With a 2-Year College Degree:

- Human Resource Assistant
- Procurement Clerk

Certificate or HS Diploma :

- Retail Salesperson
- Customer Service Representative
- Statement Clerks



Career Pathways in Business and Marketing

Pathways and Required Courses					
Business Administration Option 1 MHS, NHS, SWHS, SHS	Business Law	Money Matters	Business Information Management	Practicum in Business OR Career Prep Business OR Internship in a Business related area.	Certification: Microsoft Office Specialist Word and Excel
Business Administration Option 2 MHS, SWHS, SHS	Business Information Management	Business Information Management 2	Practicum in Business , Career Prep Business or Internship in a Business related area.	Certification: Microsoft Office Specialist Word and Excel	
International Business Law MHS, SWHS	Business Law	Business Information Management	Global Business	Practicum in Business OR Internship in Business related area	Certification: Microsoft Office Specialist Word
Retail Management Courses *Practicum in Marketing OR Career Prep OR Internship must be last in this pathway sequence.	Principles of Business, Marketing, and Finance	Retailing and E-Tailing Sports and Entertainment Marketing	Entrepreneurship	*Practicum in Marketing OR Career Prep Marketing Or Internship in Marketing related area	Certification: National Retail Federation-Retail Mgmt. attainable through UH Downtown

Refer to the Spring Branch ISD High School Program of Studies for more detailed course descriptions and prerequisites.

Samples of the professional experiences that students will enjoy in our Business & Marketing courses:

- Business:** • Business Office skills via Microsoft Office Suite • explore legal issues related to related to civil and criminal laws, court systems, contracts, family law, employment and property
• the impact of global economy and cultural differences our society, international law, and finance

- Marketing:** • retailing and e-tailing • best ways to inform the public and potential buyers of the value and quality of available products, services, properties, innovative business concepts

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Education and Training

Public Service Endorsement

Questions to Ask When Exploring Careers:

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to **grow**? (Job Outlook or Wages and Employment on Onet online.org.)

Do you....

- ✓ have a passion for working with children?
- ✓ feel strongly about educating the citizens of tomorrow, from preschool children to adult education?
- ✓ possess integrity, good character, an attention to detail, perseverance, patience, a sense of humor?
- ✓ have a way of teaching so others can easily understand?
- ✓ already tutor or assist others with their lessons?
- ✓ love helping others find their way through difficult times?



Change lives through a career in Education!

*The Education field includes a wide variety of careers such as pre-K, elementary, middle school and high school teachers, principals, superintendents, counselors, educational diagnosticians, child psychologists, social workers, coaches, college professors, medical field instructors, university presidents, and many others. Sound exciting? Learn and **experience** more within this career field through our Education and Training programs.*

<i>Sample Fastest Growing Health Science Careers- Salary Ranges in Texas</i>	Bottom 10% & Under	50%	Top 10% & Up
Distance Learning Coordinators	\$41,700	\$77,620	\$126,720
Education Admins, Elem. & Secondary	\$57,040	\$76,890	\$103,760
Mental Health Social Workers	\$30,940	\$41,130	\$59,910
Secondary Counselors (SBISD)	\$61,251	\$67,288	\$80,254
Instructional Coordinators	\$42,990	\$66,230	\$93,630
Secondary Teachers (SBISD)	\$52,250	\$59,000	\$71,000
School Psychologists	\$52,000	\$59,440	\$83,000
Teacher Assistants (TX)	\$16,450	\$20,690	\$30,510
Fitness Trainers (TX)	\$18,890	\$41,640	\$68,110

Sample Careers to Consider with a 4-Year College Degree and Higher:

- Teachers
- Distance Learning Coordinators
- Principals
- Fitness and Wellness Coordinators

With a Certification and/or HS Diploma:

- Library Assistants
- Teacher Assistants



Career Pathways in Education and Training

Pathways and Required Courses

Early Childhood Pathway SWHS, SHS	Child Development or Human Growth and Development	Child Guidance	Practicum in Education (Must be the last course taken in this pathway sequence.)		Texas Educational Aide Certificate, First Aid/CPR/AED Certification
Teaching Pathway SHS	Human Growth and Development	Instructional Practices in Education	Practicum in Education (Must be the last course taken in this pathway sequence.)		Texas Educational Aide Certificate, First Aid/CPR/AED Certification

Refer to your SBISD High School Program of Studies for detailed course descriptions and prerequisites.

Some of the professional experiences students will have in Education Courses:

- developmental psychology • explore stages of human development • motor and language development
- genetics • work in a classroom with a certified teacher • internship in a school •
- plan and direct individualized instruction and group activities •
- prepare instructional materials • work alongside teachers, trainer, paraprofessionals, and other educational personnel

Education courses include: Human Growth & Development, Child Development, Instructional Practices in Education, and Practicum in Education

For more information, contact your school counselor or:
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Finance Cluster

Business & Industry Endorsement

Questions to Ask When Exploring Careers:

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ have an interest in accounting, finance and investing your money so it can grow?
- ✓ wonder how banks get started and what services they offer?
- ✓ have a desire to help others manage their investments?
- ✓ like to follow the stock market and follow economic trends?
- ✓ love reading "rags to riches" stories?
- ✓ have a fascination with the history of banking and finance in America?
- ✓ wonder how the economies in other countries have an impact on the USA?
- ✓ **Then start exploring careers in Finance!**

Texas has the **10th** largest economy in the world! There are realms of careers in this area with over 750 banks, brokerage and accounting firms! So, if you like the idea of being a stock broker, accountant, love math and love working with people, the world of Finance could be golden for you.



Sample Fastest Growing Business Mgmt. & Marketing Careers-Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Market Research Analysts	\$36,350	\$66,740	\$127,660
Financial Managers	\$70,690	\$128,870	\$187,200+
Accountants	\$41,260	\$69,430	\$126,750
Securities, Commodities, & Financial Services Sales Agents	\$31,970	\$57,970	\$187,200+
Treasurers & Controllers	\$70,690	\$128,870	\$187,200+
Loan Officers	\$33,840	\$64,680	\$137,870
Brokerage Clerks	\$34,690	\$53,010	\$78,480
Personal Financial Advisors	\$35,470	\$76,330	\$187,200+

Careers to Consider with a 4-Year College Degree and Higher:

- Actuary
- Credit Analyst
- Cost Estimator

With a 2-Year College Degree:

- Human Resource Specialization
- Assessors

Certificate or HS Diploma

- Teller
- Bill or Account Collector
- Payroll Clerk



Career Pathways in Finance

Pathways and Required Courses					
Academy of Finance MHS, NHS, SWHS, SHS	Business Information Management	*Financial Mathematics	Accounting	Plus 1 credit from: Global Business; Banking & Financial Services; Prin. of Business; Business Law; Money Matters; Accounting 2; **Statistics and Business Decision Making	Certification: Academy of Finance Endorsement; QuickBooks User Certification
Accounting MHS, SHS, SWHS	Money Matters or *Financial Mathematics	Accounting	Accounting 2	Plus at least 1 credit from: Business Law; OR Statistics and Business Decision Making; OR Practicum in Business; OR Career Prep Finance; OR Internship in Finance	Certification: QuickBooks User Certification
<p><i>Refer to the Spring Branch ISD High School Program of Studies on your high school website for more detailed information regarding course descriptions, prerequisites, career pathways, endorsements, and certifications.</i></p> <p><i>Satisfies 3rd Year Mathematics Graduation Requirement upon successful completion and required prerequisites.</i></p> <p><i>** Satisfies 3rd or 4th Year Mathematics Graduation Requirement upon successful completion and required prerequisites.</i></p>					

Samples of the professional experiences that students will enjoy in our Finance courses:

- Accounting foundations • utilize computerized Accounting programs • discover the world of stock market, the banking world, and investments • learn ways to acquire wealth through financial options
- Opportunity to follow the Academy of Finance Pathway-a blend of Business and Finance courses.

SBISD Finance, Business (for AOF) courses include: Business Information Management , Business Law, Global Business, Principles of Business, Marketing, & Finance, Accounting 1 & 2, Banking and Financial Services, Statistics, Business Decision Making, Money Matters. Internship Career Prep

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Health Science

Public Service Endorsement

Do you....

- ✓ have a curiosity about how the systems of the human body work and function?
- ✓ feel strongly drawn to TV programs and documentaries that focus on the medical world?
- ✓ possess integrity, an attention to detail, perseverance, organized, and observant?
- ✓ have a passion to help people who are ill and suffering?
- ✓ dream about using cutting edge technology and scientific research to find a cure for a terrible disease?
- ✓ enjoy exploring the various careers in the medical field?

Perhaps your career diagnosis is in the Health Science field ! *Everyone thinks about doctors and nurses when thinking about Health Care. Hundreds of other careers exist in the medical field such as X-ray technicians, registered nurses, research scientists, lab technicians, pharmacists, physical therapists, medical careers and many more! Gain knowledge and experience in our Health Science programs!*

Questions to Ask When Exploring Careers :

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2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)



<i>Sample Fastest Growing Health Science Careers-Salary Ranges in Texas</i>	Bottom 10% & Under	50%	Top 10% & Up
Physicians & Surgeons	\$56,880	\$187,200+	\$187,200+
Pharmacists	\$93,460	\$122,590	\$154,320
Mental Health Social Workers	\$30,940	\$41,130	\$59,910
Registered Nurses	\$50,140	\$68,590	\$94,950
Respiratory Therapists	\$42,060	\$56,260	\$74,020
Medical Scientists, Except Epidemiologists	\$37,970	\$59,580	\$119,940
Radiologic Technologists	\$50,700	\$65,820	\$91,450
Clinical Data Management	\$41,660	\$74,960	\$121,270
Diagnostic Medical Sonographers	\$50,450	\$68,240	\$99,010

Sample Careers to Consider with a 4-Year College Degree and Higher:

- Neurologists
- Physical Therapists
- Medical & Clinical Technologists
- Hospitalists
- Patient Representatives

With a 2-Year College Degree:

- Nuclear Medicine Technologists
- Dental Hygienists
- Surgical Technologists
- Cardiovascular Technologists and Technicians

With a Certification and HS Diploma:

- Dental Lab Technicians
- Nursing Assistants
- Nuclear Equipment Operation Technicians



Career Pathways in Health Science

Pathways and Required Courses					
Medical Health Professions Pathway MHS, NHS, SWHS, SHS	Medical Terminology (Optional, but highly recommended)	Principles of Health Science	Health Science with Clinical	Health Science Practicum or Internship in Health area or Anatomy & Physiology	Certifications: First Aid/CPR,AED; NPA Certified Phlebotomist or other higher-level Healthcare certification.
Pharmacy Technician Pathway MHS, NHS, SWHS, SHS Guthrie Center	Medical Terminology (Optional, but highly recommended)	Principles of Health Science	Health Science Theory and Pharmacology 11 th grade	Pharmacy Technician Practicum 12 th grade	Certifications: First Aid/CPR; Pharmacy Tech (PTCE); National Sterile Products IV
Emergency Medical Technician Pathway MHS, NHS, SWHS, SHS	Principles of Health Science Medical Terminology (Optional, but highly recommended)	*Anatomy & Physiology	*Medical Microbiology	Emergency Medical Technician Basic	Certifications: Texas EMT Basic; First Aid/CPR/AED
<i>*Satisfies 3rd Year Science Graduation Requirement with required and recommended prerequisites. Refer to your SBISD High School Program of Studies for detailed course descriptions and prerequisites.</i>					

Some of the professional experiences students will have in Health Science Courses:

clinical rotations in a hospital setting;

study the structure and functions of the human body and body systems; medical vocabulary terminology;

become part of a hospital team of professionals; identify the relationships of micro-organisms to wellness and disease ;

how diseases affect the various human systems; normal and abnormal physiology;

the technical knowledge, practices and procedures used in Pharmacy; sterile processing of medical operation room equipment

Health Science courses include: Anatomy & Physiology, Principles of Health Science, Health Science Theory Health Science Theory with Clinical, Health Science Practicum, Extended Practicum in Health Science, Medical Microbiology, Medical Terminology, Pathophysiology, Pharmacology, Pharmacy Technician Practicum, Internships Career Prep (with teacher recommendation)

For more information, contact your school counselor or:
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 10660 Hammerly Blvd., Houston, Texas 77043
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Hospitality & Tourism Cluster

Business & Industry Endorsement

Questions to Ask When Exploring Careers:

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ like to plan and create meals for special events?
- ✓ ever think about owning and managing your own restaurant?
- ✓ love to create fabulous events for special occasions?
- ✓ have an interest in managing a luxurious hotel?
- ✓ love planning trips and vacations?



Cruise to your dream career in Hospitality & Tourism!

People everywhere love to go on dream vacations! People love to dine out, exploring different restaurants! Hospitality and Tourism careers are found in cruise line vacations, ships, luxury hotels, travel guide agencies, event planning, stadiums, food science and development, business, *catering*, parks like Six Flags and Disney World, and so many more!

<i>Sample Fastest Growing Hospitality & Tourism Careers-Salary Ranges in Texas</i>	Bottom 10% & Under	50%	Top 10% & Up
Meeting & Convention Planner	\$26,210	\$45,500	\$77,890
Hotel Manager	\$27,830	\$46,400	\$80,080
Tour Guide	\$16,640	\$21,990	\$45,280
Chef	\$21,620	\$38,500	\$70,600
Human Resource Specialists	\$33,350	\$58,520	\$102,330
Travel Agent	\$23,150	\$41,330	\$82,170
Cruise Ship Captain	\$46,730	\$104,120	\$157,400
First Line Supervisors of Food Preparation	\$19,190	\$35,756	\$55,830
Interpreter and Translator	\$25,960	\$49,350	\$80,990
General Operations Managers	\$46,080	\$104,960	\$187,200

Sample Careers to Consider with a 4-Year College Degree and Higher:

- Restaurant Management
- Business Management
- Event Planner
- Executive Chef

With a 2-Year College Degree:

- Baker Pastry and Specialty Chef
- Culinary Arts

With a Certification and HS Diploma:

- Transportation Attendant
- Hotel, Motel, and Resort Desk Clerks
- Switchboard Operators



Career Pathways in Hospitality and Tourism

Pathways and Required Courses					
Culinary Chef	Culinary Arts 1	Culinary Arts 2	Chef Training Practicum		Certification: ServSafe Food Handler; ServSafe Food Manager
Culinary Baking & Pastry	Culinary Arts 1	Culinary Arts 2	Café Operations Practicum		ServSafe Food Handler
Culinary Science SWHS	Introduction to Culinary Arts	Culinary Arts 1	*Food Science OR Career Prep in Culinary related area		Certification: ServSafe Food Handler
Hotel Management	Hotel Management and Hospitality Services Practicum	Travel & Tourism and Hospitality Services Practicum 2			Certification: AHLEI Certified Guest Service Professional

** Satisfies 3rd Year Science Graduation Requirement with successful completion and required prerequisites. Refer to the SBISD Program of Studies for more information about courses and prerequisites in this Career Cluster.*

Some of the professional experiences students enjoy in Hospitality & Tourism Courses:

Culinary Arts: • learn the basics of culinary and kitchen skills • learn about careers in the hospitality industry
• Develop original recipes • learn what it takes to manage a restaurant • train with professional chefs • run a small cafe

Culinary Science: • investigate the principles and methods used in the food science industry • learn how food interacts with our bodies • chemical reactions of food during preparation, food reactions with different environments
• work alongside professionals at the luxurious Houston OMNI Westside Hotel every day • learn about

Hotel Management Practicum: • the varied careers involved in the Travel & Tourism industry • experience your favorite departments in the OMNI, including front desk, restaurant, culinary, accounting, banquets, guest services, sales, engineering, human resources • earn clock-hour college credit for the Conrad Hilton Hotel & Restaurant Management degree program
• fun field trips to popular Houston sites with an optional study trip to New York City!

Hospitality & Tourism courses include: Intro. to Culinary Arts; Food Science; Culinary Arts 1 & 2; Café Operations; Chef Training; Hotel Mgmt.; Travel & Tourism; Hospitality Services Practicum 1 & 2; Career Prep & Guthrie Center Internships.

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Sources: Achieve Texas, O*Net Online, Labor Market & Career, *Disney careers.com, Information, CareerOneStop.org, U.S. Bureau of Labor & Statistics

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Human Services

Public Service Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ love being around children, tending to their physical, emotional and educational needs?
- ✓ want to learn more about family and community development and building successful relationships?
- ✓ desire to be a hair stylist, own your own hair salon, or work as a make up artist in the entertainment industry?
- ✓ want to help those in need of medical make up maximize the beauty in their appearance?



<i>Sample Fastest Growing Health Science Careers-Salary Ranges in Texas</i>	Bottom 10% & Under	50%	Top 10% & Up
Hairstylists, & Cosmetologists	\$16,660	\$22,330	\$43, 540
Childcare Workers	\$16,140	\$18,970	\$27,210
Child, Family & School Social Workers	\$33,320	\$39,260	\$55,850
Makeup Artists, Theater & Performance	\$17,630	\$35,530	\$105,720
Fitness Trainers & Aerobics Instructors	\$18, 890	\$41,640	\$68,110
Social & Human Service Assistants	\$18,510	\$31,280	\$46,160
Clergy	\$28,210	\$47,360	\$77,020
Morticians & Funeral Directors	\$28,730	\$47,740	\$81,500
Skincare Specialists	\$16,820	\$26,930	\$61,180

Do you want to make a difference in other people's lives? Find your career passion in Human Services.

Human Services covers a wide variety of ways to help people with varying needs. From beauty to financial services, to personal problems, counseling, daycare center managers, nannies, massage therapists, personal shoppers, the offerings are wide and varied.

Interested? Take a look at the courses in this area.

Sample Careers to Consider with a 4-Year College Degree and Higher:

- Residential Advisors
- Healthcare Social Workers
- Social & Community Service Managers
- Rehabilitation Counselors

With a 2-Year College Degree:

- Occupational Safety & Compliance Technology
- Embalmers
- Referral Specialists

Occupational Safety Compliance Technology

With a Certification and/or HS Diploma:

- Nannies
- Personal Care Aids
- Barbers
- Massage Therapists



Career Pathways in Human Services

Pathways and Required Courses					
Cosmetology Guthrie Center	Cosmetology 1 and Cosmetology 1 Lab (Innovative) (11 th grade)	Cosmetology 2 and Cosmetology 2 Lab (Innovative) (12 th Grade)		Prior to taking the TX Operators License exam students must successfully complete the Cos . Program & pay the required exam fees.	License: Texas Cosmetology Operators License (Issued after graduation if the student has passed the Cosmetology Operators License exam.)
	Refer to your SBISD High School Program of Studies for detailed course descriptions and prerequisites.				

Some of the professional experiences students will have in Human Services Courses:

Cosmetology: cosmetology students will apply real world services to clients in a hair salon classroom lab environment; gain skills in makeup, manicuring, hair coloring, facials and hairstyling; interview with salon owners and managers; create resumes; write a salon ready business plan; build a salon service portfolio; earn opportunities to work in real salons.

Child Development & Guidance: knowledge and skills to function effectively as a parent or caregiver; child guidance techniques; students work with children ages 4-5 in the district's pre-K program centers 3 days a week.

Remaining courses in the Human Service area will provide: basics of money management for personal and family goals; an overview of study areas in Human Services; family and community development, personal care and consumerism; plan and prepare healthy food choices; food safety and nutrition; study the effects of individual and family relationship on the quality of life.

Human Services courses include: Child Development, Child Guidance, Cosmetology 1 and 2 with Labs, Interpersonal Studies, Lifetime Nutrition and Wellness, Principles of Human Services, Career Prep and Guthrie Center Internships (with teacher recommendation).

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Information Technology Cluster

Business & Industry Endorsement

Do you....

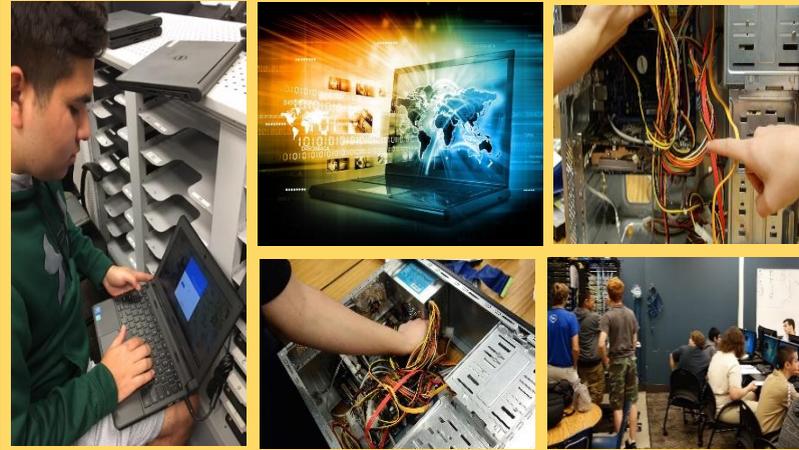
- ✓ have a knack for understanding the inner workings of computer networking systems?
- ✓ have an interest in being a Computer Technician before graduation?
- ✓ love the idea of actually building and maintaining computers?
- ✓ help family and friends connect electronic equipment?
- ✓ desire to be a Computer Programmer?
- ✓ have the ability to visualize a flat drawing as a 3D object or landscape?

Then log onto a career in Information Technology!

Almost every career area relies on computers...the medical field, engineering, transportation, the military, media, video game industry, remote control devices, criminal justice, business, 3D geographic mapping, just to name a few!!! Get started NOW on an IT career pathway and earn national certifications in this area while in high school!!

Questions to Ask When Exploring Careers:

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)



Sample Fastest Growing Information Technology Careers— Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Computer and Information Systems Manager	\$88,950	\$140,960	\$187,200
Computer Systems Analysts	\$53,490	\$86,950	\$144,700
Information Security Analysts	\$51,530	\$89,790	\$134,130
Computer User Support Specialist	\$27,520	\$47,670	\$79,710
Database Administrators	\$43,340	\$75,890	\$123,160
Computer Network Support Specialists	\$38,540	\$66,090	\$104,720
Software Developers, Applications	\$57,830	\$99,340	\$146,450
IT Project Manager	\$51,870	\$120,000	\$132,540
Computer Network Architects	\$66,130	\$108,620	\$158,720

Careers to Consider with a 4-Year College Degree and Higher:

Network Systems Analyst
 Computer Software Engineer, Computer Programmer,
 GIS Programmer/Analyst,
 Telecommunications Engineer

With a 2-Year College Degree:

Computer Operator, Computer Support Specialist,
 Electrical and Electronic Engineering Technician

With a Certification and HS Diploma:

Computer Maintenance Technician
 Computer Network Maintenance Technician
 Radio, Cellular, and Tower Equipment Installers and Repairers
 Computer Controlled Machine Tool Operator



Career Pathways in Information Technology

Pathways and Required Courses					
Computer Networking	Networking 1 with Lab	Networking 2 (Practicum in IT)	Practicum in Info. Tech. 2 OR Internship in IT related area OR Computer Technician		CCENT (CISCO Certification Entry Network Technician)
Computer Service Technician Computer Maintenance must be the first course in the sequence.	Computer Maintenance 1 With Lab	Computer Technician Practicum	Practicum in Information Technology 2 or Internship in IT related area.		CompTIA A+ Certification (test 801 and/or 802)
Geological Data Technician Guthrie Center	Business Information Management	Geographic Information Systems (GIS) and Raster Based GIS Systems (taken the same year)	Computer Programming 1 and Computer Programming 2 (taken the same year)	Practicum in Information Technology OR Internship in Data Technician related area	Certification: Microsoft Office Specialist Word
<i>Refer to the Spring Branch ISD High School Program of Studies for more detailed information regarding course descriptions and prerequisites.</i>					

Samples of the professional experiences that students will enjoy in our IT courses:

- building and setting up computers
- configuring routers • setting up small networks
- using commercial design • work with servers and infrastructure
- computer programming • ArcGIS geographical mapping system digital interactive media

Testing for professional certifications are available through many of these courses. Check the pathways table.

SBISD Information Technology courses include: Computer Maintenance, Computer Programming 1 & 2, Networking 1 & 2, Computer Technician, GIS and Raster Based GIS, Digital Interactive Media, Web Technologies, Practicum in Info. Tech. 2, and GC Internships.

For more information, contact your school counselor or:

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Law, Public Safety & Security Cluster

Public Service Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to **grow**? (Job outlook or Wages and Employment on Onet online. Org.)

Do you....

- ✓ have an interest in courtroom proceedings, from lawyer to the judge?
- ✓ have a desire to protect people?
- ✓ want to assist those who are in crisis situations?
- ✓ have a passion to lead others and protect this nation?
- ✓ enjoy watching criminal investigations programs on TV?
- ✓ consider firefighting an appealing career ?
- ✓ have a desire to uphold the U.S. Constitution and the Bill of Rights?



<i>Sample Fastest Growing Law, Public Safety & Security Careers- Salary Ranges in Texas</i>	Bottom 10% & Under	50%	Top 10% & Up
Lawyers	\$59,390	\$121,180	\$187,200+
Police Patrol Officers	\$37,380	\$58,520	\$79,420
Correctional Officers & Jailers	\$30,950	\$38,020	\$49,220
Child, Family & School Social Workers	\$32,320	\$39,260	\$55,850
Emergency Medical Technicians	\$21,980	\$33,790	\$53,920
Firefighters	\$27,840	\$46,690	\$74,280
Detectives & Criminal Investigators	\$39,830	\$74,880	\$118,230
Fire Inspectors	\$37,670	\$55,730	\$80,930
Bailiffs	\$27,100	\$42,420	\$60,340

Investigate the careers in Law, Public Safety & Security!

This nation depends on the rule of law and the Constitution to protect its citizens. Each day, we hear about crimes committed, fires, car accidents, dangerous situations caused by the weather. People are in need of assistance, rescue and protection. If you are drawn to be of service to others in times of need, explore careers in this vital area.

Sample Careers to Consider with a 4-Year College Degree and Higher:

- Judicial Law Clerk
- Intelligence Analysts
- Probation Officers & Correctional Treatment Specialists
- Private Detective
- Emergency Management Directors

With a 2-Year College Degree:

- Fire Investigators
- Transit & Railroad Police

With a Certification and HS Diploma:

- Court Reporter
- Forest Firefighters
- Security Guards



Career Pathways in Law, Public Safety, Corrections & Security

Firefighting Pathway	Firefighter 1 (Must start in 11 th grade.)	Firefighter 2 (12 th grade)	Emergency Medical Technician Basic (12 th grade)		Certifications: TX Firefighter 1, EMT Basic, FCC Radioman, FEMA ICS 100, Open Water Scuba
Law Enforcement and Legal Representation Guthrie Center	Law Enforcement 1 and Court Systems and Practices	Law Enforcement 2 and Criminal Investigation	*Forensic Science (Can be scheduled concurrently with Law Enforcement 2)		

** Satisfies 3rd Year Science Graduation Requirement with required Science prerequisites. Refer to the SBISD High School Program of for detailed course descriptions and prerequisites.*

Some of the professional experiences students enjoy in Law, Public Safety, & Security Courses:

Law Enforcement & Legal Representation: • learn the history, organization and function of local, state, and federal law enforcement • Investigate the scene of a “mock crime”, learn to gather and interpret “evidence”, classify various types of crimes

- operation of police and emergency telecommunication equipment
- courtroom procedures • play the roles of judicial officers, lawyers, witnesses , etc. in a mock trial setting • utilize lab research in Forensics to investigate crimes (Think CSI!)

Firefighting: • firefighter safety and development • proper use of protective equipment, incident reporting and fire science • learn the Texas Commission on Fire Protection rules and regulations • medical care at a basic life support level with an ambulance service • EMT knowledge of communications, transportation and record-keeping.

Law, Public Safety, & Security courses include: Law Enforcement & Court Systems and Practices, Law Enforcement 2 & Criminal Investigations, Legal Research and Writing, Forensic Science, Judicial Internships Career Prep, Firefighter 1 & 2, Emergency Medical Technician Basic Training, EMT-Basic.

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Manufacturing Cluster

Business & Industry Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)



Sample Fastest Growing Manufacturing Careers-Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Engineering Technicians	\$28,840	\$56,040	\$92,820
General & Operations Managers	\$46,080	\$104,960	\$187,200+
Robotics Engineers	\$58,390	\$101,760	\$158,860
Chemical Equipment Operators	\$28,970	\$62,250	\$94,520
Commercial and Industrial Designers	\$36,910	\$61,310	\$113,370
First Line Supervisors of Laborers	\$26,780	\$46,430	\$75,880
Computer Controlled Machine Tool Operators	\$23,060	\$37,640	\$58,730
Sheet Metal Workers	\$21,480	\$36,150	\$59,320
Chemical Plant and Systems Operators	\$41,810	\$70,160	\$93,120

Sample Careers to Consider with a 4-Year College Degree and Higher:

- Industrial Engineers
- Mechanical Engineers
- Aerospace Engineers

With a 2-Year College Degree:

- Electro-Mechanical Technicians
- Aircraft Structure, Surfaces, rigging & Systems Assemblers

With a Certification and HS Diploma:

- Industrial Machinery Mechanics
- Avionics Technicians
- Pourers and Casters, Metal
- Millrights

Do you....

- ✓ have an ability to problem solve?
- ✓ ever imagine a product and are able to figure a way to create it?
- ✓ know that manufacturing provides over 70% of the research and development for the US?
- ✓ have a fascination with welding?
- ✓ enjoy taking things apart to see what makes them work?
- ✓ excel in math and science?
- ✓ enjoy looking at technical and computer magazines?

Find a home for your creative ideas in a career in Manufacturing!

Did you know that the concept for a product like iWatch first appeared in a comic strip in the 1950s? Taking concepts and finding ways to turn them into reality is one part of this career area. Workers in this career cluster include those on the production line assembling the products, to inventors, welders, robotics, construction, to CEOs managing the operation of the companies.

Interested in being the part of the production process? Take a look at Manufacturing and also Engineering.



Career Pathways in Manufacturing

Pathways and Required Courses					
Welding SWHS	Introduction to Welding	Welding 1	Welding 2		American Welding Society D1.1 Welding
<i>Refer to the SBISD High School Program of Studies for detailed course descriptions and prerequisites.</i>					

Some of the professional experiences students enjoy in Manufacturing Courses:

Introduction to Welding: basic welding laboratory principles and operating procedures • hand tool and power machine use • welding power sources
• learn about welding career potentials

Welding 1: learn skills required for employment in metal technology systems

Welding 2: advanced welding concepts and skills • transfer knowledge and skills to a variety of settings and problems



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Navy Junior Reserve Officers Training Corps

Public Service Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job Outlook)

Do you....

- ✓ have what it takes to be a leader of others??
- ✓ Have a desire to join the military?
- ✓ want to take advantage of the career opportunities from gaining an education through the military?
- ✓ long to be fighter and/or commercial airline pilot?
- ✓ want to assist others in their times of need and crisis?
- ✓ want to defend your country?

Hone your leadership skills for whatever career pathway you wish to pursue!

*In NJROTC you will experience leadership opportunities like no other high school program. **There is no military obligation tied to participation in NJROTC.***

*Leadership is one of the main components of this program. Earn the chance to coordinate, direct and lead extra-curricular activities. **Whatever career you choose, this training will be invaluable.** With several years of JROTC Students enlisting in the military may qualify for accelerated advancement & more pay!*



<i>Navy Salaries Examples.</i>	Monthly Salaries	Monthly Salaries	Monthly Salaries
Naval Officers with 0-4 years of service	Pay Grade 0-1 \$2,972-\$3740	Pay Grade 0-3 \$3,963-\$5,287	Pay Grade 0-6 \$6,267-\$7,337
Enlisted Sailors with 0-4 years of service	Pay Grade E-1 \$1,566	Pay Grade E-3 \$1,847-\$2082	Pay Grade E-5 \$2,231-\$2,614
Yearly Salaries Senior Officers (S) & Flag Officers (F)	Least time served		20+ years of service
Navy commanders of vessels (S)	\$59,652		\$101,352
Navy captains of vessels (S)	\$71,556		\$126,684
Navy Rear Admirals (F)	\$96,552		\$167,508
Navy Vice Admirals (F)	\$164,220		\$203,880
Navy Admirals (F)	\$187,764		\$230,880

Students participating in the military have the opportunity to have money provided for college. In addition, they can be trained in a variety of occupations.

There are numerous careers for which the members in the military can be prepared, educated and trained.

Examples of career fields of training in the military:
 Aerospace & Defense; Biotechnology; Business Services; Chemicals; Construction; Energy & Utilities; Financial Services; Healthcare; Internet; Media; Pharmaceuticals; Software & Networking; Telecommunications; Transportation; Security



Career Pathway in the Navy Junior Reserve Officers Training Corps

<p>Navy Junior Reserve Officers Training Corps Guthrie Center (All 4 years must be taken to complete the JROTC Public Services Endorsement)</p>	<p>Naval Science 1 and Physical Education</p>	<p>Naval Science 2 and Student Leadership</p>	<p>Naval Science 3</p>	<p>Naval Science 4</p>	<p>Certification: Potential for Advanced Pay Grade upon Enlistment after Completing 2+ Years; Red Cross First Aid/CPR and AED Certification</p>
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Refer to the SBISD High School Program of Studies on your high school's website for detailed course descriptions and prerequisites.

Some of the professional experiences students enjoy in the NJROTC:

- NJROTC: • NJROTC develops leaders • cadets oversee the coordination of activities and events that include competitions against other NJROTC units in the state
- learn military protocol, drill and marching • be a part of a team such as physical fitness, orienteering, academic, color guard and marksmanship • No military obligation
- scholarship opportunities are possible for those wanting to continue in the military after graduation • field trips to colleges, military bases, and regional competitions!



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Science, Technology, Engineering & Math Cluster

STEM Endorsement

Questions to Ask When Exploring Careers :

1. What careers relate to things I like to do?
2. Show me the \$\$! What are the potential salaries of my careers of interest?
3. Are my careers of interest projected to grow? (Job outlook or Wages and Employment on Onet Online.org)

Do you....

- ✓ have a gift for determining better solutions to scientific and engineering problems?
- ✓ love to determine how mechanical structures operate and are created?
- ✓ have a fascination with creating better modes of transportation?
- ✓ have the ability to envision new inventions and innovations for the future?
- ✓ Excel in the subjects of math and science?

Take the first steps in turning your visions into reality. Explore the career possibilities in STEM!

Many of the world's greatest innovators were visionaries who saw things that had yet to be created. Masters at problem solving, along with tenacity, engineers have advanced civilizations throughout the centuries. Maybe your concepts will lead to major breakthroughs in the future? *Endless possibilities!!!!*

Get started in high school.



Sample Fastest Growing STEM Careers-Salary Ranges in Texas	Bottom 10% & Under	50%	Top 10% & Up
Mechanical Engineers	\$58,050	\$92,330	\$159,200
Economists	\$46,230	\$102,240	\$187,200
Biomedical Engineers	\$46,610	\$85,870	\$124,600
Chemists	\$36,980	\$61,390	\$121,630
Mathematicians	\$18,720	\$53,900	\$164,760
Statisticians	\$41,660	\$74,960	\$121,270
Civil Engineers	\$55,160	\$87,910	\$158,490
Economists	\$46,230	\$102,240	\$187,200+
Microbiologists	\$33,700	\$47,940	\$90,210

Careers to Consider with a 4-Year College Degree and Higher:

- Remote Sensing Technicians
- Cartographers
- Aerospace Engineer
- Bioinformatics Technicians

With a 2-Year College Degree:

- Electrical Drafter
- Automotive Engineering Technician
- Civil Drafters

Certificate or HS Diploma

- Surveying Technicians
- Avionics Technicians



Career Pathways in STEM (CTE)

Pathways and Required Courses					
Civil Engineering-PLTW MHS	Introduction to Engineering Design (IED)	Principles of Engineering	Civil Engineering	*Engineering Design and Development OR Internship in Civil Engineering	Certification: AutoDesk Inventor
Computer Integrated Manufacturing-PLTW MHS	Introduction to Engineering Design (IED)	Principles of Engineering	Computer Integrated Manufacturing	*Engineering Design and Development OR Internship in CIM related area	Certification: AutoDesk Inventor
Digital Electronics-PLTW MHS, SHS, SWHS	Introduction to Engineering Design (IED)	Principles of Engineering	**Digital Electronics	*Engineering Design and Development OR Internship in Digital Electronics	Certification: AutoDesk Inventor
<p><i>Refer to the Spring Branch ISD High School Program of Studies for more detailed information regarding course descriptions, prerequisites, career pathways, endorsements, and certifications.</i></p>					

*Satisfies 3rd or 4th Year Science Graduation Requirement with required prerequisites.

**Satisfies 3rd Year Mathematics Graduation Requirement with required prerequisites.

Samples of the professional experiences and the programs that students will enjoy in our STEM courses:

Introduction to Engineering Design (PLTW) • an overview of the engineering design process • prerequisite for all PLTW courses

Biotechnology • study emerging fields of biotechnology such as agricultural, medical, regulatory and forensics

• use sophisticated lab equipment, perform statistical analysis • study structures and functions of cells, nucleic acids, proteins, and genetics

Civil Engineering (PLTW) • apply math, science, and standard engineering to design residential and commercial civil engineering projects • work with 3D CAD software • study important aspects of construction and building

Computer Integrated Manufacturing (PLTW) • learn about modern manufacturing methods • robotics and automation

• manufacturing processes • computer modeling • rapid prototyping • CNC programming

Digital Electronics (PLTW) • study electronic circuits used to process and control digital signals • analyze, design & build digital electronic circuits

Engineering Mathematics • solve and model robotic design problems • analyze problems involving data acquisition, spatial applications, electrical measurement, and much more with computer programming

Engineering Design and Development (PLTW) • capstone of the PLTW high school engineering course • work in teams, using engineering design processes to research, design to develop an original solution to a valid open ended technical problem

Engineering Mathematics • solve and model robotic design problems • analyze problems involving data acquisition, spatial applications, electrical measurement, and much more with computer programming

Principles of Engineering (PLTW) • a higher education engineering program • study mechanisms, energy, statics, materials, kinematics, computer control systems knowledge of math, science and design used to create solutions to various challenges

Principles of Technology • apply physics concepts and perform lab experimentations using safe practices • scientific field investigations • samples of topics include thermodynamics, electricity, momentum, magnetism, and laws of motion

For more information, contact your school counselor or:

Beverly Litton

Guthrie Center & Career and Technical Education Counselor

Spring Branch Independent School District

The Guthrie Center

10660 Hammerly Blvd., Houston, Texas 77043

Office: 713-251-1303 Fax: 713-251-1315

Sources: Achieve Texas, O*Net Online, Labor Market and Career Information, CareerOneStop.org, U.S. Bureau of Labor & Statistics

Spring Branch ISD Notice of Non-Discrimination

Spring Branch Independent School District does not discriminate on the basis of race, religion, color, national origin, sex, or disability in providing education services, activities, and programs, including vocational programs, in accordance with Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Educational Amendments of 1972; Section 504 of the Rehabilitation Act of 1973, as amended.