Science, Technology, Engineering & Math

Explore Your Future with the Foundation High School Program

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Figuring out what you want to do when you grow up is a challenge, but boy is it worth it! With the Foundation High School Program’s endorsement options, you have the opportunity to explore classes and fields of study that interest you today so you can find your dream job tomorrow. In many of these courses, you will even get to experience what it’s like to work in the jobs that interest you.

Remember: you have options, probably more than you have ever considered. Maybe you’re interested in the medical field, but not sure if you want to be a medical doctor. You could also consider being a Registered Nurse, Medical Lab Technologist, or Nutritionist. Did you know some medical field jobs only require a two-year college degree and certification? Yep, like Cardiovascular Technologist, Veterinary Technician, Diagnostic Medical Sonographer, and Physical Therapy Assistants, just to name a few.

So go exploring! Research your endorsement and career interest options before deciding which paths to pursue. The decisions you make about your education today will affect how well you enjoy your job in the future, how much money you earn, your future lifestyle, and so much more. So think it through, plan your future, and have fun!

Can You Imagine Yourself in this Job?

Chemical Technician

Jobs projected in Texas by 2024: 7,500

You will need: an Associate degree

Typical starting pay is: $29,097 a year

Typical average pay is: $50,437 a year

Turnover: Low

# What is the Foundation High School Program?

The ***Foundation High School Program*** is a detailed plan of 22 credits that you and all your classmates will have to earn in order to graduate from high school. See page 4 for details.

An ***endorsement*** is an option you can add to your high school diploma to show your knowledge and/or skills gained in one of five broad subject matter areas: STEM, Arts and Humanities, Business and Industry, Public Services, and Multidisciplinary Studies. To get an endorsement, you must complete a logical sequence of specific courses approved by your district.

***If you have questions about which endorsement would be best for you, talk to your school Counselor!***

Can You Imagine Yourself in These Jobs?

Architect

Jobs projected in Texas by 2024: 11,430

You will need: a Bachelor’s degree

Typical starting pay is: $46,516 a year

Typical average pay is: $81,783 a year

Turnover: Low

App Developer

Jobs projected in Texas by 2024: 63,120

You will need: a Bachelor’s degree

Typical starting pay is: $64,862 a year

Typical average pay is: $99,827 a year

Turnover: Very Low

## Resources

So … you think you might want to select the Science, Technology, Engineering and Math Foundation High School Program endorsement option? Awesome! Browse through some of the data for job titles found under the STEM endorsement in this booklet to help you decide if this is the right educational and career path for you. For more information on jobs in this career field, you can:

1. Call our 24-hour Hotline at 1-800-822-PLAN (7526)
2. Go to Texas Career Check and click “Explore Careers” at [www.texascareercheck.com](http://www.texascareercheck.com)
3. Visit the LMCI website to see what available products may best serve your needs: [www.texasworkforce.org/labormarket](http://www.texasworkforce.org/labormarket)

We hope that by learning all you can about potential careers in the fields that interest you, you will be empowered to find a career that you love, and that also pays for you to live the way you want once you are living on your own. So enjoy this booklet, explore some options, and don’t hesitate to talk to your parents, family, friends, teachers, counselors, and us at the Texas Workforce Commission if you have questions about your career goals.

## Career Clusters

STEM occupations can be found in all of the following Achieve Texas career clusters.

* Agriculture, Food, and Natural Resources
* Architecture and Construction
* Arts, A/V Technology and Communication
* Business Management and Administration
* Education and Training
* Finance
* Health Science
* Human Services
* Information Technology
* Manufacturing
* Science, Technology, Engineering and Mathematics
* Transportation, Distribution, and Logistics

# Sample STEM Occupations by Emphasis

Below are sample occupations under the STEM endorsement. Not all STEM-related occupations are included here (there are hundreds), and some of those listed below may fall under other endorsements as well. Talk to your school Counselor for more information.

Science

Astronomers

Biochemists/Biophysicists

BioMedical Researcher

Cellular Biologists

Chemists

Environmental Scientists

Food Scientists

Forensic Scientists

Foresters

Geneticists

Hydrologists

Meteorologists

Technology

App Developers

Computer Engineers

Computer Hardware Engineer

Computer Network Architects

Computer Network Specialists

Computer Programmers

Computer Research Scientists

Computer Systems Analyst

Database Administrators

Graphic Designers

Information Security Analyst

Multi-Media Animators

Engineering

Aerospace Engineers

Automotive Engineers

Chemical Engineers

Civil Engineers

Drafters

Electrical Engineers

Industrial Engineers

Marine Architects

Mechanical Engineers

Mining Engineers

Nuclear Engineers

Petroleum Engineers

Mathematics

Accountant

Actuaries

Auditors

Biostatisticians

Budget Analysts

Cartographers

Credit Analysts

Economists

Financial Managers

Loan Officers

Mathematical Technicians

Mathematicians

Health Science

Anesthesiologists

Chiropractors

Dental Hygienists

Family Practitioner

Health Service Manager

Medical Lab Technician

Medical Records Technician

Medical Sonographers

Nutritionists

Optometrists

Pharmacists

Physical Therapists

## Keep in Mind

The career titles listed above are just a fraction of the possible occupation opportunities available within this endorsement area, so be sure to visit TWC’s AutoCoder website to find other job titles that may interest you: <http://autocoder.lmci.state.tx.us>.

* Just enter a job title or a description in the appropriate search box, and you will get a list of the most common title matches.
* Click on the title that best matches the job that interests you, and a catalog of other, closely-related (or interchangeable) job titles will appear.

# Your Foundation High School Program Graduation Requirements

This table shows what every Texas student needs to graduate. Every student must earn the 22 credits under the “Foundation-Only” column. Your parents or guardians will need to give the school district written permission to allow you not to earn an endorsement. Otherwise you must pick an endorsement and earn 26 credits to graduate. Remember that your school district has the authority to establish requirements in addition to those listed here. Check with your school Counselor for more information.

| **Subjects and courses required for Foundation-Only Credits** | **Foundation-Only Credits** | **Foundation + Endorsement Credits** | **Distinguished Level Credits** |
| --- | --- | --- | --- |
| **English*** English I, II and III
* Advanced English course
 | 4 | 4 | 4 |
| **Mathematics*** Algebra I
* Geometry
* Advanced Math course
 | 3 | 4 – All Foundation requirements, plus additional advanced Math course | 4 – All Foundation requirements, plus Algebra II specifically |
| **Science*** Biology
* Integrated Physics and Chemistry
* Advanced Science course
 | 3 | 4 – All Foundation requirements, plus additional advanced Science course | 4 – All Foundation requirements, plus additional advanced Science course |
| **Social Studies*** U.S. History
* U.S. Government (1/2 credit)
* Economics (1/2 credit)
* World History or Geography
 | 3 | 3 | 3 |
| **Physical Education** | 1 | 1 | 1 |
| **Languages Other Than English*** Two credits in the same language
* OR Two credits from Computer Science I, II, and III
 | 2 | 2 | 2 |
| **Fine Arts** | 1 | 1 | 1 |
| **Electives*** Classes available for electives will be based upon the endorsement options selected by the student.
 | 4.5 | 6.5 | 6.5 |
| **Speech*** Demonstrated proficiency
 | 0 | 0 | 0 |
| **Total Credits** | **22** | **26** | **26** |

Students can earn one or more **Performance Acknowledgments**, in addition to any graduation program they follow, for any of the following areas: Dual Credit course; Advanced Placement or International Baccalaureate exam performance; Bilingualism and biliteracy; Earning a nationally or internationally recognized business or industry certification or license; PSAT, ACT-PLAN, SAT, or ACT score. Talk to your school Counselor for specific guidelines.

# Your STEM Endorsement Options

Students interested in earning the STEM endorsement have several options. Once you’ve met your Foundation graduation requirements, you will need to successfully complete additional advanced courses in math and science (one each), plus electives, and choose **one** of the five options below to earn your remaining STEM endorsement credits.

1. Complete consecutive levels [For example: Principles of Engineering followed by Introduction to Engineering Design or Medical Terminology followed by Pharmacology] of four or more Career Technical Education (CTE) courses with the first two being from the same career cluster.
	1. The third CTE credit must be from an advanced course
	2. The fourth CTE credit must come from a class in the STEM career cluster
2. Complete four credits from the following Computer Science course options:
	1. Fundamentals of Computer Science
	2. Computer Science I, II, and III
	3. AP Computer Science
	4. IB Computer Science, Standard Level
	5. IB Computer Science, Higher Level
	6. Discrete Mathematics for Computer Science
	7. Digital Forensics
	8. Game Programming and Design
	9. Mobile Application Development
	10. Robotics Programming and Design
	11. Independent Studies of Technology Applications
3. Complete a total of five mathematics credits by completing:
	1. Algebra I
	2. Geometry
	3. Algebra II
	4. Any two additional courses in which Algebra II is a prerequisite
4. Complete a total of five science credits by completing:
	1. Biology
	2. Chemistry
	3. Physics
	4. Any two additional science courses
5. Successfully complete Algebra II, Chemistry, Physics, and:
	1. Three additional credits from no more than two of the areas listed in options 1 - 4.

Can You Imagine Yourself in These Jobs?

Dental Hygienist

Jobs projected in Texas by 2024: 15,960

You will need: an Associate degree

Typical starting pay is: $60,537 a year

Typical average pay is: $72,313 a year

Turnover: Low

Veterinarian

Jobs projected in Texas by 2024: 5,710

You will need: a degree from an accredited college of veterinary medicine, AND a state license

Typical starting pay is: $60,308 a year

Typical average pay is: $99,879 a year

Turnover: Low

Lab Technician

Jobs projected in Texas by 2024: 15,200

You will need: an Associate degree

Typical starting pay is: $26,767 a year

Typical average pay is: $38,973 a year

Turnover: Low

Pharmacist

Jobs projected in Texas by 2024: 24,610

You will need: a Doctoral or professional degree

Typical starting pay is: $96,452 a year

Typical average pay is: $120,480 a year

Turnover: Low

# The Real Deal

## Using Labor Market Statistics to Filter through Career Options

It is important to think about how much money you’ll earn in any given occupation. But you should consider many other labor market statistics to help you make informed choices.

Check out the information and numbers below for a few jobs in the Science, Technology, Engineering and Math fields to see other important statistics you can discover on the Texas Career Check website. Use this information to help you determine what’s important to you in a career.

Computer-Controlled Machine Tool Operator

You will: operate computer-controlled machines or robots to perform one or more machine functions on metal or plastic work pieces.

* Manufacturing industries employ almost all of these workers.
* Workers learn in apprenticeship programs, informally on the job, and in secondary, vocation, or postsecondary schools.
* Expect stiff competition for these jobs.

Projected Texas employment for 2024: 15,190

Education needed: High School diploma, on-the-job training

2015 Average Annual Wage: $39,065

Turnover: Very Low

Registered Nurse

You will: Assess patient health problems and needs, plan and administer nursing care to ill, injured, convalescent, or disabled patients, and more. Licensing or registration required.

* The largest healthcare occupation, with 2.7 million jobs nationwide.
* About 60 percent of jobs are in hospitals.
* Depending on specialization, may require as little as an Associate degree or as advanced as a Master’s.
* Excellent opportunities, may vary by employment and geographic location.

Projected Texas employment for 2024: 258,880

Education needed: Bachelor’s Degree

2015 Average Annual Wage: $69,891

Turnover: Very Low

Civil Engineer

You will: Plan, design and oversee construction and maintenance of structures and facilities like roads, railroads, airports, bridges and more.

* Bachelor’s degree is sufficient for most starting positions, but some research positions may require a graduate degree.
* Starting salaries are among the highest of all college graduates.
* Continuing education is needed for engineers to keep up with technological advancements.

Projected Texas employment for 2024: 31,340

Education needed: Bachelor’s degree

2015 Average Annual Wage: $97,903

Turnover: Low

Can You Imagine Yourself in this Job?

Environmental Scientist

Jobs projected in Texas by 2024: 6,370

You will need: preferably a Master’s degree, Bachelor’s degree minimum

Typical starting pay is: $45,659 a year

Typical average pay is: $84,553 a year

Turnover: Low

Want more information on jobs? Check out [www.TexasCareerCheck.com](http://www.TexasCareerCheck.com)
to learn about hundreds
more STEM careers!

Explore Your Future!

# Texas Workforce Commission

Labor Market and Career Information

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[www.texasrealitycheck.com](http://www.texasrealitycheck.com)

[www.texasworkforce.org](http://www.texasworkforce.org)

email: lmci@twc.state.tx.us

Equal Opportunity Employer/Program. Auxiliary aids and services are available upon request to individuals with disabilities.

Relay Texas: 800-735-2989 (TTY) and 711 (Voice).