



# WHAT IS STEM?

You might have heard a lot of people talking about STEM lately. In short, STEM is an acronym that stands for four main educational disciplines: science, technology, engineering and math. Eighty percent of the fastest-growing occupational fields depend on skills learned through these four disciplines, including building smartphone apps, developing inner-city transportation plans, designing alternate fuel types and solving complex economic problems.

The National Guard is dedicated to preparing the next generation of STEM pioneers, offering a wide range of jobs that will build these skills and prepare you for a lifetime of rewarding work. And if you want to go to college, the Guard can help with scholarships and additional support to help you get into and pay for the school of your choice.

## WHICH KIND OF STEM PIONEER ARE YOU?

It may feel overwhelming, but with so many options and possibilities, you're sure to find something that fits your unique interests.



**NOT ALL STEM JOBS REQUIRE A COLLEGE DEGREE; HOWEVER, THEY DO REQUIRE THE FOLLOWING SKILLS:**

- + Ability to connect arithmetic, algebraic and geometric thinking
- + Capacity for solving problems in multiple ways
- + Ability to lead others to think, create, reason, solve problems and collaborate
- + Sound reasoning and technical foundation (fractions, percentages, decimals, scientific notation, etc.)
- + Collaboration and human interaction
- + Creativity and innovation
- + Memorization

*(Source: Edutopia.com – <http://www.edutopia.org/blog/stem-careers-students-preparation>)*



# SCIENCE PIONEER

You're eager to be at the forefront of discoveries and explorations. You're a tinkerer, a scientist who's ready to do something brilliant. The National Guard's science pioneers are trained to solve complex problems ranging from environmental and geographical challenges to toxicological, chemical, biological, radiological and nuclear issues. Here are some of the scientific positions you'll be eligible for as a member of the National Guard.



## CIVILIAN CAREERS IN SCIENCE:

- ➔ Toxicologist
- ➔ Physicist
- ➔ Geophysicist
- ➔ Chemist
- ➔ Biochemist/Biophysicist

## SCIENCE JOBS IN THE NATIONAL GUARD:

### **68A BIOMEDICAL EQUIPMENT SPECIALIST**

Complete maintenance and repairs on all medical equipment, performing hydraulic, pneumatic, compressed gas and steam, electrical, optical, and radiological functions.

### **640 VETERINARY CORPS OFFICER**

Treat government-owned animals and the valued pets of personnel. Ensure the safety and security of food supplies, both domestic and abroad.

### **74D CHEMICAL OPERATIONS SPECIALIST**

Operate specialized equipment; train, advise and supervise the proper use and maintenance procedures of such equipment.



**740 CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) OFFICER:** Command a chemical unit platoon employing state-of-the-art chemical, biological, radiological and nuclear defense systems. Plan and direct vulnerability assessments, and reconnaissance and force protection operations.



**92L PETROLEUM LABORATORY SPECIALIST:** Direct and conduct laboratory tests on petroleum, oil and lubricant products. Apply fire prevention and safety control procedures while handling volatile products.



**94H TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT SUPPORT SPECIALIST:** Perform and supervise duties involving the calibration and repair of measurement and diagnostic equipment, as well as calibration standards and accessories.



**12Y GEOSPATIAL ENGINEER:** Collect, analyze and distribute geospatial data of the terrain from satellite imagery, aerial photography and field reconnaissance to assist in disaster relief and homeland security missions.



# TECHNOLOGY PIONEER

You're always one step ahead of technology. You know the ins and outs of how things work—whether it's the newest smartphone, tablet or operating system. From satellite communications to network infrastructure to weather and air traffic control systems, the National Guard's technology pioneers support global communications and intelligence efforts. As part of this elite group, you will learn how to design, build, manage, maintain and integrate telecommunications and information systems, as well as gather and analyze highly sensitive data.

## TECHNOLOGY JOBS IN THE NATIONAL GUARD:

### **35N SIGNALS INTELLIGENCE ANALYST**

Supervise, analyze and report intercepted foreign communications at all echelons. Assist in synchronizing intelligence, surveillance and reconnaissance. Produce combat, strategic and tactical intelligence reports.

### **29E ELECTRONIC WARFARE SPECIALIST**

Perform and supervise action involving the use of electromagnetic energy.

### **25B INFORMATION TECHNOLOGIES SPECIALIST**

Supervise, install and perform maintenance on information processing systems, peripheral equipment and associated devices in mobile and fixed facilities. Construct, edit and test computer system programs.

 **25Q MULTICHANNEL TRANSMISSION SYSTEMS OPERATOR – MAINTAINER:** Direct and perform maintenance on communications systems, communications security devices and associated equipment. Install and operate power generators.

 **94M RADAR REPAIRER:** Perform and supervise maintenance on ground-based sensor and radar electronic assemblies and associated equipment.

 **25S SATELLITE COMMUNICATION SYSTEMS OPERATOR – MAINTAINER:** Supervise, install, operate and maintain strategic and tactical multichannel satellite communications ground terminals, systems, networks, communication security (COMSEC) devices and associated equipment.

 **25L CABLE SYSTEMS INSTALLER – MAINTAINER:** Install, operate and perform maintenance on cable and wire communications systems, devices and associated equipment. Complete preventive maintenance checks on assigned vehicles and generators.



## CIVILIAN CAREERS IN TECHNOLOGY:

- ➔ Computer Scientist
- ➔ Database Administrator
- ➔ IT Consultant
- ➔ Network Engineer
- ➔ Software Developer
- ➔ Systems Analyst



# ENGINEERING PIONEER

You enjoy taking things apart and putting them back together—just to understand how they work. The National Guard's engineering pioneers receive hands-on training far beyond the scope of traditional civil engineers. You'll become an expert in mobility and counter-mobility, adept at anything from topographic survey to construction and demolition of buildings in the field. You'll learn how to make things move, ensuring the Guard can transport people and supplies to communities that need help during natural disasters. You will make a difference in the lives of others, improving safety, access and protection of civilians across the nation.



## CIVILIAN CAREERS IN ENGINEERING:

- ➔ Civil Engineer
- ➔ Computer Engineer
- ➔ Electrical Engineer
- ➔ Nuclear Operations Technician
- ➔ Structural Engineer
- ➔ Transportation Engineer

## ENGINEERING JOBS IN THE NATIONAL GUARD:



### 12B COMBAT ENGINEER

Manage, serve and assist in providing engineering support to forces. Operate armored vehicle-launched bridges and large-scale earthmovers.



### 12H CONSTRUCTION ENGINEERING SUPERVISOR

Manage the construction, repair and utility services of buildings, fixed bridges, port facilities, pipelines, tanks and related equipment.



### 12N HORIZONTAL CONSTRUCTION ENGINEER

Supervise construction equipment and crew maintenance of equipment. Direct and train members on quarry, paving and plant equipment operations.



**12W CARPENTRY AND MASONRY SPECIALIST:** Perform heavy carpentry, structural steel and masonry duties. Fabricate, construct, maintain and repair all framing and rigging devices, trusses and other structural assemblies.



**12R INTERIOR ELECTRICIAN:** Supervise and perform installation and maintenance of interior electrical systems and equipment, reading blueprints and wired plans.



**12T TECHNICAL ENGINEERING SPECIALIST:** Supervise and participate in construction site development. Direct technical investigations, surveying, drafting, quality control inspections and development of construction plans and specifications.



**12O ENGINEER OFFICER:** Provide support in full spectrum of engineer duties. Help build structures, develop civil works programs and work with natural resources, as well as provide support in the field.



**21X GENERAL ENGINEERING SUPERVISOR:** Supervise general engineering activities related to all construction and utility operations. Assist engineering manager in construction planning, scheduling and material estimating.



**18C SPECIAL FORCES ENGINEER SERGEANT:** Follow conventional and unconventional tactics and techniques in combat engineering.



# MATH PIONEER

You like to crunch numbers. You're a master at solving puzzles, uncovering patterns and understanding formulas. You're constantly moving forward, always searching for the next challenge. Get more advanced skills that will prepare you for your future. The National Guard's math pioneers learn how to use analytical techniques and mathematical models to formulate and solve complex problems—breaking codes, analyzing foreign intelligence communications and using statistics to predict possible outcomes.



## CIVILIAN CAREERS IN MATH:

- ➔ Air Traffic Controller
- ➔ Atmospheric Scientist
- ➔ Economist
- ➔ Market Researcher
- ➔ Mathematical Science Professor

## MATH JOBS IN THE NATIONAL GUARD:

### **15Q AIR TRAFFIC CONTROL OPERATOR**

Manage air traffic control services including visual flight rules, instrument flight rules and special visual flight rules.

### **98G CRYPTOLOGIC LINGUIST**

Manage and oversee the detection, capturing, identification, exploitation and analysis of foreign communications using signals equipment. Translate and summarize the intercepted communications to use against the enemy.



**35P CRYPTOLOGIC COMMUNICATIONS:** Manage and perform the detection, identification, exploitation and analysis of foreign communications using signals intelligence and electronic systems. Translate and analyze foreign communication transmissions.



**98H COMMUNICATIONS LOCATOR/INTERCEPTOR:** Lead detection, identification and exploitation of foreign communications by utilizing cutting-edge signals intelligence and electronic equipment.



**35N SIGNALS INTELLIGENCE ANALYST:** Supervise, analyze and report intercepted foreign communications at all levels of command. Assist in synchronizing intelligence, surveillance and reconnaissance. Produce combat, strategic and tactical intelligence reports.



**98C SIGNALS INTELLIGENCE ANALYST:** Direct and perform analysis and reporting of intercepted foreign communications at corps, division and echelon above corps. Produce combat, strategic and tactical intelligence reports.