

# CAREER EXPLORER

The Education- and  
Career-Planning Guide  
For DoDEA Students

## Discover Your Future

Learn about Career Clusters and Pathways  
that help you prepare for the world of work.

- What is Professional Technical Studies?
- Straight Talk from Students
- Seven Steps to Success
- Careers that Work for You
- Hot Jobs and Salary Information

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*Linking Your Education to the World of Work*

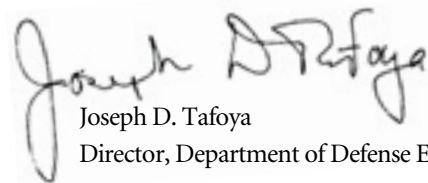
# Dear DoDEA Student,

**W**hatever your individual interests, the time to start preparing for your future is now, in your high school years. Success in life is defined many different ways; it seldom happens by accident. Now is the time to explore your pathways to success.

Your DoDEA education will help prepare you for all the rewards of the world of work. The academic rigor and scope of the DoDEA curriculum will provide you with the basic skills to pursue any profession. This publication, *Career Explorer*, is one of many tools that we provide to help you start planning for a career. Use this guide to start thinking about your skills, aptitudes, and interests.

First, this guide explains the concept of career clusters, which are broad areas of study corresponding to different fields (such as business, health care, the arts, or manufacturing). Each cluster is then explained in detail, with examples of the types of jobs it includes and why one of them might be a good fit for you. Then, you'll read about what courses of study, or pathways, you can take right now in each cluster to prepare you for the jobs that most interest you. Finally, this guide details learning opportunities that might be open to you outside the classroom and the kinds of additional education and training you can pursue after high school: four-year college, two-year college, the military, or some other employment or education option.

I wish you success and promise you support. The Department of Defense Education Activity is with you every step of the way.

  
Joseph D. Tafoya  
Director, Department of Defense Educational Activity



## Discover Your Future

The U.S. Bureau of Labor Services projects 56 million jobs for workers who are entering an occupation for the first time between 2002 and 2012. How many of those jobs are right for you? Use this guide to learn more about career clusters and pathways so that you can begin exploring your many options now. We're confident that what you do today will help prepare you for your future career tomorrow.

Front cover: Professional Technical Studies students from Ft. Campbell High School in Ft. Campbell, Kentucky. Left to right: Andrew Porterfield, Nicole Hockenberry, and Jenna Smith. Photo by Mark Mosrie.

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# Why Professional Technical Studies Now?

**P**icture yourself in five years, or even ten. See yourself as a success. Now rewind the tape. How did you get there? It probably wasn't luck alone. If you left your future up to fate and just waited to see what would fall in your lap, it would be like turning on the radio and listening to whatever happens to be playing. You're basically stuck with whatever you get and you just hope you like some of it. But if you decide to take charge of your destiny, that's another matter entirely. It's like donning an MP3 player downloaded with your favorite songs. When you design your destiny, you make choices, explore options, and take advantage of opportunities that propel you along a path filled

with possibilities. The key is using your education to point you in the right direction and to inspire you to keep moving forward. That's what Professional Technical Studies is all about.

Professional Technical Studies is the DoDEA program that offers career-related courses to students in middle and high schools. You'll be taking coursework geared to prepare you for the potential careers that interest you the most – be that multimedia mogul or medical researcher, architect or artist, entrepreneur or engineer. The program is practical. No-nonsense. And most importantly, the curriculum and the information you study grows and changes with the times, so you can stay ahead of the curve in this fast-paced world.

Professional Technical Studies breeds success on many levels. First, students who take Professional Technical Studies courses have a lower drop-out rate and a higher graduation rate. And students who graduate with an emphasis in Professional Technical Studies programs earn significantly more money on average than students who pursue a more traditional high school education. Over time, that earnings gap widens.

If you want to get right to work, you can choose pathways that will give you the training you need (and maybe even special certification) to get a great job right out of high school, earning real money and with plenty of potential for advancement. Take your pick – thanks to technology growing at an exponential pace, more specialized trades exist today than ever before.

More than half of those who graduate from high school with a background in Professional Technical Studies go on to pursue higher education, including both two- and four-year postsecondary degrees. Coming from a Professional Technical Studies program, you'll have a better idea of what you want to study in

## What are Career Clusters?

**Career Clusters help you acquire the knowledge and skills you need to reach your personal career goals.**

**T**hey organize what you learn in school around specific professional fields such as Government & Public Administration and Hospitality & Tourism. Information Technology, for example, focuses on professions that require highly technical training, while Human Services emphasizes occupations that involve people skills. DoDEA recognizes these 11 Career Clusters but not all are offered in all schools or communities. Ask your guidance counselor which pathways are available at your school.

**For a sampling of occupations that you might choose to pursue, check out "33 Career Choices" on page 6.**



*Students who graduate with an emphasis in Professional Technical Studies programs earn significantly more money on average than students who pursue a more traditional high school education.*



college and you'll be better prepared to use your degree once you earn it. Some pathways might even allow you to earn that degree quicker through advance placement, saving money on tuition and getting into the job market quicker.

Of course, chances are that the job you eventually retire from decades from now doesn't even exist at the present moment. The average worker today will have more than 11 jobs during his lifetime! New jobs and even entire new career fields are born constantly. But don't let that intimidate you. Professional Technical Studies may help you focus your interests, but it also teaches you how to be flexible in your career field so you're ready for the future. With this program, you'll be able to make a difference in the world (or even just in your community) because you'll have the background to anticipate future needs and to recognize new opportunities, not to mention

the skills for honing your talents to suit them.

Professional Technical Studies works because it's not just about learning theory. It's about the real world. It's about learning by doing – getting out there and seeing what these careers are really like, what they really involve, what skills they're likely to require, and whether or not you have the aptitude for them. It's about networking with the people who do what you might want to do to find out as much as you can about their field. This program will give you the chance to learn vital skills outside the classroom through internships, job shadowing, part-time jobs, or maybe even volunteer work. You'll also have a chance to experiment with different career options to see what you like best, and you'll have the chance to change your mind if a pathway you choose doesn't fit you as well as you'd hoped. By the time you graduate from high school, you'll have solid ideas about the jobs available to you because you will have



spent time as an insider. You'll have more confidence in yourself and in your future. And you'll be better prepared to make your way in the world.

# DoDEA Career Clusters

DoDEA's 11 career clusters are based on those developed by the U.S. Department of Education. The career pathways for each cluster are developed by DoDEA. Listed below are the career pathways available within the DoDEA school system.



Designing, managing, building, and maintaining the built environment.

- High School Pathway**
- Design/Pre-Construction



Creating, exhibiting, performing, and publishing multimedia content.

- High School Pathways**
- Audio & Video Technology & Film
  - Journalism & Broadcasting



Organizing, directing, and evaluating functions essential to productive business operations.

- High School Pathways**
- Administration & Information Support
  - Business, Financial Management & Accounting
  - Management
  - Marketing



Executing governmental functions at the local, state, and federal levels.

- High School Pathway**
- National Security (JROTC)



Providing diagnostic and therapeutic services, health informatics, support services, and biotechnology research and development.

- High School Pathway**
- Therapeutic Services



Managing restaurants and other food services, lodging, attractions, recreation events, and travel-related services.

- High School Pathways**
- Lodging
  - Restaurant & Food & Beverage Services



Providing for families and serving human needs.

- High School Pathway**
- Personal Care Services



Designing, supporting, and managing hardware, software, multimedia, and systems integration.

- High School Pathways**
- Information Support & Services
  - Interactive Media
  - Programming/Software Engineering
  - Network Systems



Processing materials into intermediate or final products.

- High School Pathway**
- Manufacturing Production Process Development



Performing scientific research and professional technical services.

- High School Pathway**
- Engineering & Technology



Managing movement of people, materials, and goods by road, pipeline, air, rail, and water.

- High School Pathways**
- Facility & Mobile Equipment Maintenance
  - Sales & Service



## What are Career Pathways?

Each career cluster contains different areas of concentration, or career pathways. While different schools offer different courses of study, every DoDEA high school offers a range of career pathways within the career cluster system. Each pathway corresponds to a different career destination and lays out a different pathway to career success, beginning with your high school course work and continuing through education after high school in college, in the military, or on the job.

Throughout this book, you can see several maps for pathways offered in the DoDEA system. The maps include not just coursework, but also high school activities, job and volunteer experiences, and your education after high school. Use the maps to see how to lay out a clear path to success in the area of your choice. Career planning is a very personal experience – your career map won't be the same as your classmate's or your best friend's. That's okay – you deserve a future that is customized to your talents and abilities.

*Note: While different schools offer different courses of study, no single school offers all clusters and pathways.*

## About this chart

This chart is a sampling of 33 of the occupations within the career cluster system. The list includes three professions from each cluster and is listed from highest to lowest salary. For more information about any occupation, check out the Occupational Employment Statistics (OES) on the U.S. Department of Labor web site ([www.bls.gov/oes/home.htm](http://www.bls.gov/oes/home.htm)).

The OES program produces employment and wage estimates for over 800 occupations. These are estimates of the number of people employed in certain occupations, and estimates of the wages paid to them. These estimates are available for the nation as a whole, for individual states, and for metropolitan areas. Here are explanations for the abbreviations and symbols used in this chart.

### Education Requirement Abbreviations

- AD** – Two-year associate's degree
- AP** – Apprenticeship
- BD** – Four-year bachelor's degree
- DD** – Doctorate degree
- HS** – High school diploma or GED
- MA** – Master's degree
- NO** – No high school diploma needed
- OJT** – On-the-job training
- VC** – Vocational certificate

★ Occupation is among the highest-paying in its cluster in the U.S.

▲ Occupation is among the fastest-growing in its cluster in the U.S.

▼ Number of jobs in occupation is shrinking

Source for chart (unless otherwise noted):  
Occupational Employment Statistics

1 The minimum educational attainment required to enter the profession. Occupations may have different entry-level jobs for those with different degrees.

2 The expected percentage increase or decline in the number of positions in the profession in the U.S. through 2012.

3 Mean salary

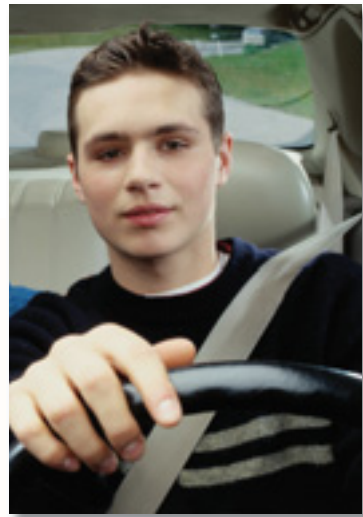
# 33 Career Choices

Check out the variety of careers available in the world of work.



Occupation	DoDEA Cluster	Required Education <sup>1</sup>	Job Growth <sup>2</sup>	Salary <sup>3</sup>	Occupation Description
Physician	Health Science	DD	19%	★ \$ 137,610	Diagnoses and treats human diseases and injuries.
Airline Pilot	Transportation, Distribution & Logistics	BD	19%	★ \$ 129,620	Pilots and navigates the flight of multi-engine aircraft in regularly scheduled service for the transport of passengers and cargo.
General Manager or Top Executive	Business, Management & Administration	BD, MA, DD	17%	★ \$ 117,230	Works with other executives to formulate policies and direct operations of business, government agencies, and educational institutions.
Judge	Government & Public Administration	BD, OJT	9%	★ \$ 89,360	Arbitrates, advises, adjudicates, or administers justice in a court of law.
Nuclear Engineer	Science, Technology, Engineering & Math	BD, MA, DD	0%	★ \$ 88,760	Conducts nuclear engineering research or applies nuclear science theory to problems concerned with nuclear energy and waste disposal.
Public Relations Manager	Business, Management & Administration	BD, OJT	23%	★ \$ 83,490	Plans and directs public relations programs designed to create and maintain a favorable public image for employer or client.
Personal Financial Advisor	Human Services	BD	35%	★ \$ 83,060	Assesses clients' assets, liabilities, cash flow, insurance coverage, tax status, and financial objectives to establish investment strategies.
Computer Software Systems Engineer	Information Technology	BD	▲ 45%	★ \$ 82,160	Researches, designs, develops, and tests operating systems-level software for a variety of specific and general computing applications.
Mathematician	Science, Technology, Engineering & Math	BD, MA, DD	▼ -1%	\$ 81,500	Conducts research in fundamental mathematics or in application of mathematical techniques for science, management, and other fields.
Aerospace Engineer	Transportation, Distribution & Logistics	BD, MA, DD	2%	\$ 80,460	Performs a variety of engineering work in designing, constructing, and testing aircraft, missiles, and spacecraft.
Architect	Architecture & Construction	BD	17%	★ \$ 66,230	Plans and designs structures, such as private residences, office buildings, theaters, and factories.
Fashion Designer	Arts, A/V Technology & Communications	BD	11%	★ \$ 64,150	Designs clothing and accessories, may develop the line of color and kinds of materials.
Physical Therapist	Health Science	MA	35%	\$ 63,690	Assesses, plans, organizes, and participates in rehabilitative programs that improve mobility, relieve pain, and increase strength.
Database Administrator	Information Technology	BD	44%	\$ 63,460	Coordinates changes to computer databases; tests and implements the database, applying knowledge of database management systems.
Dental Hygienist	Health Science	AD	43%	\$ 59,790	Cleans teeth and examines oral areas, head, and neck for signs of oral disease. May educate patients on oral hygiene and take or develop X-rays.
Geographer	Science, Technology, Engineering & Math	BD, MA	20%	\$ 56,300	Studies nature and use of areas of earth's surface and conducts research on physical aspects of a region.
Flight Attendant	Human Services	OJT	16%	★ \$ 51,160	Provides personal services to ensure the safety and comfort of airline passengers during flight.
Curator	Government & Public Administration	MA	17%	\$ 47,920	Administers affairs of museum and conducts research programs. Directs research, public service, and instructional activities of institution.
Manager of Production & Operating Workers	Manufacturing	OJT	10%	★ \$ 47,760	Supervises and coordinates the activities of production and operating workers.
Police Patrol Officer	Government & Public Administration	OJT	▲ 25%	\$ 46,600	Maintains order, enforces laws and ordinances, and protects life and property in an assigned patrol district.
Hotel/Motel Manager	Hospitality & Tourism	AD, BD, OJT	7%	★ \$ 45,720	Plans, directs, or coordinates activities of an organization or department that provides lodging and other accommodations.
Model Maker, Metal & Plastic	Manufacturing	OJT	15%	★ \$ 44,870	Sets up and operates machines to make working models of metal or plastic objects.
Computer Support Specialist	Information Technology	AD	30%	\$ 43,620	Provides technical assistance to computer system users.
Graphic Designer	Arts, A/V Technology & Communications	BD	22%	\$ 41,910	Designs or creates graphics to meet a client's specific commercial or promotional needs, such as packaging, displays, or logos.
Reporter	Arts, A/V Technology & Communications	BD, MA, OJT	6%	\$ 39,050	Collects and analyzes facts about newsworthy events and writes stories for newspaper, news magazine, radio, or television.
Legal Secretary	Business, Management & Administration	HS, VC	19%	\$ 38,870	Performs secretarial duties utilizing legal terminology, procedures, and documents. May also assist with legal research.
Heating & Cooling Technician	Architecture & Construction	OJT, HS, AD	▲ 32%	\$ 38,410	Installs or repairs heating, central air conditioning, or refrigeration systems.
Executive Chef	Hospitality & Tourism	AD, BD, OJT	16%	\$ 34,870	Directs the preparation, seasoning, and cooking of salads, soups, fish, meats, vegetables, desserts, or other foods.
Machinist	Manufacturing	OJT	8%	\$ 34,790	Operates machine tools to produce precision parts and instruments. May also fabricate, modify, or repair mechanical instruments.
Cement Mason	Architecture & Construction	HS, OJT	▲ 26%	\$ 34,070	Smooths and finishes surfaces of poured concrete, such as floors, walks, sidewalks, roads, or curbs.
Fitness Trainer & Aerobics Instructor	Human Services	VC	▲ 44%	\$ 31,170	Instructs or coaches groups or individuals in exercise activities and the fundamentals of sports.
Travel Agent	Transportation, Distribution & Logistics	AD, BD	▼ -14%	\$ 30,010	Plans and sells transportation and accommodations for travel agency customers.
Bartender	Hospitality & Tourism	NO, AP, OJT	9%	\$ 17,360	Mixes and serves drinks to patrons, directly or through wait staff.

# Creating Your Career Roadmap: Seven Steps to Your Destination



Some people have jobs.

Others have careers.

What's the difference between "just a job" and a satisfying, enjoyable career that truly fits your interests, talents, and goals? The answer is planning. In fact, a little planning now can take you a long way toward a successful future.

*The idea of planning today for your career tomorrow may seem confusing, especially since your family's military obligations may mean that you change schools during your teen years. But the good news is that you have a partner to guide you and stay with you every step of the way, even if you move.*

It's called a **Six-Year Plan**, and its job is to lead you through a career planning process from start to finish. All DoDEA students have the opportunity to use a Six-Year Plan beginning in middle school, but it's never too late to start one. Instead of looking at your Six-Year Plan as something teachers and counselors are making you do, think of it as a customized, personalized roadmap to the future. And think of yourself as the driver. To reach your final career destination, follow these seven steps and you'll be ready to create a Six-Year Plan that will get you on your way.

## 1. Get To Know Yourself

Begin your planning by taking some time to get to know yourself better. It has probably been clear to you that there are activities and topics that really capture your attention and others that don't do much for you. This is normal; everyone has unique interests, passions, talents, strengths, and, yes, areas of weakness. Giving some thought to who you are is an important part of your early career planning.

Your parents, teachers, and counselors can help you create a basic list of likes and dislikes, and there are special tests and assessments

you can take that can give you an even clearer picture of where your strengths and weaknesses lie. In fact, one of the most popular assessments is designed by the military. It's called the Armed Services Vocational Aptitude Battery (ASVAB). There are other, similar "get to know yourself" tests available through your school and even online. (See "Resources" on page 31.)

## 2. Go Career Shopping

The next step is to learn what careers are available to you. After all, trying to squeeze yourself into the wrong job can be like wearing the wrong size shoes: painful. That's why this planning point is so helpful; now is the time to shop around for careers that will fit you. You will likely be excited to learn that there are a huge variety of careers out there, meaning you have lots of choices.

Talk to your teachers and guidance counselor about resources available at your school. The Internet and your school information center will be great sources to help you get a fast start. After you have identified careers of interest, contact professional associations and visit more targeted web sites to get in-depth information.

## 3. Give Yourself a Job Interview

This guide is designed to introduce you to professional opportunities. Read the descriptions of each cluster to discover what fields might be of interest to you. Along the way, ask yourself questions to find out whether a particular career might be for you.

Questions to ask in learning more about a particular career include:

- In what specific ways does this job match up with what I already know about my own interests, talents, and goals?
- Are there different types of jobs within this field that give me the opportunity for career growth?
- What type of education, training, or certification is required to work in this field?
- Does this career offer the opportunity to earn the kind of salary I would like to make?
- Are there likely to be jobs available in this career field when I am ready to begin working?

## 4. Make Preparations for Education

Once you have a list of possible careers in mind, the next planning step is to learn what type of education, training, or certification you will need to work in the jobs that interest you. Some jobs – such as teaching and business management – may require a four-year degree at a traditional college or university, and others – practicing medicine or law – require graduate degrees beyond college. A growing number of highly rewarding jobs do not require a traditional college degree. These careers may require a two-year degree from a technical college or special certifications, co-ops, and internships that can be pursued while still in or directly out of high school. Plus, the military offers many training and educational options that you can pursue while earning a salary.

With help from your parents, teachers, and counselors, your Six-Year Plan will guide you through choosing pathways and courses offered in high school, as well as programs like co-ops, practicum experiences, and internships. Your Six-Year Plan also helps



you decide which tests you may need to take before high school graduation, such as the PACT, PSAT, SAT, or ACT, and offers space for you to list all your extracurricular activities, sports, awards, recognitions, community service, and hobbies, all of which may help you qualify for financial aid, college admission, entry into training or certification programs, or the job market.

## 5. Talk About It

Exploring and deciding on a career is one of the most meaningful things you will ever do. That's why it's important to discuss your plans with the people who care about you and your future. Parents, teachers, counselors, and coaches can all give you valuable feedback on your career planning process. Take the time to talk with the important adults in your life about the things you have learned about yourself and the jobs that interest you.

Not only can these people offer you valuable feedback on your strengths, skills, and interests, they can also assist you in finding additional career exploration resources and in setting up experiences that can help you make choices, including meetings with people working in the fields that interest you, internships, job shadowing opportunities, and more.

Make the most of your time with your guidance counselor and teachers by coming to these discussions prepared. Take some time to write down what you have learned in your planning process so far and ask for guidance in adding this information to your Six-Year Plan.

## 6. Decisions, Decisions

You've done your research. You've gotten feedback from people whose opinions you trust. Now it's time to commit to some choices that will help you get where you want to go, and your Six-Year Plan can help you organize these choices. The Six-Year Plan offers slots to fill in your goals, as well as the courses that will support your career interests. Write down the courses you plan to take during high school, realizing that you can always adjust and modify your Six-Year Plan as you progress. You should also add your choices for out-of-class experiences, including extracurricular activities, sports, co-ops, job shadowing, internships, and practicum experiences. Be sure to add any unique experiences or opportunities that have come with life as part of a military family or from living overseas.

## 7. Be Flexible

Researching careers and planning for your future isn't something with a definitive end point. It's an ongoing process that you will begin as a young person and continue to update and evolve for the rest of your working life. That's why it's good to think of career planning as a journey, rather than a destination. Even now, make it a habit to regularly go over your Six-Year Plan as your interests, talents, and passions grow and change. Talk to your guidance counselor, parents, and teachers about sitting down with you at least twice each year to review your progress and tweak your plan. The plan you create will carry you on to other education, the military, an apprenticeship, or the job market.

# What Is A Six-Year Plan?

DoDEA requires all students from the seventh through the twelfth grades to create Six-Year Plans. During seventh grade, students fill out their intended courses, extracurricular activities, and postsecondary goals with the help of counselors and parents. The plan is reviewed at least twice during each school year and is changed as necessary. The idea is to get students into the habit of planning early and often, so that their education experience is as fulfilling and useful as possible.

## Sample Six-Year Plan

Student Name: Abigail Sanders, 9th grader  
 School Name: Independence Middle School  
 Pathway Endorsement: National Security **2**  
 Postsecondary Plans: 4-Year College or University  
 Career Goals: Military/Government Service **1**

**EXTRACURRICULAR ACTIVITIES**  
 Student Clubs: Student Government, Soccer  
 Work Experience: Baby Sitting, Job Shadowing  
 Community Activities: Girl Scouts **3**

Subject Area/Credit Requirement for Graduation	Until 2007	2008 and Beyond	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
Language Arts	4.0	4.0	English Language Arts 7	English Language Arts 8	English Language Arts 9	English Language Arts 10	English Language Arts 11	English Language Arts 12
Social Studies	3.0	3.0	World Geography 7	U.S. History 8	World Regions	World History	AP U.S. History	U.S. Government
Mathematics	3.0	3.0	Mathematics 7	Algebra I	Geometry	Algebra II	Math Analysis	
Science	3.0	3.0	Integrated Science 2	Integrated Science 3	Biology	Chemistry	AP Chemistry	AP Physics
Foreign Language	2.0	2.0	Spanish I	Spanish II	Spanish III	Spanish IV <b>4</b>		
Professional Technical Studies	2.0	2.0	Computer Apps		JROTC I	JROTC II	JROTC III	JROTC IV
Fine Arts	1.0	1.0	Art 7	Chorus M			Photography	
Physical Education	1.0	1.5	Physical Ed 7	Physical Ed 8	Physical Education	Conditioning		
Health	0.5	0.5		Health Ed 8		Health		
Electives	4.5	6.0 <b>5</b>					WordProcess Sfwr App/ Spreadsheet Sfwr App	Career Practicum Yearbook

- Your plans for career preparation after high school.
- The pathway endorsement is an emphasis in a technical field of study you plan to earn. Ask your guidance counselor which one is right for you.
- Extended learning you plan to pursue, such as job shadowing, school clubs, or community activities.
- Courses you will take from grades 7 through 12. You fill in the specific classes your school offers.
- Minimum high school graduation requirements. All courses in high school, plus any foreign language, Algebra I, or Geometry courses taken in middle school, count as credit toward graduation.

The next 14 pages provide overviews and sample pathway maps for the 11 career clusters in the DoDEA system. Use the information as inspiration for your Six-Year Plan.

## BUILD YOUR FUTURE

# Architecture & Construction

Architecture and construction involves much more than hard hats and blue prints. It's about having a vision, putting it on paper, and then seeing it physically take shape before your eyes. It's about being handy and building things from scratch. It's about seeing the big picture, thinking in 3-D, working outdoors, and being part of a team – not to mention sometimes leading the team, too. If this sounds like you, architecture and construction might be a good fit.

If you're highly motivated and a self-starter, take note: construction is one field where you can start as an apprentice and end up owning and operating your own firm. One recent study showed that almost 6 percent of graduates in construction become owners or part owners in ten years, and more than 20 percent reach that level in 15 years.

The Architecture & Construction cluster covers a wide range of careers, starting with those of skilled hands-on tradespeople, who actually build buildings (such as carpenters, roofers, brickmasons, electricians, and plumbers). It also includes the people who keep those buildings running smoothly

(such as heating and cooling technicians and general maintenance mechanics). Creative individuals who design structures and their environments (including architects and landscape architects) are part of the mix, as are those with special skills (such as historical restoration). Some of these opportunities are open to high school graduates, while others require two- or four-year degrees.

Opportunities in architecture and construction are growing. Because older workers are retiring faster than young workers can replace them, 14 million new construction workers will be required in this country by the year 2015. Those with computer skills are in high demand, since much of the industry now relies on high technology (such as lighting and heating and cooling systems for large office buildings, some of which rely on complex automated technologies like robotics). Even during periods when new construction isn't booming, there's always a need to keep the buildings that do exist well maintained.

Women will find an increasing number of opportunities in these fields. In fact, nearly one in ten workers in construction is a woman. More than one-quarter of the nearly one million women in construction nationwide hold high-paying managerial and professional positions – and this number is growing. A study by the Center for Women's Business Research, "Women-Owned Businesses in 2002: Trends in the U.S. and 50 States," showed that the number of women-owned construction companies rose by 36 percent from 1997 to 2002.

Pathways in this career cluster include:

- Design/Pre-Construction

"I have taken computer animation, graphic arts, yearbook, and engineering classes. I feel comfortable with simulation programs, which will be a benefit in college and in life after college."

Alek Castelain,  
 Design/Pre-Construction,  
 Lakenheath High School, England,  
 Class of 2007

## Architecture & Construction Professions 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Heating & Air Conditioning Mechanic and Installer . . . . .	32%
2. Tile and Marble Setter . . . . .	27%
3. Cement Masons and Concrete Finisher . . . . .	26%
4. Manufactured Building and Mobile Home Installer . . . . .	23%
5. Landscape Architect . . . . .	22%
6. Drywall and Ceiling Tile Installer . . . . .	21%
7. Plumber/Pipefitter/Steamfitter . . . . .	19%
8. Roofer . . . . .	19%
9. Architect . . . . .	17%
10. Elevator Installer and Repairer . . . . .	17%

Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S.  
 Source: U.S. Department of Labor, Bureau of Labor Statistics.

## Architecture & Construction Professions 10 Highest-Paying Jobs

Occupation	Salary
1. Architect . . . . .	\$66,230
2. Elevator Installer and Repairer . . . . .	\$58,190
3. Landscape Architect . . . . .	\$57,680
4. Construction Manager . . . . .	\$53,980
5. Pile-Driver Operator . . . . .	\$46,720
6. Construction and Building Inspector . . . . .	\$45,460
7. Electrician . . . . .	\$44,900
8. Structural Iron and Steel Worker . . . . .	\$44,300
9. Plumber/Pipefitter/Steamfitter . . . . .	\$44,110
10. Brickmason/Blockmason . . . . .	\$42,480

Based on mean salary.  
 Source: U.S. Department of Labor, Bureau of Labor Statistics.



# Arts, A/V Technology & Communications

“ My video production teacher at Wiesbaden gave me the opportunity to consistently do bigger and better things. He had trust in me to take on a lot of responsibility and to use very expensive equipment. He taught me a lot, but I also learned how to be independent. I’m at Ohio University now, and my classmates and I have won numerous film awards. The biggest thing is a MTVU campus competition that resulted in an internship with MTV Films. I also interned with Panavision and hope to return to their two-year program after graduation to become a first assistant cameraman. Eventually, I would like to do feature films and commercial work. ”

**Devin Doyle, Audio & Video Technology, Wiesbaden High School, Germany, Class of 2002**



## Arts, A/V Technology & Communications 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Technical Writer	27%
2. Audio and Video Equipment Technician	27%
3. Film and Video Editor	26%
4. Sound Engineering Technician	25%
5. Graphic Designer	22%
6. Set and Exhibit Designer	21%
7. Producer and Director	18%
8. Actor	18%
9. Musician and Singer	17%
10. Fine Artist, including Painter, Sculptor, and Illustrator	17%

Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.

## Arts, A/V Technology & Communications 10 Highest-Paying Jobs

Occupation	Salary
1. Producer and Director	\$72,470
2. Fashion Designer	\$64,150
3. Multi-Media Artist and Animator	\$57,520
4. Broadcast News Analyst	\$56,740
5. Technical Writer	\$56,650
6. Commercial and Industrial Designer	\$55,670
7. Writer and Author	\$53,080
8. Film and Video Editor	\$50,690
9. Public Relations Specialist	\$49,510
10. Editor	\$49,190

Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.

The arts and the worlds of broadcasting and publishing appeal to two very different, but equally important, types of people. The most obvious are creative individuals like artists, writers, performers, and journalists, who paint, photograph, write, act, deliver the evening news – or even write the commercials you hear on television. They usually have a strong creative streak and a passion for self-expression. But many more people in these industries work behind the scenes. They’re masters of the technology that can deliver art and news to an audience – such as filming movies, shooting documentaries, producing news programs, editing or publishing books or magazines, and even designing and operating all the lighting and other electronic controls necessary for putting on a play. The arts, audio/visual technology, and communications fields offer all this and lots more.

Some of these jobs require patience before they pay off. Actors, for instance, don’t typically make it big right away. And everyone has heard of novelists who waited tables for years before they got a big break. But plenty of jobs in these areas do pay well for most employees. For instance, advertising copywriters, technical writers, and software designers can make an impressive income. And printing is the country’s third largest manufacturing industry.

With experience in these jobs comes a chance to grow into other opportunities. For example, writers have been known to move up the masthead to become editors. Musicians sometimes end up conducting, dancers past their physical prime can end up as choreographers, and some actors even switch to directing. One thing is for sure: anyone who has ever walked past a newsstand, browsed through a bookstore, or flipped through the channels on a television knows that there’s a never-ending demand for news, art, and entertainment – and the people who provide them. And with an expanding population, that demand will only increase.

### Pathways in this career cluster include:

- **Audio & Video Technology & Film**
- **Journalism & Broadcasting**

## CAREER MAP: AUDIO & VIDEO TECHNOLOGY & FILM

Employees in Audio/Video Technologies design, install, and maintain systems and equipment used to present information in the form of sound and pictures to a particular audience. Quite often, A/V Technologies involve the transformation of transmitted digital information into audio and digital displays.

### Sample High School Schedule

9th Grade	10th Grade	11th Grade	12th Grade
Algebra I or Geometry	Geometry or Algebra 2	Algebra 2, Discrete Math, or Math Analysis	Math Analysis or AP Calculus-AB
Language Arts 9 or Honors Lit-World History 9	Language Arts 10 or Honors Lit-World History 10	Language Arts 11 or AP English Language	Language Arts 12 or AP English Literature
World Geography or Honors World History-Lit 9	World History or Honors World History-Lit 10	U.S. History or AP U.S. History	U.S. Government/ Model United Nations
Biology or Physics Application in the Community	Biology or Chemistry	AP Chemistry, Chemistry, or Physics	AP Physics or Human Anatomy & Phys
Spanish I	Spanish II	Spanish III	Spanish IV
Physical Education	Physical Education/Health	Fundamentals of Art/Word Process Software Application	Computer Art/Photography
Video Communications I*	Video Communications II*	Video Communications III**	Career Practicum**

Note: Students who meet the pathway course requirements receive an endorsement on their transcript. This endorsement states they have earned a minimum of four Carnegie units in this pathway. Only the required and recommended courses apply toward four Carnegie unit endorsements.

\* Required course for endorsement in the Audio & Video Technology & Film pathway

\*\* Recommended course for the pathway

Additional Recommended Courses	Related Courses †	Out-of-Class Learning	Extracurricular Activities
<ul style="list-style-type: none"> <li>■ TLC Technology</li> <li>■ Leadership Community</li> <li>■ Interactive Multimedia</li> </ul>	<ul style="list-style-type: none"> <li>■ Photography 1</li> <li>■ Computer Animation</li> <li>■ Computer Music</li> <li>■ Drama</li> </ul>	<ul style="list-style-type: none"> <li>■ Job Shadowing</li> <li>■ Internship</li> <li>■ Apprenticeship</li> <li>■ Part-time Employment</li> </ul>	<ul style="list-style-type: none"> <li>■ Student Clubs</li> <li>■ Student Film Competitions</li> <li>■ School Newspaper</li> <li>■ Yearbook</li> </ul>

† Related to pathway studies, may be of additional interest to some students

### After-High-School Options

Two-Year Associate’s Degree	Four-Year Bachelor’s Degree	Graduate Degree	Certification	Other
Examples: <ul style="list-style-type: none"> <li>■ Audio Technology</li> <li>■ Video Technology</li> <li>■ Audio Visual Systems</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Electronics</li> <li>■ Data Networking</li> <li>■ Audio/Video Technology</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Communications</li> <li>■ Data Networking</li> <li>■ M.F.A. (Master of Fine Arts)</li> </ul>	Example: <ul style="list-style-type: none"> <li>■ Certified Systems Professional</li> </ul>	Example: <ul style="list-style-type: none"> <li>■ Military Service</li> </ul>

### Possible Occupations

- Audio/Video Equipment Engineer
- Sound Engineering Technician
- Lighting Technician
- Operations Manager
- Director
- Audio/Video Equipment Technician
- Cameraman
- Installation Engineer
- Field Engineer
- Film and Video Editor





# Business, Management & Administration

**B**usiness means a lot of different things to different people because there are as many businesses out there as there are good ideas. Just flip through any phone book and you'll find more goods and services for sale than you could ever imagine. The possibilities are truly endless.

Do you daydream about owning your own business or advancing to the top as CEO of a multi-national corporation? Do you want to work in a service industry, such as transportation, banking, or entertainment? Or would you rather sell goods, such as groceries, computers, or clothing? You can work on the front lines with consumers (as a customer service representative, a loan officer, a cashier, or a receptionist) or you might be more comfortable behind the scenes (as an office administrator, an accountant, a word processor, or an administrative assistant).

Some of these positions are desk jobs in offices (such as market research analyst), but plenty of them involve working in other environments, such as the courts (court reporters), retail stores (salespeople), or even on the trading floor of a stock exchange (stock brokers).

Business management, administration, and technical consulting services rank as some of the fastest expanding fields through the year 2012 – not to mention one of

the highest paying, with nearly half the positions in management and professional occupations. In the next decade, jobs in this area are expected to grow by 55 percent. Not surprisingly, the top-paying jobs generally require more advanced degrees (such as a Master of Business Administration, or MBA). But plenty of the jobs available don't require a graduate degree.

This is also a good area to break out on your own; one-fourth of all workers in these careers are self-employed. Chances are good that you can grow your business, too. For example, many successful advertising agencies started out with just one or two people, and more than half the jobs in that field are in companies with fewer than 50 employees.

The skills needed to be a success in the business world – including organization, time-management, math, communications, financial know-how, computer expertise and the ability to work well with people – translate well into other fields, too.

**Pathways in this career cluster include:**

- Administration & Information Support
- Business, Financial Management & Accounting
- Management
- Marketing

**“By taking a pathway in high school, I was able to decide that I wanted to pursue a business career. The pathway showed me all the business options available. I decided that, in college, I want to narrow my field of study and major in entrepreneurship.”**

**Paul Mattox, Administration & Information Support, Patch American High School, Germany, Class of 2006**

**Business, Management & Administration  
10 Fastest-Growing Jobs**

Occupation	Job Growth
1. Network and Computer Systems Administrator	37%
2. Computer and Information Systems Manager	36%
3. Sales Manager	30%
4. Management Analyst	30%
5. Receptionist and Information Clerk	30%
6. Compensation and Benefits Specialist	28%
7. Artist/Athlete Agent and Business Manager	28%
8. Counter and Rental Clerk	26%
9. Advertising and Promotions Manager	25%
10. Public Relations Manager	23%

*Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

**Business, Management & Administration  
10 Highest-Paying Jobs**

Occupation	Salary
1. Engineering Manager	\$ 102,600
2. Computer and Information Systems Manager	\$ 98,260
3. Marketing Manager	\$ 96,680
4. Sales Manager	\$ 95,010
5. General and Operations Manager	\$ 92,010
6. Management Analyst	\$ 72,730
7. Artist/Athlete Agent and Business Manager	\$ 69,520
8. Legal Secretary	\$ 38,280
9. Information and Record Clerk	\$ 38,150
10. Brokerage Clerk	\$ 37,750

*Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

# Government & Public Administration

**W**orking for Uncle Sam can mean being a mail carrier, or it could mean being the President of the United States. But no matter where on the spectrum a government job falls, it always involves serving the public and working to help the government make life better for Americans.

Much about these careers might surprise you, beginning with their scope. Most federal employees (about four out of five, in fact) don't work in the Washington, DC, metropolitan area. National park rangers, for example, work all across the country. Furthermore, three out of five federal government employees hold managerial, business, financial, or professional positions – that's double the proportion for the workforce as a whole.



State government posts also offer a fair number of managerial and professional positions, with local government jobs offering more openings for service workers. Excluding education and hospitals, state and local governments employ about 7.5 million people, making them among the largest employers in the country. These jobs are expected to grow 12 percent during the next decade.

Another option within this cluster is a career in the U.S. military. The U.S. military is charged with protecting the United States of America, and protecting the interests of the U.S. worldwide. By joining the U.S. military you will be part of that effort.

Every year the military hires a combined 365,000 people in more than 4,100 different job paths. Many officers use their military experience as a springboard to the corporate world or specialized government positions such as those in the ATF, CIA, FBI, or State Department.

The most high-profile jobs in this cluster include positions like diplomats, legislators, judges, mayors, and governors. But government workers also include program administrators, congressional aides, lobbyists, military intelligence officers, cryptographers, and even internal revenue investigators. The support staff for elected officials is also a part of this cluster. Want to be in high demand? Consider jobs in border and transportation security, emergency preparedness, public health, and information analysis.

**Pathways in this career cluster include:**

- National Security (JROTC)

**“I have a strong desire to serve my country by becoming an active duty military officer. I'm not sure yet how long I will serve, but I know my choice will open doors to many opportunities that were once unknown to me!”**

**Nicole M. Kauzlarich, National Security (JROTC), Kadena High School, Japan, Class of 2006**

**Government & Public Administration  
10 Fastest-Growing Jobs**

Occupation	Job Growth
1. Police and Sheriff's Patrol Officer	25%
2. Correctional Officer and Jailer	24%
3. Detective and Criminal Investigator	22%
4. Library Assistant, Clerical	22%
5. Fire Fighter	21%
6. Education Administrator	21%
7. Adult Literacy, Remedial Education, and GED Teacher	20%
8. Manager of Correctional Officer	19%
9. Secondary School Teacher	18%
10. Archivist, Curator, and Museum Technician	17%

*Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

**Government & Public Administration  
10 Highest-Paying Jobs**

Occupation	Salary
1. Judge, Magistrate Judge, and Magistrate	\$ 89,360
2. Adjudicator and Hearing Officer	\$ 73,710
3. Manager of Police and Detectives	\$ 65,180
4. Manager of Fire Fighting and Prevention Workers	\$ 60,860
5. Detective and Criminal Investigator	\$ 56,500
6. Fish and Game Warden	\$ 49,090
7. Curator	\$ 47,920
8. Fire Inspector and Investigator	\$ 47,890
9. Librarian	\$ 47,590
10. Court Reporter	\$ 47,070

*Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

# Health Science

“The most rewarding aspect of my pathway is the people that help you to learn and to achieve your goals. My teacher has been a great resource. Her knowledge of the medical field is astounding. She has really fueled my desire to work in the medical field. She has brought in wonderful guest speakers to give us insight into health science.”

**Tyleia Wallace, Therapeutic Services, Ramstein High School, Germany, Class of 2006**

## Health Science Professions 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Medical Assistant	59%
2. Physician Assistant	49%
3. Home Health Aide	48%
4. Physical Therapist Aide	46%
5. Physical Therapist Assistant	45%
6. Dental Hygienist	43%
7. Occupational Therapist Aide	43%
8. Dental Assistant	42%
9. Physical Therapist	35%
10. Occupational Therapist	35%

Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S.  
Source: U.S. Department of Labor, Bureau of Labor Statistics.

## Health Science Professions 10 Highest-Paying Jobs

Occupation	Salary
1. Surgeon	\$ 181,610
2. Psychiatrist	\$ 150,110
3. Pediatrician, General	\$ 141,520
4. Pharmacist	\$ 86,910
5. Veterinarian	\$ 76,320
6. Physician Assistant	\$ 68,500
7. Dental Hygienist	\$ 59,790
8. Audiologist	\$ 57,220
9. Registered Nurse	\$ 55,680
10. Occupational Health and Safety Specialist	\$ 54,410

Based on mean salary.  
Source: U.S. Department of Labor, Bureau of Labor Statistics.

**T**alk about job security: helping people get healthy and stay healthy is one field that will never become obsolete! In the health industry, there’s always something new to learn and always a need for new people to develop it, teach it, or use it. If you have a caring nature and a genuine desire to help others, and you think you might thrive in a fast-paced environment, health science might be your field.

Health care services is expected to increase 28 percent through the year 2012, accounting for about 3.5 million jobs – the largest increase of any industry. Nine out of the 20 fastest-growing occupations in the

country are health services. Employment for medical assistants is projected to increase by 59 percent, for physician assistants by 49 percent, for home health aides by 48 percent, and for medical records and health information technicians by 47 percent by the year 2012.

The exponential growth in this field is thanks in part to more people living longer and so continuing to need more services, as well as medical technology improving at lightning speed. Completely new fields and services in this area open up every year while those that already exist go through major updates on a regular basis. Although being a doctor, dentist, or even veterinarian requires post-graduate study, most jobs in the health sciences require less than four years of college education.

In addition to the strictly medical-oriented professions, jobs designed to help people stay healthy and improve their quality of life are also thriving – such as massage therapists, nutritional consultants, aerobics instructors, and personal trainers.

### Pathways in this career cluster include:

- **Therapeutic Services**



## CAREER MAP: THERAPEUTIC SERVICES

Therapeutic Services employees work to counter the effects of disease and injury, maintaining or improving patients’ health. These workers include physicians, veterinarians, dentists, psychologists, and the various people who assist them in the delivery of care.

### Sample High School Schedule

9th Grade	10th Grade	11th Grade	12th Grade
Algebra 2 or Geometry	Geometry or Algebra 2	Algebra 2, Discrete Math, or Math Analysis	Math Analysis or AP Calculus-AB
Language Arts 9 or Honors Lit-World History 9	Language Arts 10 or Honors Lit-World History 10	Language Arts 11 or AP English Language	Language Arts 12 or AP English Literature
World Geography or Honors World History-Lit 9	World History or Honors World History-Lit 10	U.S. History or AP U.S. History	U.S. Government/ Model United Nations
Biology	Chemistry	Human Anatomy & Physiology	AP Biology
Japanese I	Japanese II	Drama/Speech	Yearbook
Physical Education	Physical Education/Health	Health Science II*	Word Process Software Application/Presentation Software
Beginning Band	Health Science I*	Health Science II*	Health Team Relations**

Note: Students who meet the pathway course requirements receive an endorsement on their transcript. This endorsement states they have earned a minimum of four Carnegie units in this pathway. Only required and recommended courses apply toward four Carnegie unit endorsements.

\* Required course for endorsement in the Therapeutic Services pathway

\*\* Recommended course for the pathway

Additional Recommended Courses	Related Courses †	Out-of-Class Learning	Extracurricular Activities
<ul style="list-style-type: none"> <li>■ Biomedical Technology</li> <li>■ Human Anatomy &amp; Physiology Clubs</li> <li>■ Computer Applications 1</li> <li>■ Nutrition, Fitness &amp; Wellness</li> <li>■ Psychology</li> <li>■ Sociology</li> </ul>	<ul style="list-style-type: none"> <li>■ Biology</li> <li>■ Sign Language</li> </ul>	<ul style="list-style-type: none"> <li>■ Clinical Rotations</li> <li>■ Mentorship</li> <li>■ Internship</li> <li>■ Job Shadowing</li> <li>■ Volunteering</li> <li>■ Part-time Employment</li> </ul>	<ul style="list-style-type: none"> <li>■ Japanese Club</li> <li>■ Student Clubs</li> <li>■ Sports Team</li> </ul>

† Related to pathway studies, may be of additional interest to some students

### After-High-School Options

Two-Year Associate’s Degree	Four-Year Bachelor’s Degree	Graduate Degree	Certification	Other
Examples: <ul style="list-style-type: none"> <li>■ Nursing</li> <li>■ Dental Hygienist</li> <li>■ Assistant Physical Therapy</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Nursing</li> <li>■ Speech Pathology</li> <li>■ Recreational Therapy</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Dentistry</li> <li>■ Pharmaceutical Sciences</li> <li>■ Clinical Nutrition</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Emergency Medical Technician (EMT)</li> <li>■ Licensed Practical Nurse (LPN)</li> </ul>	Example: <ul style="list-style-type: none"> <li>■ Military Service</li> </ul>

### Possible Occupations

- Athletic Trainer
- Dental Hygienist
- Dentist
- Home Health Aide
- Mortician
- Occupational Therapy Aide
- Occupational Therapist
- Physical Therapist Assistant
- Physical Therapist
- Physician
- Registered Nurse
- Veterinarian

# Hospitality & Tourism

“ Our Hospitality & Tourism classes have proven to be very popular with students. We’re particularly proud of our pathway programs, such as Lodging Management, that provide industry-recognized professional training at the high school level. ”

**Ed Pfeifer, Supervisory Education Specialist,  
DoDDS-Pacific Education Division, Japan**

## Hospitality & Tourism Professions 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Amusement and Recreation Attendant . . .	.28%
2. Gaming Dealer . . . . .	.25%
3. Gaming Surveillance Officer and Investigator . . . . .	.25%
4. Hotel, Motel, and Resort Desk Clerk . . . . .	.24%
5. Gaming Change Cashier and Booth Cashier . . . . .	.24%
6. Waiter and Waitress . . . . .	.18%
7. Counter Attendant, Food Concession . . . . .	.17%
8. Hosts and Hostess, Restaurant and Lounge . . . . .	.16%
9. Cook, Restaurant . . . . .	.16%
10. Concierge . . . . .	.15%

*Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S.  
Source: U.S. Department of Labor, Bureau of Labor Statistics.*

## Hospitality & Tourism Professions 10 Highest-Paying Jobs

Occupation	Salary
1. Lodging Manager . . . . .	\$45,720
2. Food Service Manager . . . . .	\$45,200
3. Gaming Supervisor . . . . .	\$41,570
4. Travel Guide . . . . .	\$29,750
5. Travel Agent . . . . .	\$29,650
6. Baggage Porter and Bellhop . . . . .	\$21,760
7. Tour Guide and Escort . . . . .	\$20,640
8. Entertainment Attendant . . . . .	\$17,820
9. Amusement and Recreation Attendant . . . . .	\$16,630
10. Gaming Dealer . . . . .	\$16,420

*Based on mean salary.  
Source: U.S. Department of Labor, Bureau of Labor Statistics.*

The jobs in this career cluster have essentially one goal: helping people have fun. The hospitality and tourism industry encompasses just about everything you can think of that puts a smile on people’s faces: good food and drink, travel and vacations, hotels and resorts, casinos and cruise ships, tours and attractions, and sports and recreation. If you enjoy working with people, are customer-service oriented, have good communication skills, and want a job with flexible hours and a flexible schedule, this may be the career field for you.

You can choose a job working directly with customers, such as tour guide, flight attendant, customer service agent, reservation agent, recreation leader, concierge, travel agent, receptionist – or even treatment specialist at a spa. Or you can work behind the scenes as a special events coordinator, grounds keeper, meeting planner, or a resort’s promotion and publicity specialist. High-powered corporate management positions exist here, as do a wide variety of entry-level, part-time, and seasonal jobs. On-the-job training is common,

promoting from within is the norm, and young managers are the rule rather than the exception.

The bulk of the jobs in this group involve the food and beverage sector. In fact, cooks, wait staff, and food preparation workers make up more than half of the jobs in this career cluster. More good news about the restaurant business: it employs more minority managers than any other industry, and the number of African-American-owned and women-owned restaurants increased at double digit rates during the past decade.

As our population grows, opportunities in hospitality and tourism will grow, too. In fact, jobs in the hotel and lodging industry are expected to increase by 17 percent and jobs in the food and beverage service industry are expected to increase almost 16 percent in the next decade.

### Pathways in this career cluster include:

- Lodging
- Restaurant & Food & Beverage Services



# Human Services

“ I plan to open my own beauty shop, maybe even have many all over the world – America, Europe, Asia, Africa – you name it! ”

**Kamarow Overstreet,  
Human Services,  
Kaiserslautern American  
High School, Germany,  
Class of 2006**

The field of human services is, quite simply, people helping other people. More specifically, it’s 7.2 million people helping other people. No matter what form the help takes, or what the specific responsibilities or benefits of these jobs entail, each occupation gives workers the satisfaction of knowing they are improving others’ lives – sometimes in a major way.

The options in the human services industry are wildly diverse. Some reach out to those in crisis (as a psychologist, an emergency or relief worker, or a funeral director). Many are devoted to children (as a teacher, a nanny, or a bus driver). Others help people transform their bodies (as a personal trainer, a hair stylist or a cosmetologist) or their lives (as a career counselor, a geriatric service worker, or a financial advisor). What motivates some is the good of the community (a community service director, a librarian, or an employee benefits representative), while others are more interested in working with individuals (a customer service agent, a consumer credit counselor, or a housekeeper).

Education is a popular and promising sector of human services, with jobs expected to grow by 20 percent through 2012. Teachers make up almost half of those in the education field, and two million additional teaching jobs will become available in the next ten years due to retirement and rising enrollment. Other promising occupations in this sector include education administrators, school counselors, cafeteria workers, and janitors. In a related field, jobs in the child daycare services industry are projected to grow 43 percent in the same period.

Other fast-growing industries in this cluster include employment or personnel supply services. These jobs are expected to increase by 1.8 million by 2012, representing a whopping growth rate of 54 percent.

Social assistance is also a hot industry. Social assistance establishments provide a



wide array of services that include helping the homeless, counseling individuals in need, and training the unemployed or underemployed. The number of private sector jobs here is expected to increase by 47 percent by 2012. Examples include social and human service assistants (expected to increase 49 percent) and personal and home care aides (up 40 percent).

### Pathways in this career cluster include:

- Personal Care Services

## Human Services Professions 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Social and Human Service Assistant . . . . .	49%
2. Fitness Trainer and Aerobics Instructor . . . . .	44%
3. Personal and Home Care Aide . . . . .	40%
4. Mental Health and Substance Abuse Social Worker . . . . .	35%
5. Personal Financial Advisor . . . . .	35%
6. Rehabilitation Counselor . . . . .	34%
7. Residential Advisor . . . . .	34%
8. Athletic Trainer . . . . .	30%
9. Massage Therapist . . . . .	27%
10. Costume Attendant . . . . .	25%

*Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S.  
Source: U.S. Department of Labor, Bureau of Labor Statistics.*

## Human Services Professions 10 Highest-Paying Jobs

Occupation	Salary
1. Personal Finance Advisor . . . . .	\$83,060
2. Flight Attendant . . . . .	\$51,160
3. Embalmer . . . . .	\$37,300
4. Manager of Personal Service Workers . . . . .	\$33,430
5. Makeup Artist, Theatrical and Performance . . . . .	\$31,780
6. Fitness Trainer and Aerobics Instructor . . . . .	\$31,170
7. Costume Attendant . . . . .	\$28,720
8. Skin Care Specialist . . . . .	\$27,450
9. Animal Trainer . . . . .	\$25,950
10. Slot Key Person . . . . .	\$25,110

*Based on mean salary.  
Source: U.S. Department of Labor, Bureau of Labor Statistics.*

# Information Technology



**C**omputers touch almost every part of our lives, and so indirectly do the people who design them and the software that runs them. There's hardly a business or an industry or even an individual office in this country that doesn't depend on computer technology in a major way. So it shouldn't be surprising that 92 percent of information technology employees work in information technology departments in non-information technology companies. The beauty of that is that with a background in IT, you can work for almost any type of company or industry under the sun. Not to mention that you'll be part of the wave of the future because you'll be helping to design the tools by which the future unfolds.

Computer and data processing services is the fastest growing industry in the economy, with job opportunities expected to increase

**“ I have a natural talent with PCs and plan on working on computer networks in the Air Force after I graduate. ”**

**Abram Ylitalo, Network Systems, Ft. Campbell High School, USA, Class of 2006**

86 percent in this decade. As the use of sophisticated computer networks grows, along with companies engaging in more and more electronic commerce through the Internet, the most demand in this industry will be for computer specialists such as systems analysts, network and computer systems administrators, computer support specialists, and computer and information systems managers.

Because computers have become indispensable in so many different fields, success in this industry comes fastest for those who have a broad-based education in addition to their technical and math training. Good people skills, communication skills, and business know-how are valuable for making it big in IT.

**Pathways in this career cluster include:**

- **Information Support & Services**
- **Interactive Media**
- **Programming/Software Engineering**
- **Network Systems**

**Information Technology Professions 10 Fastest-Growing Jobs**

Occupation	Job Growth
1. Network Systems and Data Communications Analyst	57%
2. Computer Software Applications Engineer	46%
3. Computer Software Systems Engineer	45%
4. Database Administrator	44%
5. Computer Systems Analyst	39%
6. Network and Computer Systems Administrator	37%
7. Computer and Information Systems Manager	36%
8. Computer Support Specialist	30%
9. Computer and Information Research Scientist	30%
10. Sound Engineering Technician	25%

*Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

**Information Technology Professions 10 Highest-Paying Jobs**

Occupation	Salary
1. Computer and Information Research Scientist	\$ 90,860
2. Computer Software Systems Engineer	\$ 82,160
3. Computer Software Applications Engineer	\$ 77,330
4. Computer Systems Analyst	\$ 68,370
5. Computer Programmer	\$ 65,910
6. Database Administrator	\$ 63,460
7. Operations Research Analyst	\$ 63,420
8. Network Systems/Data Communications Analyst	\$ 63,410
9. Computer Specialist	\$ 63,030
10. Computer Support Specialist	\$ 43,620

*Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

# Manufacturing



**Manufacturing Professions 10 Fastest-Growing Jobs**

Occupation	Job Growth
1. Sales Representative, Technical and Scientific Products	19%
2. Sales Representative, Wholesale and Manufacturing	19%
3. Lay-out Worker, Metal and Plastic	16%
4. Model Maker, Metal and Plastic	15%
5. Carpenter	10%
6. Manager of Production and Operating Workers	10%
7. Cabinetmaker and Bench Carpenter	10%
8. Molding and Casting Machine Setters and Operators	9%
9. Cutting and Press Machine Setters and Operators	7%
10. Cutting and Slicing Machine Setters and Operators	7%

*Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

**Manufacturing Professions 10 Highest-Paying Jobs**

Occupation	Salary
1. Manager of Production and Operating Workers	\$ 47,760
2. Model Maker, Metal and Plastic	\$ 44,870
3. Tool and Die Maker	\$ 44,070
4. Aircraft Structure, Rigging, and Systems Assembler	\$ 37,470
5. Engine and Other Machine Assembler	\$ 35,960
6. Machinist	\$ 34,790
7. Fabric and Apparel Pattern Maker	\$ 33,760
8. Lay-Out Worker, Metal and Plastic	\$ 33,750
9. Job Printer	\$ 33,750
10. Metal-Refining Furnace Operator and Tender	\$ 33,560

*Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.*

**M**anufacturing is about taking raw materials and turning them into a finished product that's useful in some way. That product could be almost anything – an airplane, a microchip, a sofa, a CD player, a bag of potato chips, or even a life-saving drug. Almost everything we use on a daily basis has to be manufactured. And the people employed in this industry not only see that these items get made, but they make sure they are tested and pass quality inspections, that they're made in the most efficient manner, that the equipment that makes them is well-maintained, that the factories where they are made are safe for workers, and that in the process of making them the environment isn't harmed.

Manufacturing is the foundation of our nation's economy, and it's responsible for the high standard of living we enjoy in the United States. If you work in this industry, you also have the satisfaction of knowing that what you do has a ripple effect in the economy, because what you help produce has an economic impact of its own. According to the National Association of Manufacturers, every \$1 in manufactured goods generates an additional \$1.43 worth of further economic activity.

As a whole, jobs in manufacturing pay 18 percent more than the national

average, and manufacturers are leaders in employee training. One of the top-paying manufacturing industries is the aerospace product and parts manufacturing business (because of the higher skill levels and standards of quality required). And one of the fastest growing is pharmaceutical and medical manufacturing (with 23 percent growth in jobs projected by 2012). Growth is also expected for welders, tool and die makers, and multiple machine operators, as well as environmental engineers. The field of logistics and inventory has excellent entry-level job prospects.

Interested in computers? Manufacturing depends more and more on high technology, such as computer-aided design (CAD), computer-aided manufacturing (CAM), and the use of robotics – especially in the automotive and aerospace fields.

**Pathways in this career cluster include:**

- **Manufacturing Production Process Development**

**“ The manufacturing classes have really ignited our students' interest. They can apply their book knowledge in a hands-on settings. We're moving into a day and age where someone with a good idea will be able to develop a prototype, get it made efficiently, and create their own business. Our students leaving our classrooms are much better prepared for college or trade school. ”**

**Joshua Thom, Professional Technical Studies Teacher, Quantico Middle and High School, USA**

# Science, Technology, Engineering & Math

“ I got into one of the engineering classes and then became really interested in the things we were doing. I am going to do charity work for a year in third world countries, but then I am going to go to college for a technical degree. ”

**Christopher Kovacs, Engineering & Technology, Lakenheath High School, England, Class of 2006**

### Science, Technology, Engineering & Math 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Environmental Engineer	.38%
2. Environmental Science and Protection Technician	.37%
3. Epidemiologist	.32%
4. Environmental Engineering Technician	.28%
5. Biomedical Engineer	.26%
6. Environmental Scientist and Specialist	.24%
7. Radiologic Technologist and Technician	.23%
8. Biochemist and Biophysicist	.23%
9. Microbiologist	.20%
10. Geographer	.20%

Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.

### Science, Technology, Engineering & Math 10 Highest-Paying Jobs

Occupation	Salary
1. Astronomer	\$93,580
2. Petroleum Engineer	\$91,820
3. Physicist	\$89,090
4. Nuclear Engineer	\$88,760
5. Computer and Information Research Scientist	\$88,020
6. Actuary	\$87,460
7. Computer Hardware Engineer	\$84,010
8. Physical Scientist	\$81,560
9. Mathematician	\$81,500
10. Aerospace Engineer	\$80,460

Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.

Careers in science, technology, engineering, and math involve building the future – literally. People in these fields don’t merely envision the future, they help create it – including what cars we’ll drive, what electronic toys will entertain us, what means we’ll use to explore outer space, what weapon systems we will use to defend our country, and even what tools surgeons will use to save lives. Simply put, they understand how things work and devise clever ways of making them work better. If being a pioneer exploring the frontier of knowledge sounds appealing, this career cluster might be right for you.

Scientific and technological advances are vital not only to knowledge in general and to our quality of life, but also to the U.S. economy. In fact, most economists assert that the money spent on research and development (or R&D) in our country yields the best long-term economic return of all our investments.

R&D is particularly strong in the pharmaceutical industry, with billions of dollars spent on research each year. Jobs here include biochemical technicians, biological laboratory technicians, and chemical engineering technologists who might do anything from testing a new preservative in food to finding the most effective ingredients for sunblock. Other jobs in this cluster include nuclear engineers, physicists, aerospace engineers, robotics technicians, industrial engineers, mechanical engineers, civil engineers, meteorologists, and even oceanographers.

Job growth in this cluster is about three times greater than average, and the pay is among the highest of any field. Even entry-level

positions here pay well. Part of the reason is that fewer students pick these careers, making demand high. For example, the number of engineering degrees conferred on U.S. citizens has dropped from about 70,000 a year in the mid-1980s to fewer than 60,000 a year now.

Women are welcome. The percentage of females in the science, engineering, and math professions is growing steadily, according to the Association for Women in Science. In 1973, women made up only 8 percent of the science and engineering workforce. In 1999, that figure was 24 percent. The number of engineering degrees earned by women has climbed from 845 in 1975 to 11,339 in the late 1990s – a jump of more than 1,300 percent!

#### Pathways in this career cluster include:

- **Engineering & Technology**



## CAREER PATHWAY MAP: ENGINEERING & TECHNOLOGY

Professionals in engineering and technology apply concepts of mathematics, science, and technology to solve problems and develop new processes, facilities, and devices to improve people’s lives.

### Sample High School Schedule

9th Grade	10th Grade	11th Grade	12th Grade
Algebra I or Geometry	Geometry or Algebra 2	Algebra 2, Discrete Math, or Math Analysis	Math Analysis** or AP Calculus-AB
Language Arts 9 or Honors Lit-World History 9	Language Arts 10 or Honors Lit-World History 10	Language Arts 11 or AP English Language	Language Arts 12 or AP English Literature
World Geography or Honors World History-Lit 9	World History or Honors World History-Lit 10	U.S. History or AP U.S. History	U.S. Government/ Model United Nations
Biology or Physics Application in the Community	Chemistry or Biology	AP Chemistry or Physics**	Physics** or AP Physics**
German I	German II	Humanities/Speech	Yearbook
Physical Education	Physical Education/Health	Word Process Software Application/Presentation Software	Career Practicum** (Pathway Related)
Fundamentals of Art	Engineering Drawing/CAD*	Robotics/Mechanical Engineering I**/Computer Aided Manufacturing I**	Robotics/Mechanical Engineering II**/Computer Aided Manufacturing II**

Note: Students who meet the pathway course requirements receive an endorsement on their transcript. This endorsement states they have earned a minimum of four Carnegie units in this pathway. Only required and recommended courses apply toward four Carnegie unit endorsements.

\* Required course for endorsement in the Engineering & Technology pathway  
\*\* Recommended course for the pathway

Additional Recommended Courses	
<ul style="list-style-type: none"> <li>■ Digital Electronics I &amp; II</li> <li>■ Engineering Design/Development</li> <li>■ Principles of Engineering</li> <li>■ Computer Animation</li> <li>■ CISCO Networking I &amp; II</li> </ul>	<ul style="list-style-type: none"> <li>■ Applied Architectural Design/CAD</li> <li>■ Java I &amp; II or Visual Basic Programming I &amp; II or C++ Programming I &amp; II or AP Computer Science AB or Advanced Computer Studies</li> </ul>

Out-of-Class Learning
<ul style="list-style-type: none"> <li>■ Job Shadowing</li> <li>■ Work-based Learning Opportunities</li> <li>■ Internship</li> </ul>

Extracurricular Activities
<ul style="list-style-type: none"> <li>■ Skills USA</li> <li>■ Technology Student Association</li> <li>■ Science and Math Competitions</li> </ul>

### After-High-School Options

Two-Year Associate’s Degree	Four-Year Bachelor’s Degree	Graduate Degree	Certification	Other
Examples: <ul style="list-style-type: none"> <li>■ Chemical Engineering Technology</li> <li>■ Computer Information Systems</li> <li>■ Drafting and Design</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Computer Science</li> <li>■ Civil Engineering</li> <li>■ Mechanical Engineering</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Chemical Engineering</li> <li>■ Mechanical Engineering</li> <li>■ Civil Engineering</li> </ul>	Examples: <ul style="list-style-type: none"> <li>■ Certified Quality Engineer (CQE)</li> <li>■ Certified Drafter (CD)</li> </ul>	Example: <ul style="list-style-type: none"> <li>■ Military Service</li> </ul>

### Possible Occupations

- Aeronautical Engineer
- Architectural Engineer
- Biotechnology Engineer
- Chemical Engineer
- Civil Engineer
- Construction Engineer
- Drafter
- Electrical Engineer
- Environmental Engineer
- Mechanical Engineer
- Nuclear Engineer
- Materials Technician

FIND YOUR DESTINATION

# Transportation, Distribution & Logistics

## Transportation, Distribution & Logistics 10 Fastest-Growing Jobs

Occupation	Job Growth
1. Ambulance Driver and Attendant . . . . .	27%
2. Truck Driver, Light or Delivery Services . . .	23%
3. Taxi Driver and Chauffeur . . . . .	22%
4. Transportation, Storage, and Distribution Manager . . . . .	20%
5. Truck Driver, Heavy and Tractor-Trailer . .	19%
6. Transportation Attendant (not flight attendants or baggage porters) . .	19%
7. Airline Pilot, Copilot, and Flight Engineer . . . . .	19%
8. Painter, Transportation Equipment . . . . .	18%
9. Bus Driver, School . . . . .	17%
10. Cargo and Freight Agent . . . . .	15%

Based on expected growth in percentage of jobs available between 2002 and 2012 in the U.S. Source: U.S. Department of Labor, Bureau of Labor Statistics.

## Transportation, Distribution & Logistics 10 Highest-Paying Jobs

Occupation	Salary
1. Airline Pilot, Copilot, and Flight Engineer . . . . .	\$ 129,620
2. Air Traffic Controller . . . . .	\$ 99,710
3. Commercial Pilot . . . . .	\$ 62,290
4. Ship Engineer . . . . .	\$ 57,830
5. Locomotive Engineer . . . . .	\$ 54,680
6. Captain, Mate, and Pilot of Water Vessel . . . . .	\$ 52,230
7. Railroad Conductor and Yardmaster . . .	\$ 52,580
8. Transportation Inspector . . . . .	\$ 51,780
9. Railroad Brake, Signal, and Switch Operator . . . . .	\$ 47,900
10. Gas Compressor and Pumping Station Operator . . . . .	\$ 44,850

Based on mean salary. Source: U.S. Department of Labor, Bureau of Labor Statistics.

Getting people and goods from point A to point B isn't as simple as drawing a straight line. It's a puzzle whose pieces include technology, logistics, maintenance, planning, management, and much more. Getting all the puzzle pieces in the right places so that the picture comes together smoothly and efficiently improves a business' bottom line. And it also helps contribute to the growth of our country's economy. In fact, the transportation industry accounts for more than 11 percent of the gross domestic product in the U.S.

Airline pilot is one of the highest paying jobs in this cluster; opportunities in the air transportation field are expected to be excellent for aircraft and avionics equipment mechanics and service technicians, as well. Another high-paying job in this cluster is high-tech automotive service technician (a far cry from the grease monkey image auto techs had just a generation ago). In fact, some 60,000 service jobs are currently open in the auto technician field alone! Trucking and warehousing is a hot field, as well, with jobs here expected to grow 23 percent through 2012. Opportunities will be good at all levels, especially for truck drivers, diesel service technicians, and mechanics. Other jobs in this career cluster include aerospace engineer, air traffic controller, industrial traffic manager, civil engineer, dispatcher, urban and regional planner, hazardous waste manager, and supply management analyst.

**“ I loved Auto Tech at Kadena High School. Even though I ended up majoring in Fine Arts in college – something completely different – the skills I learned have been invaluable. Part of growing up and becoming an adult is learning how to deal with the real world. That class gave me problem-solving skills and practical knowledge that I am using every day. ”**

**Erin Pfeifer, Kadena High School, Japan, Class of 2002**

Organization and strategic planning are vital skills for any job in this field, which can spread across a variety of industries. Logistics experts can be managers not just for shipping firms, but also in the shipping departments of private businesses, government agencies, hospitals, schools, retail sales, and the airline industry. Opportunities to work abroad abound. For example, the number of logistics jobs is up at least 30 percent all across Southeast Asia.

**Pathways in this career cluster include:**

- Facility & Mobile Equipment Maintenance
- Sales & Service



# Get a Head Start on Your Future With a Career Certificate



You may have heard that a high school degree alone is rarely enough these days to qualify you for many, if not most, good jobs. This is true, but did you know that there are special career certificates you can earn while still a high school student that will offer you the credential you need to jump right into phase-one of a variety of exciting and rewarding career fields?

DoDEA offers a growing number of these career certifications in fields ranging from computer technology to culinary arts. Earning your certification means that when you graduate, you have proof of your skills and knowledge. This gives you an edge over other candidates when you apply for jobs. Many companies look for certifications to screen out less-qualified candidates. In some cases, a career certification is actually required to qualify for certain jobs. But even if you plan to go on to college, a DoDEA career certificate can enhance your application, making you more likely to get into your choice of college or training program.

Depending on which career certificate you want to pursue, earning the credential may require classwork, internships, or on-the-job training outside of school, and one or more exams. Your DoDEA guidance counselor can answer questions you and your family may have about what it takes to earn one of these valuable certificates before graduation.

**While the list of career certifications is growing all the time and varies from school to school, here's a sampling of some of the programs DoDEA offers to its Professional Technical Studies students.**

**Adobe Certified Expert (ACE)**

An Adobe certification means you have mastered one or more of the widely used Adobe programs. DoDEA schools offer certificates in two of these: Photoshop and InDesign. This certificate is an excellent choice for students with career interests in the arts, graphic design, and media production. To learn more about ACE certification, visit [www.adobe.com/support/certification/ace.html](http://www.adobe.com/support/certification/ace.html).

**CompTIA A+ Certification**

Interested in a job working with technology and computers? Then this career certificate is a great starting point for your career. The CompTIA A+ certification is an international industry credential recognized by major technology hardware and software leaders. Companies like Microsoft, HP, Cisco, Novell, CompuCom, IBM and CompUSA require this certification for many of their entry-level technicians. For more on this certification program, visit [www.comptia.org/certification/a/default.aspx](http://www.comptia.org/certification/a/default.aspx).

**Cisco Certified Network Associate**

If your interest in computers is more about communication than hardware, the CCNA certification (Cisco Certified Network Associate) may be right for you. This certification prepares you for a career as a network associate or administrator, jobs in which you create and maintain computer networks in the same building or organization. CCNA certification prepares you to install, configure, and maintain different types of networks, such as local and wide-area networks. That makes it the perfect first step in this hot career field. For more information on the CCNA certificate, visit [www.cisco.com/web/learning/le3/le2/le0/le9/learning\\_certification\\_type\\_home.html](http://www.cisco.com/web/learning/le3/le2/le0/le9/learning_certification_type_home.html).

**Microsoft Office Specialist**

Because you will likely be using computers in whatever job field you enter – or even if you plan to go on to more training and education directly after high school – the Microsoft Office Specialist certification is a great choice for a wide variety of students. Microsoft's Office Specialist certificate tells potential employers that you know your way around critical MS computer desktop applications, including Word, Excel, PowerPoint, and Access. This certificate is particularly valuable when applying for business administration and support jobs. For more information on the Office Specialist certificate, visit [www.microsoft.com/learning/mcp/officespecialist](http://www.microsoft.com/learning/mcp/officespecialist).

# Enhance Your Skills With Extended Learning Experiences



**Do you dream of the day you will leave your classes behind for “the real world”?**

**DoDEA Professional Technical Studies programs allow you the opportunity to try some real world experience on for size before you graduate.**

*No matter what your career interest, an extended learning opportunity likely exists for you. That means that you can explore your career goals outside the classroom and get a better sense of whether the job you think might be right for you really is a good fit.*

**Y**ou may worry that, as a student on a military installation, your opportunities for real world learning experiences may be limited. In fact, DoDEA schools have worked to create a wide variety of internships, practicum experiences, and other similar programs on bases, and in the local community.

The DoDEA school system shares the same goal of every school system around the country: to graduate intelligent, savvy students who enjoy learning. DoDEA stands committed to offering its students every opportunity, whether the opportunity is located inside or outside the traditional classroom.

These special learning situations can range from casual, single-day programs to structured, part-time “jobs” that last an entire semester or longer. And in many cases, you can earn credits toward your high school graduation, and gain valuable experience that will look good on future applications to college or technical training programs.

## **Job Shadowing**

You don’t have to wait until graduation to discover your dream job. You can get started right away through job shadowing, an increasingly popular extended learning option for students. Job shadowing allows students to spend a day or two following, or “shadowing,” an adult employee through a typical day on the job. Do you think you might like to be a geologist, a meteorologist, or a forensic investigator? Well, one of the best ways to put your ambitions to the test is to watch someone already working in the profession for a day. You will get the chance to sample the career and make sure that your image matches the reality, before you make a big commitment.

Almost any workplace can offer a job shadowing opportunity. Many military bases around the world participate in “Groundhog Job Shadowing Day,” a nationwide event that kicks off every February and continues throughout the year. You can learn more about this annual event and job shadowing in general at [www.jobshadow.org](http://www.jobshadow.org).



## **Practicum Experiences**

The term “practicum” means “to practice,” and in one of these extended learning opportunities, you literally get to practice the skills you are learning in your career-related classes at school. Think of a practicum as a type of “career lab” where you take the information you’ve learned from a book and put it to real use for the first time. As an integrated part of class curricula, they generally offer some academic credit, just as the labwork portion of a science class counts toward a portion of your final grade.

## **Internships**

Internships are available at private corporations, government agencies, and nonprofit organizations. An internship is a short-term real-world work experience that offers you an opportunity to gain experience working in a career field in which you have some interest and knowledge. These programs are an opportunity for you to develop work skills, apply classroom learning, and prepare for the transition from school to work. Internships are sometimes paid and are very often available for school credit toward graduation. Many students find that participating in an internship later gives them an advantage over college and career applicants who have not had experience in the field. And internships are a great way to make professional contacts and gain references.

## **Volunteering**

Sometimes you can help yourself through helping others. Volunteering at a local hospital, tutoring, coaching a sport, offering to moderate your community youth group, or performing other types of community service are enriching activities that also serve to help you develop your career interests. As a first step, look around your local community to see what nonprofit groups or charities might be looking for student volunteers. If you find an opportunity that excites you, donate a few hours a week or month of your time. You’ll be glad you did and you’ll gain one more experience for your growing resume.

## **Life Experience**

Learning doesn’t take place only in the classroom or during structured activities. Wherever you are, there are unique aspects to your environment that you can explore and from which you can learn. Many students whose parents are associated with the military have moved several times during their school careers. If you are stationed with your family in a foreign country, take advantage of the experience to learn more about the local language, culture, or history. Postsecondary institutions and employers will be impressed by your understanding of other cultures.

If you’re going to high school in the United States, apply a sense of curiosity to your city or state. Make a point to learn about your surroundings and what makes it unique. By asking questions, meeting new people, and visiting new places, you will extend your learning and expand your horizons at the same time.



# Continue Your Education



Long gone are the days when a high school degree was all it took to get a job.

These days, many of the careers in which you are interested will require what is known as “postsecondary” education – meaning an additional certificate or degree acquired after you graduate from your DoDEA high school.

*Checking out and applying to postsecondary programs is a major part of many high school students’ lives during their junior and senior years. This is true whether you are living in the United States or studying at a DoDEA school overseas.*

**Y**our postsecondary education can come in several forms, including two-year colleges, traditional colleges or universities, and the military. Here are some ways to figure out which option is right for you.

## Narrow the Field

With literally thousands of postsecondary programs available, it’s important to narrow your focus to only those programs that offer the classes and degrees that will lead to the career field that most interests you. For example, if you know you are interested in a career in hotel management – a relatively specialized field – you wouldn’t want to waste your time looking into programs that don’t offer classes in that field. In fact, this should be your very first question when considering a specific school or program: does it offer what I will need to prepare for the career that I want?

## Ask for Help

The idea of finding the programs that may be right for you can seem daunting. That’s why it’s important to ask for help. Your DoDEA high school has at least one counselor who will guide you in researching and choosing the right postsecondary program.

Let your guidance counselor know that you would like to talk about researching your postsecondary options. It’s never too early or too late in your high school career to have this conversation with your counselor.

## Surf the Web

These days, the Internet has become an invaluable tool for people researching postsecondary education options. Via the Web, you can arrange “virtual visits” to colleges and universities without having to travel there.

Almost all training programs, colleges, and universities, as well as the military, have comprehensive, informational web sites. To find the information you are looking for, look for the “admissions” or “prospective students” button on the front page of the program’s web site. This will take you to an area designed to answer the questions you are likely to have, from which degrees are offered to how to apply for financial aid. If you have questions, you can e-mail the admissions staff. You can also request that the school send a catalog to your home.

## Consider the Options

Two- or four-year program? Large university or small college? Civilian or military? These are just a few of the options you will encounter when deciding on a postsecondary educational program.

Two-year postsecondary programs are gaining popularity across the United States. They offer career certification programs, Associate of Arts degrees, Associate of Sciences degrees, and more. People choose these “community colleges” because in a growing number of career fields, the two-year degree offers an economical, fast-track entrance into satisfying jobs that pay well. The great majority

of the more than 1,500 community colleges in the United States are public, meaning tuition is very reasonable. Additionally, the credits earned at a community college can generally be applied toward a four-year degree at a college or university.

For more information on two-year programs, as well as a “community college finder,” check out the American Association of Community Colleges at [www.aacc.nche.edu](http://www.aacc.nche.edu).

When parents and teachers speak of “going to college,” they are usually talking about four-year colleges and universities, which are the most traditional route for career training. There are thousands of postsecondary four-year schools in the United States offering degrees in hundreds of different fields. Many jobs, such as teaching and certain types of engineering, require a four-year degree. Certain professions, such as law or medicine, require graduate study beyond the four-year degree. Public colleges and universities generally offer lower tuition and less rigorous admission requirements (meaning, your grades and standardized test scores) for in-state students. Although your family may live on a military installation outside the United States, you should be able to qualify as an in-state applicant at the public colleges and universities in the state or states where your parents reside.

For more information on your in-state status, go to the In-State Tuition web site at [www.armyeducation.army.mil/InState/StateSummary.htm](http://www.armyeducation.army.mil/InState/StateSummary.htm). Also, be sure to include in-state status as one of your questions during the process of applying for postsecondary studies.

Private colleges and universities have the same tuition cost for all students, regardless of where they live. In many instances, private colleges require higher grades and standardized test scores for admission. These more competitive colleges can be an excellent choice for students who already know they want to aim for a graduate degree beyond college.

## Show Me The Money

If you’re worried about paying for your postsecondary education, you can relax. Financial aid is available for virtually every high school graduate. Whether taking advantage of their parents’ military service or donning a uniform themselves, many high school graduates can benefit from a generous range of scholarships and programs related to the Armed Forces. Scholarships are offered service-wide, such as the Retired Officer’s Scholarship Program or Scholarships for Military Children, or by a specific unit, such as the First Cavalry Division Association. Students also may obtain full or partial college funding by enrolling in military academies or the ROTC.

For all students, the most widely available type of assistance available is “need-based aid.” These loans, grants, and scholarships are awarded solely on the basis of a student’s financial need, according to a standardized formula. You generally apply for need-based aid by completing the “Free Application for Federal Student Aid” (FAFSA). To fill out the form online, visit [www.fafsa.ed.gov](http://www.fafsa.ed.gov). You can also get a copy of FAFSA from a high school or college.

The next major category of aid is targeted assistance. These funds are awarded based on criteria other than income and financial need – for example, high academic performance, athletic achievement, race, gender, cultural heritage, religious affiliation, or even where your parents went to college. One quick way to track down targeted aid is to search the Internet. Financial aid database sites can find programs that fit your qualifications with remarkable accuracy. Two great sites that you might check first are [www.finaid.com](http://www.finaid.com) and [www.scholarships.com](http://www.scholarships.com).

Last, but certainly not least, many financial aid programs are aimed specifically at high school graduates with an interest in specific career fields. If you are cultivating an interest in a specific career cluster or pathway, you will find scholarships and grants that are designed to help you finance your postsecondary education. Check with your guidance counselor or teachers about possible aid opportunities. The college or training program that you seek to enter may offer aid specifically to students aiming for a career in your chosen pathway or cluster.

## Don’t Forget the Military

Because one or both of your parents is a member of the armed services, you already know a lot about the U.S. military. But did you realize that our military is itself one of the most popular and respected postsecondary educational options available today? Whether you are interested in a long-term career, or you simply want to earn money while working toward training for a civilian career, the military offers many exciting possibilities for high school graduates.

All branches of the military offer their own training programs – particularly in technical fields – that allow an enlistee to prepare for a job of his or her choice while earning a salary as a service member. With other military programs, enlistees may accrue money to be used to pay for college after discharge, as they serve their country and earn a salary.

The U.S. Air Force even offers its own community college – the largest in the United States – offering training, certification, and two-year degrees in everything from engineering to environmental science. Enlisted members can enroll in the Community College of the Air Force no matter where they are stationed.

The military consists of several branches, each with unique benefits and characteristics. To find out which one fits your needs and interests, check out these web sites for more information:

- All military options: [www.military.com](http://www.military.com)
- Army: [www.goarmy.com](http://www.goarmy.com)
- Navy: [www.navy.com](http://www.navy.com)
- Air Force: [www.airforce.com](http://www.airforce.com)
- Marines: [www.marines.com](http://www.marines.com)
- Coast Guard: [www.gocoastguard.com](http://www.gocoastguard.com)
- Air National Guard: [www.goang.com](http://www.goang.com)
- Army National Guard: [www.1800goguard.com](http://www.1800goguard.com)





# Glossary

Use this guide to brush up on the buzz words in career planning and education.

**Apprenticeship:** a learning experience in which a paid worker new to a job undergoes an organized program of classroom instruction and on-the-job training leading to certified mastery of the craft.

**Assessment:** a test usually designed to document skills, interests, or values; assessments are used in career education to help students decide which careers might be best for them.

**Associate's degree:** a degree acquired after high school through completion of a two-year course of study, usually at a community or technical college.

## Armed Services Vocational Aptitude Battery (ASVAB)

**Battery (ASVAB):** an assessment given by the United States Armed Services. It is a test that measures a student's aptitude and is used to inform career paths.

**Bachelor's degree:** a degree acquired after high school through completion of a four-year course of study, usually at a college or university.

## Career clusters, career cluster system:

a system for career education that classifies careers into broad groups called clusters (such as Information Technology or Health Science) and organizes education around preparation for careers in particular clusters; students also pick career pathways within their clusters that lead to specific occupations.

**Career pathways:** narrower courses of study within career cluster systems that steer students toward particular careers.

**Certification:** an educational credential earned through a course of study and work-based learning designed to produce mastery of a particular skill.

**Cooperative education:** a learning arrangement in which classroom career instruction is coordinated with work on the job.

**Curriculum:** a set of coursework designed to lead to a particular educational goal.

**Extended learning:** the practice of expanding academic learning through after-school, weekend, and summer activities. Usually voluntary, but often coordinated through a student's high school.

**Free Application for Federal Student Aid (FAFSA):** the first step in the financial aid process. You use it to apply for federal student financial aid, such as grants, loans, and work-study. In addition, most states and schools use information from the FAFSA to award non-federal aid.

**Internship:** a working and learning arrangement in which students hold temporary jobs in their chosen career field, usually under the guidance of an on-the-job mentor.

**Job shadowing:** an out-of-the-classroom learning experience in which students learn about particular jobs as they make their way through a day at work.

**Master's degree:** a degree usually acquired after completion of additional study after graduation from a university and often after preparation of a long, written study called a thesis.

**Mentor:** an older, more experienced person who helps someone new to a job learn how to do it.

**Ph.D. (doctor of philosophy):** a degree earned following additional study after graduation from a university (often after earning a master's degree) and usually after preparation of a long, written study called a dissertation.

**Practicum:** a course or program that covers a specialized topic in depth. In some cases, this word refers to work-study arrangements that earn college credit.

**Professional Technical Studies:** the DoDEA program offering courses in many career clusters to students in DoDEA middle and high schools. The mission of the program is to prepare students to be technologically literate and employable in a global workforce.

**Six-Year Plan:** an education tool for DoDEA middle and high school students. Students map out the courses, activities, and experience needed for graduation and beyond.

**Work-based learning:** learning that takes place outside the classroom, on-the-job, at real places of business; examples include internships, apprenticeships, and job shadowing.



# Resources

The resources listed below can help you follow developments in career clusters.

*With a virtual library at your fingertips on the World Wide Web, you can soon become a career planning expert. Here are some of the best sources of information.\**

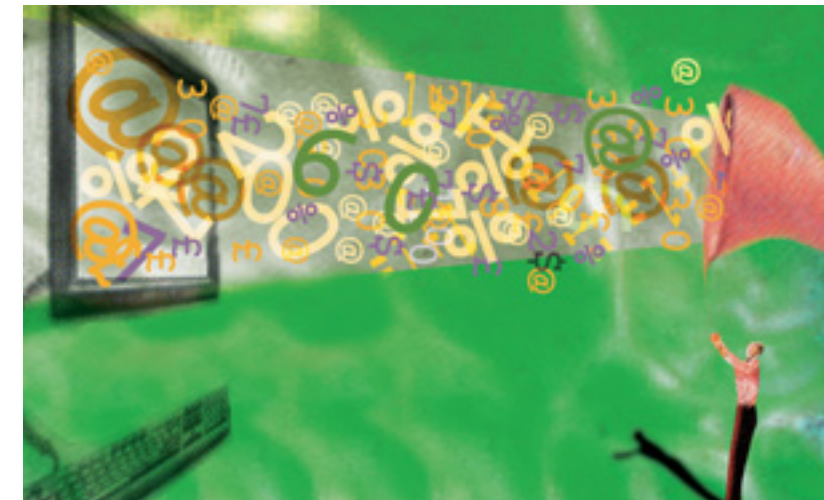
## Skills Assessments, Career Tests, and Personality Tests

- ASVAB Career Exploration Program, [www.asvabprogram.com](http://www.asvabprogram.com)
- Campbell Interest and Skill Survey, [www.usnews.com/usnews/edu/careers/cciss.htm](http://www.usnews.com/usnews/edu/careers/cciss.htm)
- Free Online Career Tests, [www.jobhuntersbible.com/counseling/ctests.shtml](http://www.jobhuntersbible.com/counseling/ctests.shtml)
- Holland's Self-Directed Search, [www.csp.msu.edu/pages/qg/sds.cfm](http://www.csp.msu.edu/pages/qg/sds.cfm)
- Keirseley Temperament Sorter, [www.keirseley.com](http://www.keirseley.com)
- Myers-Briggs, [www.knowyourtype.com](http://www.knowyourtype.com)

## Career Planning, Postsecondary Opportunities, and Financial Aid Information

- Careers requiring college or graduate school, [www.collegeboard.com](http://www.collegeboard.com)
- Colleges, careers, and majors, [www.myplan.com](http://www.myplan.com)
- Colleges, financial aid, and e-learning, [www.usnews.com/usnews/edu/eduhome.htm](http://www.usnews.com/usnews/edu/eduhome.htm)
- Comprehensive financial aid information, [www.mapping-your-future.org](http://www.mapping-your-future.org)
- Database of colleges and on-line admission forms, [www.collegenet.com](http://www.collegenet.com)
- Education portal including colleges, financial aid, and admission tests, [www.petersons.com](http://www.petersons.com)
- In-state status for postsecondary education, [www.hrc.army.mil/site/Education/InState](http://www.hrc.army.mil/site/Education/InState)
- Information on schools and careers, [www.princetonreview.com](http://www.princetonreview.com)
- Support for overseas military students, [www.militarychild.org](http://www.militarychild.org)

\* Web site addresses were correct at the time of publication but may have changed since then. If you cannot reach the site you're looking for, use an Internet search engine to find the current address.



## Scholarship Information

- U.S. Military Academy at West Point, [www.usma.edu](http://www.usma.edu)
- U.S. Army Scholarship Programs, [www.armyeducation.army.mil/scholarship.html](http://www.armyeducation.army.mil/scholarship.html)
- Department of Education – Funding, [www.ed.gov/funding.html](http://www.ed.gov/funding.html)
- Department of Education – Student Financial Assistance, [www.ed.gov/studentaid](http://www.ed.gov/studentaid)
- Free College Scholarship Search, [www.scholarships.com](http://www.scholarships.com) or [freschinfo.com/browse.htm](http://freschinfo.com/browse.htm)
- Search by The College Board, [www.collegeboard.com](http://www.collegeboard.com)
- Search by Military.com, [www.military.com/Careers/Education/Scholarships](http://www.military.com/Careers/Education/Scholarships)

## Career Information

- America's Career InfoNet, information on specific careers in every state, [www.acinet.org](http://www.acinet.org)
- Bureau of Labor Statistics Career Information, [www.bls.gov/k12](http://www.bls.gov/k12)
- Occupational Outlook Handbook, [www.bls.gov/oco](http://www.bls.gov/oco)
- O\*NET, a comprehensive database of worker attributes and job characteristics, [www.online.onetcenter.org](http://www.online.onetcenter.org)
- Salaries by occupation and geographic area, [www.salary.com](http://www.salary.com)
- Wet Feet Press, resource database with snapshots of careers, companies, and industries, [www.wetfeet.com](http://www.wetfeet.com)

# Who's On the Cover?

Three DoDEA students from Ft. Campbell High School, in Fort Campbell, Kentucky, talked to us about their experiences in Professional Technical Studies as well as their preparation for the future.

	Andrew Porterfield	Nicole Hockenberry	Jenna Smith
<b>Grade</b>	11	12	11
<b>Cluster</b>	Science, Technology, Engineering & Mathematics	Government and Public Administration	A/V, Arts, Technology & Communications
<b>Pathway</b>	Engineering & Technology	National Security (JROTC)	Journalism & Broadcasting
<b>Reason for pathway choice</b>	"The field of computer engineering has a bright future, and I plan to be part of its success."	"I thought it would help in getting scholarships to college. Plus, I liked the after school activities involved with JROTC."	"I want to be a photojournalist, because I've always enjoyed photography and the way pictures can tell a story."
<b>Postsecondary Plans</b>	"I am going to major in computer engineering in college."	"I want to study recreational therapy at Western Kentucky or Ohio University."	"To attend either Austin Peay or Western Kentucky University"
<b>Extracurricular or Extended Learning Activities</b>	"I'm going to sit for the exam to get a certification in Cisco networking later this year."	"I'm a Command Sergeant Major in JROTC and also have a part-time job as a lifeguard."	"A career practicum with the local newspaper"



# The Last Word

## With Ann Mulligan



Ann Mulligan has the kind of interesting, challenging, high-profile career that many people dream about. Based in Mannheim, Germany, Mulligan is the Director of Broadcasting for the American Forces Network Europe ([www.afneurope.net](http://www.afneurope.net)), the top civilian position in the network. She's the person who makes sure that military families across Europe enjoy their favorite radio and television programming every week. Mulligan loves her job and encourages students to give their own future career goals careful consideration so they can end up with jobs they love as well. She talked about her own career planning process and advice she has for students trying to figure out what they want to do with their lives.



Since 1943, the American Forces Network Europe has been providing American service members, families and Defense Department civilian employees stationed in Europe with American radio and television services. AFN Europe is committed to providing the latest uncensored news, information, and entertainment from home and around the world.

### Ann Mulligan's CAREER ADVICE For Students

**Take Every Opportunity**  
"Don't put yourself in a box that will make you stop growing."  
.....

**Learn Things That Are Important To Your Career**  
"Even if you don't like the subject. I know an awful lot now about broadcast engineering and satellite delivery!"  
.....

**You Can Always "Think" About Your Career**  
"First you decide what you like to do, and what you don't like to do. That helps narrow your search for your career field. I rejected some career fields that originally seemed interesting because they required subjects that weren't my best."  
.....

**Volunteer Where You Think You'd Like to Work**  
"Volunteer in agencies where you think you might like to later work as an employee. Remember that careers are always changing and developing. For example, no one considered 'information technology' as a career field when I was growing up."

**Question:** As a teen and young adult, did you have a clear idea of your personal career goals?

**Mulligan:** I was very lucky to have recognized very early that I liked to write. But I know that knowing what you want to do isn't always easy; my two children struggled for many years to find their niche.

**Question:** What were the first steps in your career?

**Mulligan:** I was the editor of the school newspaper in high school. The newspaper sponsored my attendance at a summer journalism workshop at Syracuse University. After high school, I attended Ohio University School of Journalism and was an intern at the city newspaper in Athens, Ohio.

**Question:** Do you think college is right for everyone or are other training paths a better fit for some young people?

**Mulligan:** College is not right for everyone, and it isn't right for some people right out of high school. College takes a lot of discipline. College is expensive. The university doesn't care whether you fail to show up for class or study and flunk the course. Sometimes it's better to work for a year or so after high school before deciding on your next step. I think the military does a wonderful job of providing training in career fields for people who don't want to go to college right now.

**Question:** What unique challenges do DoDEA-educated young people face in planning for higher education and careers?

**Mulligan:** I think DoDEA does a tremendous job in providing special opportunities, such as Model United Nations, special band and chorus programs, and extracurricular activities that most United States schools don't have. And DoDEA teachers are top-rated.

The only disadvantage comes in the distance from the United States. It's hard to visit colleges when you live overseas. Both my children saw their colleges for the first time when they arrived on the first day of their freshman year.

**Question:** What is your opinion of the Professional Technical Studies offered by DoDEA? How do you believe they assist young people in preparing for careers?

**Mulligan:** Exposure to specific careers at the high school level does two things. It weeds out those who aren't interested in this as a career field and gives a big push to those who are.

**Question:** Does AFN Europe offer internships or practicum experiences? What can young people expect to get out of real-world work experiences?

**Mulligan:** Yes, AFN signed an agreement with DoDEA last year to provide on-site (at our affiliate stations) practical experience as part of the curriculum to advanced videography students. DoDEA selects the students who have achieved that level and AFN provides the experience. Schools also partner with AFN stations to produce radio spots on school sports or activities that air on the station. Radio is often easier to do because the product can be telephoned in or e-mailed.

**Question:** What unique skills and experiences do you believe DoDEA-educated young people bring to their career planning?

**Mulligan:** DoDEA graduates have a wider view of the world. They have a deep appreciation for the military, even if they don't choose to enlist. They are more resilient and adaptable to change, because they've had to. They appreciate friendship because they don't take it for granted, knowing they or their friends will leave soon.

# CAREER EXPLORER

## The Education- and Career-Planning Guide For DoDEA Students

*For more information, please visit*  
**[www.dodea.edu/instruction/curriculum/tech](http://www.dodea.edu/instruction/curriculum/tech)**



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