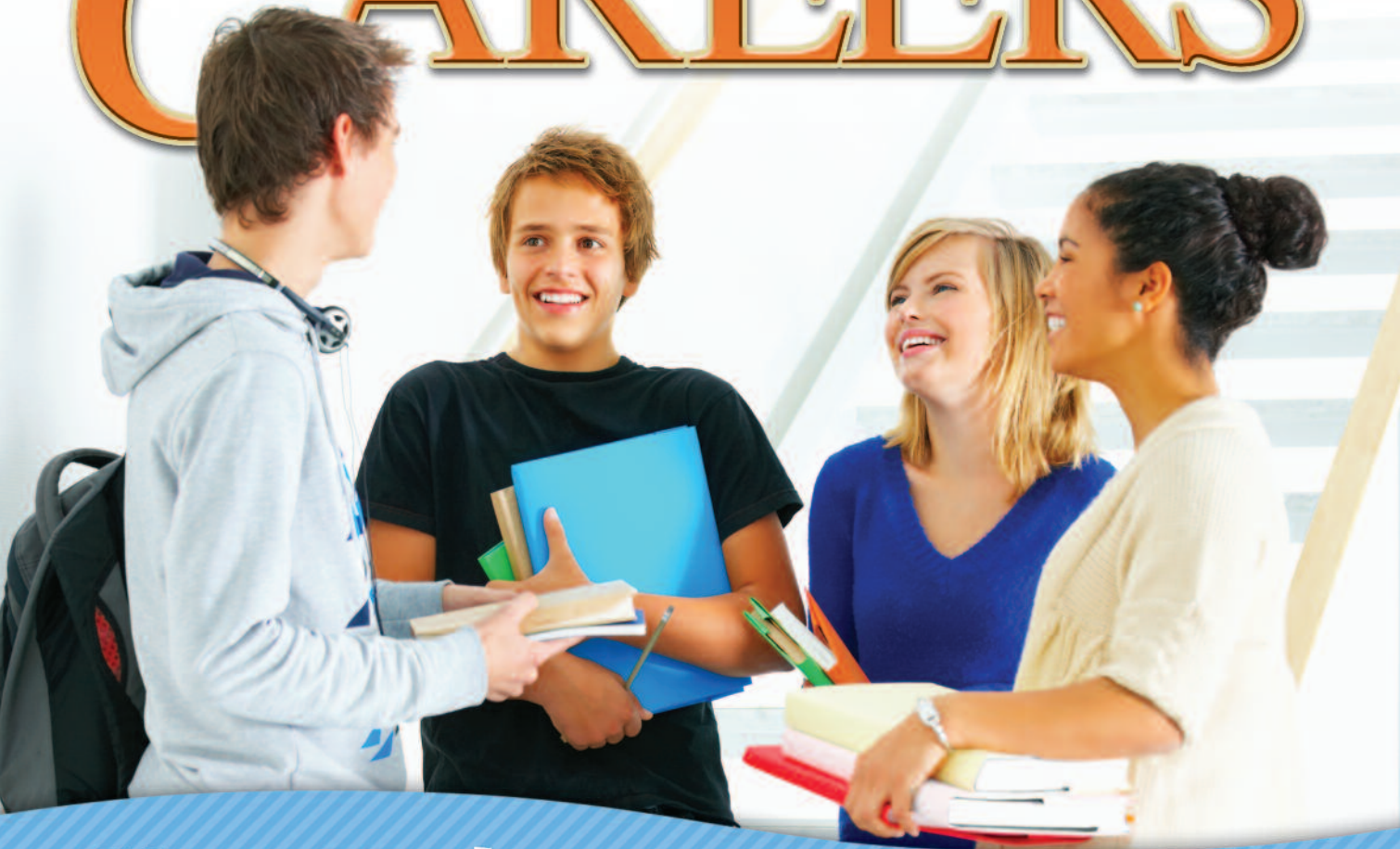


2013-14

A M E R I C A N CAREERS[®]



Step up to a great career!

Career interest checklist • Career clusters and pathways •
Education and salary data • Advice from the pros •
A high school and postsecondary planning guide • Job-getting tips

Find it all inside ...

Explore Career Clusters

FIND A GREAT CAREER

Agriculture, Food & Natural Resources

The production, processing, marketing, distribution, financing and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture and other plant and animal products/resources.

Hospitality & Tourism

Hospitality & Tourism encompasses the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel-related services.

Architecture & Construction

Careers in designing, planning, managing, building and maintaining the built environment.

Human Services

Preparing individuals for employment in career pathways that relate to families and human needs such as counseling and mental health services, family and community services, personal care and consumer services.

Arts, A/V Technology & Communications

Designing, producing, exhibiting, performing, writing and publishing multimedia content, including visual and performing arts and design, journalism and entertainment services.

Information Technology

Building linkages in IT occupations for entry level, technical and professional careers related to the design, development, support and management of hardware, software, multimedia and systems integration services.

Business Management & Administration

Careers in planning, organizing, directing and evaluating business functions essential to efficient and productive business operations.

Law, Public Safety, Corrections & Security

Planning, managing and providing legal, public safety, protective services and homeland security, including professional and technical support services.

Education & Training

Planning, managing and providing education and training services and related learning support services.

Manufacturing

Planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.

Finance

Planning, services for financial and investment planning, banking, insurance and business financial management.

Marketing

Planning, managing and performing marketing activities to reach organizational objectives.

Government & Public Administration

Planning and performing government functions at the local, state and federal levels, including governance, national security, foreign service, planning, revenue and taxation, and regulations.

Science, Technology, Engineering & Mathematics

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

Health Science

Planning, managing and providing therapeutic services, diagnostic services, health informatics, support services and biotechnology research and development.

Transportation, Distribution & Logistics

Planning, management and movement of people, materials and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

A M E R I C A N CAREERS

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Award-winning, research-based *American Careers* classroom programs integrate academic and counseling standards, High Schools That Work key practices, career development goals and career cluster knowledge and skills.

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LOOK FOR
 THE HELPFUL
 PULL-OUT
 PLANNING GUIDE



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Making dreams come true takes a lot of work. And when it comes to work, education pays.

How to Become College and Career Ready

In the next couple of years, you must graduate from high school with the knowledge and skills needed to pay your bills ... or enter an apprenticeship program ... or graduate from a community college or college program that leads to a career. So it's time to get ready to go to work!



1

Picture Your Future

In this section, starting on the next page, you will:

- Take three self-assessments.
- Draft an estimated budget for the adult life you want to lead.
- And after reflecting on what you've learned about yourself, create a personal career essay. Your interests, of course, will change with your experiences. So simply adapt your plan.

2

Create Your Educational Plan

The High School Planning section on pages 15-19 and the Postsecondary Planning section on pages 20-24 include information about career clusters, programs of study, higher education options, funding and more. You can actually put your plan in writing using the helpful planning guide in the center of the publication.



3

Put Your Education to Work

In this section, on pages 25-31, you'll find advice about getting and keeping a job. You'll also have a chance to create a cover letter and résumé.



4

Explore Your Career Interests

Get a head start on researching job opportunities, education needed and the income you can expect after a few years on the job. You'll find the data on pages 33-64.



Whether you want to find a career kind of job after high school or pursue a certificate, an apprenticeship or a college degree, it's important to plan for your future. And the time to start is now.

Professional Advice

High School Aptitude Test Leads to a Fulfilling Career

When he was in high school, Aaron Smith took a career aptitude test – a test similar to the following tests in this publication and others your school counselor might provide. That test led him to major in engineering in college and ultimately to become a “green engineer.”

After graduation, the mechanical engineer focused on renewable energy technologies. But eventually he realized that he wanted to work with buildings rather than energy production.

“Buildings today are very inefficient, using much more energy than they really require,” Smith says. “I’m happy to be learning about new technologies and computer software programs and how they can be used to reduce building energy usage.”

In addition to advising students to take a career aptitude test and get related education, Smith says:

- Continuous learning is a major element of his work. You need to be willing to learn something new every day.
- Oral and written communication skills are very important as the job requires interaction with owners, architects, equipment suppliers and contractors.
- Seek out organizations related to your interests, and get involved in the local chapter. For example, the American Society of Heating, Refrigerating and Air-Conditioning Engineers and other organizations provide a wealth of knowledge on these topics and can also get you in contact with prospective employers.

Commenting on his career choice, Smith says, “It can be rewarding. I feel that I’m able to make a difference in the world.”

Writer Mark Rowb, Ed.D., interviewed Aaron Smith for this story.



Connect with a Career Organization at Your High School

Engineer Aaron Smith realizes that professional organizations are the best way to update knowledge and skills and meet people who can help with a job search. To advance in your future career, ask your school counselor about career-technical organizations like these:

- Business Professionals of America (BPA)
- Distributive Education Clubs of America (DECA)
- Family, Career and Community Leaders of America (FCCLA)
- Future Business Leaders of America (FBLA)
- Future Educators Association (FEA)
- Health Occupations Students of America (HOSA)
- National FFA Organization
- SkillsUSA
- Technology Student Association (TSA)

Assessment #1

Picture Yourself Today ... and Tomorrow

Who I Am Today

Think about things you enjoy. Ask friends and family what they've observed about you. Then click on the arrow to complete and save the list you create below:

Classes I like:

In my free time, I enjoy:

Skills I'm good at:

My personal qualities:

Things I like to do on the job or as a volunteer:

Accomplishments or awards:

What I Would Like to Do Tomorrow

As an adult, you'll spend most of your days at work. Take a few minutes to reflect on your "likes" and how these strengths might apply to a future workplace. From what you know right now, write the names of some careers or jobs you might like in the box below:

Careers or jobs I might like:

Match Yourself with the World of Work

Money is important when choosing a career. But workplace conditions also influence job satisfaction. To discover your preference, read each item, and circle the statement below it that applies to you. Add up your score in the “Check your Preferences” box below.

- 1 **Where I work**
 - a. I want to work indoors primarily.
 - b. Occasional outdoor work would be okay.
 - c. I want to work outdoors most of the time.
- 2 **How I work**
 - a. I don't want to work with my hands, other than on a computer, etc.
 - b. Working with my hands would be okay sometimes.
 - c. I want a job that requires working with my hands.
- 3 **Physical demands**
 - a. I want a job where I'd sit most of the time.
 - b. Some standing and walking would be okay.
 - c. I want a job that involves strenuous physical work.
- 4 **Quiet/noisy workplace**
 - a. I want to work in a quiet office or lab.
 - b. Moderate noise is okay, like the noise in a restaurant or in heavy traffic.
 - c. I'd accept a job with lots of noise, such as jet engines or construction equipment.
- 5 **Job hazards**
 - a. I don't want a hazardous job.
 - b. I'd consider a job with occasional hazards.
 - c. I'd accept a frequently hazardous job.
- 6 **Job location**
 - a. I want to work in the same location or at home every day.
 - b. I'd like to change locations or travel sometimes.
 - c. I'd like to work at different job sites or on long-term projects in different parts of the country or abroad.
- 7 **Job stress**
 - a. I don't want a stressful job.
 - b. Occasional deadlines or emergencies would be okay.
 - c. I thrive on stressful, emergency situations.
- 8 **Hours and pay**
 - a. I want an 8-to-5 job with no overtime or weekend work, and I want a regular paycheck.
 - b. I wouldn't mind working irregular hours occasionally if I received a regular paycheck.
 - c. I'd accept irregular work and pay, like people who are self-employed or experience seasonal layoffs.
- 9 **Working with people**
 - a. I prefer to work alone.
 - b. I like working closely with one or two other people.
 - c. I like the camaraderie of working with a group.
- 10 **Who's the boss?**
 - a. I would like to make decisions and have other people report to me.
 - b. I want to report to someone else who is responsible for making most of the decisions.
 - c. I want to work independently and be my own boss.

From "Match Yourself With the World of Work" by Patty Williamson, Ph.D. Originally developed for volume 11 of American Careers.

CHECK YOUR PREFERENCES

Count your “a,” “b” and “c” answers. Place the totals below.

A high score indicates your preferred work environment.

“A” responses _____ “B” responses _____ “C” responses _____

High “A” Responses. Generally you're attracted to safe, secure, quiet office jobs with little stress and no need to travel or do strenuous physical labor. You may enjoy being an accountant, electronics engineer, graphic artist, health care administrator, medical transcriptionist or pharmacist.

High “B” Responses. You don't mind “riding a desk,” but you wouldn't want to do it all the time. You'd like to do different tasks, move about, travel or work outdoors sometimes. If so, you may want to be a cabinetmaker, civil engineer, nurse, physician, recreation worker or reporter.

High “C” Responses. For you, high levels of stress, extensive travel, hazardous or polluted conditions or irregular hours are just part of the job. You'd enjoy the excitement and challenge of occupations such as construction worker, firefighter or law enforcement officer.

Discover Your Career Personality

To discover your career personality and some jobs you really might enjoy, take the interest inventory that begins on the next page. Simply follow these steps:

1

Check activities that you like

In part 1, read through the list of activities. Then check the ones that interest you.

2

Add up your scores

In part 2, total your scores. You'll begin to see a "career personality" emerge. It's important to consider your career personality when planning for the future.

3

Evaluate yourself

In part 3, you may find that you have more than one career personality. That's okay. Most people do.

4

Think about the future

In part 4, on pages 8 and 9, you will find careers related to your personality. You are not limited to jobs just within your personality group. Check out career choices within the other personality types. You might be surprised at your career options!

WISE WORDS

"Life isn't about finding yourself. Life is about creating yourself."

– Playwright

George Bernard Shaw

1 Check Activities You Like.

Place a check by the activities that interest you. Don't worry if you don't know much about them. Right now it's just important to identify the activities that capture your imagination.

- | | |
|--|--|
| <input type="checkbox"/> 1. Save a rainforest or grow organic vegetables | <input type="checkbox"/> 24. Design computer programs and/or games |
| <input type="checkbox"/> 2. Solve complicated math problems | <input type="checkbox"/> 25. Work outdoors patrolling or maintaining a national park |
| <input type="checkbox"/> 3. Act in a movie, play or television show | <input type="checkbox"/> 26. Research legal statutes for a lawsuit |
| <input type="checkbox"/> 4. Learn about people in different cultures and societies | <input type="checkbox"/> 27. Play a musical instrument |
| <input type="checkbox"/> 5. Research news stories and do interviews for the evening news | <input type="checkbox"/> 28. Work with infants or children |
| <input type="checkbox"/> 6. Study the economy and predict economic trends | <input type="checkbox"/> 29. Run for political office |
| <input type="checkbox"/> 7. Read and use "how-to" manuals | <input type="checkbox"/> 30. Work an after-school job to save money |
| <input type="checkbox"/> 8. Perform science experiments in a laboratory | <input type="checkbox"/> 31. Set up a home theater system or install a car stereo system |
| <input type="checkbox"/> 9. Manage an art gallery | <input type="checkbox"/> 32. Read science fiction |
| <input type="checkbox"/> 10. Conduct a religious service | <input type="checkbox"/> 33. Write a short story, play or novel |
| <input type="checkbox"/> 11. Bargain with vendors at a flea market | <input type="checkbox"/> 34. Host and entertain guests at a party |
| <input type="checkbox"/> 12. Analyze and create statistical graphs and charts | <input type="checkbox"/> 35. Work in a politician's office |
| <input type="checkbox"/> 13. Build cabinets or furniture | <input type="checkbox"/> 36. Enter information into a computer spreadsheet |
| <input type="checkbox"/> 14. Study the environmental impact of pollution or global warming | <input type="checkbox"/> 37. Build a model of a jet aircraft |
| <input type="checkbox"/> 15. Write a movie or television script | <input type="checkbox"/> 38. Study bacteria using an electron microscope and other high-tech equipment |
| <input type="checkbox"/> 16. Volunteer to lead a club or scout troop | <input type="checkbox"/> 39. Design a new line of clothes |
| <input type="checkbox"/> 17. Choose and purchase merchandise to sell in a store | <input type="checkbox"/> 40. Read and discuss a book or poem |
| <input type="checkbox"/> 18. Work in a corporate office | <input type="checkbox"/> 41. Sit on a television panel to discuss political or social issues |
| <input type="checkbox"/> 19. Operate heavy machinery | <input type="checkbox"/> 42. Keep accurate accounting and sales records for a business |
| <input type="checkbox"/> 20. Play chess or games of strategy | <input type="checkbox"/> 43. Repair a car or motorcycle motor |
| <input type="checkbox"/> 21. Write articles for music, art or entertainment websites or magazines | <input type="checkbox"/> 44. Identify different planets, stars and constellations |
| <input type="checkbox"/> 22. Organize an event for a charity or community organization | <input type="checkbox"/> 45. Create and fire a ceramic pot or vase |
| <input type="checkbox"/> 23. Compete with other salespeople in a fast-paced, high-pressure company | <input type="checkbox"/> 46. Work with the elderly |
| | <input type="checkbox"/> 47. Sell products for a portion of the profit |
| | <input type="checkbox"/> 48. Create and oversee a budget for a large company or government agency |

2 Add Up Your Scores.

On the grid below, circle the numbers you checked off. Count the number of circles in each row, and write that total in the blank space at the end of each line. These are your scores for each "career personality" type.

PERSONALITY TYPES

	1	7	13	19	25	31	37	43	TOTAL
a. REALISTIC	1	7	13	19	25	31	37	43	
b. INVESTIGATIVE	2	8	14	20	26	32	38	44	
c. ARTISTIC	3	9	15	21	27	33	39	45	
d. SOCIAL	4	10	16	22	28	34	40	46	
e. ENTERPRISING	5	11	17	23	29	35	41	47	
f. CONVENTIONAL	6	12	18	24	30	36	42	48	

3 Evaluate Yourself.

In the spaces below, write the names of the two personality types in which you received the highest scores.

HOW CAN KNOWING YOUR PERSONALITY TYPE LEAD YOU TO A SATISFYING CAREER FUTURE? READ ON ...

a. realistic

Realists typically are focused, rugged, mechanical and direct. Often athletic, they enjoy working outdoors with tools, animals and plants. Famous “realists” include primatologist Jane Goodall, hair stylist Vidal Sassoon and architect Paul Williams.

AGRICULTURE, FOOD & NATURAL RESOURCES

Animal care technician
Farmer, grower
Forestry worker

ARCHITECTURE & CONSTRUCTION

Builder, carpenter
Electrician
Plumbing, heating, air conditioning installer

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Camera operator, photojournalist
Set designer
Performer

BUSINESS MANAGEMENT & ADMINISTRATION

Accountant
Business manager, entrepreneur
Customer support specialist

EDUCATION & TRAINING

Elementary teacher
Coach
Technology teacher

FINANCE

Claims investigator
Loan officer
Stockbroker

GOVERNMENT & PUBLIC ADMINISTRATION

Elected official
Legislative aide
Military officer

HEALTH SCIENCES

Dentist, dental hygienist, other
Home health aide
Nurse, nursing assistant
Ophthalmologist
Physical, respiratory, other therapist
Physician, surgeon, veterinarian

HOSPITALITY & TOURISM

Food service worker
Recreation worker
Tour guide

HUMAN SERVICES

Hair stylist
Home care aide
Social services worker

INFORMATION TECHNOLOGY

Network systems engineer, technician
Telecommunications technician

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Crime scene investigator
Firefighter
Police officer

MANUFACTURING

Machine operator
Industrial maintenance technician
Welder

MARKETING

Buyer
Promotion director
Shipping, receiving clerk

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

Electrical, electronic installer, repairer
Engineer, engineering technician

TRANSPORTATION, DISTRIBUTION & LOGISTICS

Body repairer – aircraft, automotive, heavy equipment, other
Driver, pilot, other vehicle operator
Inspector – aviation, environmental, freight, other
Material mover
Mechanic, technician – vehicle, heavy equipment, other

b. investigative

Investigators are curious, observant and like to research, analyze and solve problems. Many enjoy science and math – working independently and in teams. Famous “investigators” include Marie Curie, forensic scientist Dr. Henry Lee and anthropologist Margaret Mead.

AGRICULTURE, FOOD & NATURAL RESOURCES

Food scientist
Forest ranger
Wildlife manager

ARCHITECTURE & CONSTRUCTION

Code inspector
Preservationist

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Journalist
Playwright
Researcher

BUSINESS MANAGEMENT & ADMINISTRATION

Acquisitions manager
Business analyst
Collections clerk
Management analyst

EDUCATION & TRAINING

Curriculum developer
Educational researcher
School psychologist

FINANCE

Accountant/auditor
Claims examiner
Contract administrator
Financial officer

GOVERNMENT & PUBLIC ADMINISTRATION

Military intelligence officer
Policy adviser
Tax examiner

HEALTH SCIENCES

Biomedical engineer or technician
Hospital maintenance engineer
Medical assistant
Nuclear diagnostic, other technician
Pharmacist
Physician
Radiologic technologist
Research scientist

HOSPITALITY & TOURISM

Forest ranger
Hotel security officer
Night auditor

HUMAN SERVICES

Consumer advocate
Credit counselor
Patient accounts representative

INFORMATION TECHNOLOGY

Computer security specialist
Data, systems analyst
Information systems architect
Programmer
Test engineer

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Detective
Forensics examiner, technician
Fraud investigator

MANUFACTURING

Instrument, process control technician
Quality control specialist

MARKETING

Manager – brand, database, forecasting, other
Market researcher

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

Engineer, engineering technician – environmental, facility maintenance, industrial, other

TRANSPORTATION, DISTRIBUTION & LOGISTICS

Inspector – aviation, environmental, freight, other
Logistics analyst
Mechanic, technician – vehicle, heavy equipment, other

c. artistic

Creative and imaginative, artists often work best in unstructured environments where they use words, pictures, music and dance to create products and communicate ideas. Famous “artists” include Gregory Hines, Georgia O’Keeffe and William Shakespeare.

AGRICULTURE, FOOD & NATURAL RESOURCES

Florist
Gardener, landscaper

ARCHITECTURE & CONSTRUCTION

Drafter
Landscape architect
Painter, paper hanger

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Copywriter
Creative director
Graphic designer
Illustrator
Media specialist

BUSINESS MANAGEMENT & ADMINISTRATION

Advertising manager
Director – marketing communications
Meeting planner

EDUCATION & TRAINING

Art teacher
Early childhood, elementary teacher
Instructional media specialist

FINANCE

Business/financial writer
Direct marketing media specialist
Fundraiser

GOVERNMENT & PUBLIC ADMINISTRATION

Charitable organization executive
Lobbyist
Public relations specialist

HEALTH SCIENCES

Art, dance, music therapist
Athletic trainer
Dental laboratory technician
Hospital, health agency public relations director
Medical editor or reporter
Orthodontist
Plastic surgeon
Prosthetist
Prosthodontist

HOSPITALITY & TOURISM

Catering director
Chef
Restaurant concept developer, designer

HUMAN SERVICES

Activities director
Child care facility director, assistant
Cosmetologist

INFORMATION TECHNOLOGY

Animator
Audiovisual technician
Web designer, site developer
Webmaster

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Media relations officer

MANUFACTURING

CAD operator, drafter, designer
Product developer, designer

MARKETING

Designer – fashion, floral, interior, packaging
Direct marketing specialist
Manager – e-merchandising, sales promotion, visual merchandising
Retail store decorator, window trimmer

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

A/V equipment technician
Engineer, engineering technician – broadcast, packaging, sound, robotics
Medical illustrator
Technical writer

TRANSPORTATION, DISTRIBUTION & LOGISTICS

Facility architect, designer
Urban, regional planner

4

Think About the Future.

Look at the personality types in the headlines at the top of these two pages. Choose two that match your top two personality types. Now, look at the career clusters and job titles listed below your personality types.

d. social

Do you enjoy helping others learn new skills or counseling them about personal problems? Most social people enjoy working with others, individually and in groups. Famous social people include Martin Luther King, Jr., Mother Teresa and Nelson Mandela.

AGRICULTURE, FOOD & NATURAL RESOURCES

Agricultural sales agent
Farm manager
Food, drug inspector

ARCHITECTURE & CONSTRUCTION

Construction foreman
General maintenance contractor
Interior designer

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

A/V equipment installer
Interior decorator
Performing arts coach, conductor, director

BUSINESS MANAGEMENT & ADMINISTRATION

Administrative assistant
Fundraising director
Human resources manager
Real estate associate

EDUCATION & TRAINING

Child care specialist
School counselor
Teacher

FINANCE

Debt counselor
Financial adviser
Loan officer

GOVERNMENT & PUBLIC ADMINISTRATION

Elected official
Legislative aide
Military officer

HEALTH SCIENCES

Admitting clerk
Home health aide
Medical assistant
Patient advocate
Physical therapist
Psychologist
Social worker

HOSPITALITY & TOURISM

Food service worker
Hotel worker
Park ranger
Tour guide

HUMAN SERVICES

Counselor – family, mental health, other
Psychologist
Social worker

INFORMATION TECHNOLOGY

Computer support specialist
Help desk technician
Instructional designer
Interactive media developer

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Corrections educator, counselor
Hazardous materials responder
Probation officer

MANUFACTURING

First-line manager, supervisor
Quality control specialist

MARKETING

Client support manager
Customer representative
Regional sales manager

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

Environmental scientist
Maintenance, repair technician
Medical researcher

TRANSPORTATION, DISTRIBUTION & LOGISTICS

Cashier, counter clerk
Driver
Flight attendant
Manager – health and safety, logistics, warehouse, other

e. enterprising

Do you have strong leadership qualities? You probably like to compete, persuade others and take personal or financial risks. Enterprisers have both social and hands-on skills. Famous “enterprisers” include Bill Gates, Mark Zuckerberg and Rachael Ray.

AGRICULTURE, FOOD & NATURAL RESOURCES

Agricultural sales agent
Food broker
Food, livestock producer

ARCHITECTURE & CONSTRUCTION

Architectural firm owner
Contractor – general, maintenance, specialty

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Advertising, design, company owner
Events, performing arts, trade show producer

BUSINESS MANAGEMENT & ADMINISTRATION

Business owner
Company president, general manager
Marketing manager

EDUCATION & TRAINING

Acting, dance, music studio owner, operator
Charter school founder
Test preparation, learning center operator

FINANCE

Banker
Financial planner
Financial manager
Treasurer

GOVERNMENT & PUBLIC ADMINISTRATION

Ambassador
Elected official
Military specialist
Policy adviser

HEALTH SCIENCES

Hospital, health agency, executive director
Medical, veterinary practice owner

HOSPITALITY & TOURISM

Amusement park, tourist attraction developer
Hotel, motel franchise owner, operator
Restaurateur

HUMAN SERVICES

Counselor
Day-care center operator
Nonprofit agency executive director

INFORMATION TECHNOLOGY

E-merchandiser
Information support services provider
Interactive media programmer

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Law firm partner
Police patrol officer
Private detective

MANUFACTURING

Labor relations manager
Manufacturing executive
Medical appliance, optical goods maker

MARKETING

Buyer
Merchandising manager
Product developer

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

Engineering consultant
Medical research laboratory operator

TRANSPORTATION, DISTRIBUTION & LOGISTICS

Consultant
Government executive
Manager

f. conventional

Conventional people are detail-oriented and orderly. They like to analyze facts and numbers. Famous “detailers” include J. Edgar Hoover, Alexander Graham Bell and Lillian Gilbreth, the first female engineer.

AGRICULTURE, FOOD & NATURAL RESOURCES

Bacteriologist, biochemist
Food products processor
Food, fiber engineer

ARCHITECTURE & CONSTRUCTION

Building inspector
Cost estimator
Electrical, power transmission installer

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

Animator
A/V systems technician
Web designer

BUSINESS MANAGEMENT & ADMINISTRATION

Administrative assistant
Business analyst
Data processor
Purchasing agent

EDUCATION & TRAINING

Educational researcher
Speech-language pathologist, audiologist

FINANCE

Accountant/auditor
Financial manager
Insurance appraiser

GOVERNMENT & PUBLIC ADMINISTRATION

Emergency planner
Military intelligence officer
Vital statistics clerk
Zoning administrator

HEALTH SCIENCES

Biomedical engineer, technician
Laboratory technician
Medical records manager, coder
Pathologist
Pharmacist, technician

HOSPITALITY & TOURISM

Banquet manager
Hotel executive
Supervisor – laundry, maintenance, etc.

HUMAN SERVICES

Emergency management specialist
Nutrition counselor

INFORMATION TECHNOLOGY

Computer programmer
Network security specialist
Systems analyst

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Criminal investigator
Customs inspector
Lawyer, paralegal

MANUFACTURING

Industrial maintenance technician
Machine tool operator
Quality engineer

MARKETING

Marketing manager
Marketing researcher
Statistician

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

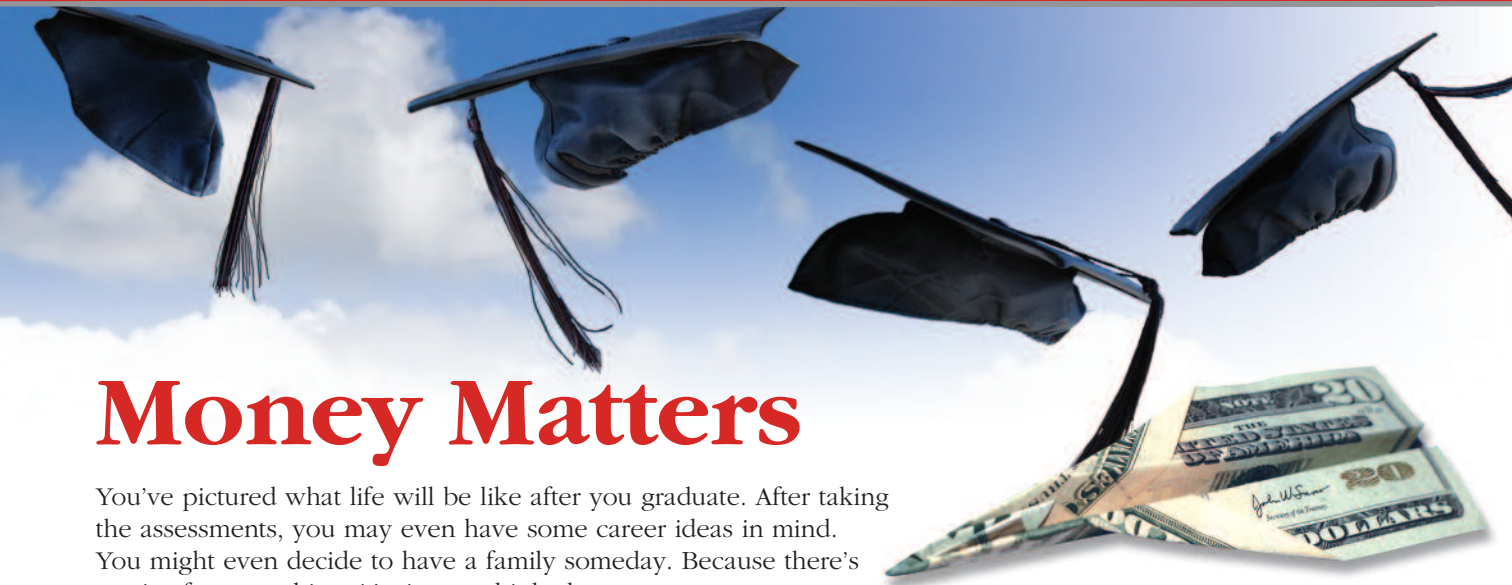
Electrical installer, repairer
Engineer – chemical, civil, electrical, mechanical, other

TRANSPORTATION, DISTRIBUTION & LOGISTICS

Air traffic controller
Dispatcher
Driver
Inspector

What career clusters interest you?

What jobs interest you?



Money Matters

You've pictured what life will be like after you graduate. After taking the assessments, you may even have some career ideas in mind. You might even decide to have a family someday. Because there's a price for everything, it's time to think about money matters. Here are your challenges:

Challenge #1



Check Your Lifestyle Choices.

To complete the task on the next page, do some Internet research, ask adults you know or go shopping. It may take a little time, but you'll learn a lot.

Challenge #2



How Much Money Do Families Need?

And how much money will you need to pay the bills after you graduate? Can you find a minimum-wage job that will cover your living expenses? Or will you need to invest in further education that leads to a career? Create a budget that will meet your needs.

Challenge #3



Learning and Earning.

Your challenge is to find occupations in your favorite career clusters that will meet future financial needs. Two sections of this publication – “Create Your Educational Plan” and “Explore Your Career Cluster Interests” – will give you a chance to do that. Also access the *Occupational Outlook Handbook* (<http://www.bls.gov/ooh/>) and O*Net OnLine (<http://www.onetonline.org>).



WISE WORDS

“You can't wait for inspiration. You have to go after it with a club.”
 – Jack London, *Author*

Your search for a career that will meet your financial goals will likely require postsecondary education. In fact, this publication provides an educational planning tool that will take you from high school, through higher education and a career. At the end of this experience, you'll have a clearer view of where you're going in life and what you'll need to do to get there.

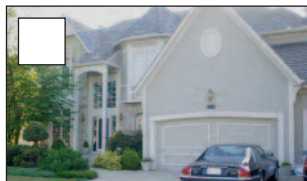
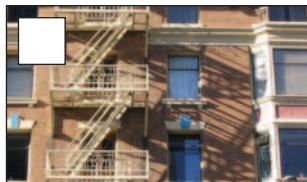
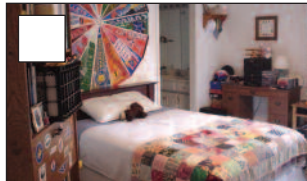
Check Your Lifestyle Choices

Take a moment to check the lifestyle choices you would make when you're on your own. Figure how much these choices will cost you, and complete an annual budget form on the next page.

Food
Annual \$ _____



Housing
Annual \$ _____



Clothing
Annual \$ _____



Transportation
Annual \$ _____



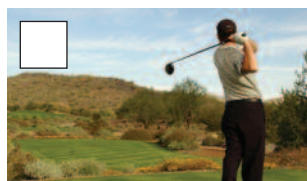
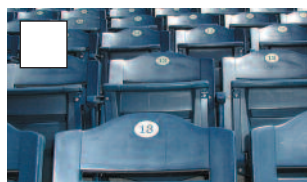
Health Care
Annual \$ _____



Insurance, Savings
Annual \$ _____



Entertainment
Annual \$ _____



Other Expenses
Annual \$ _____



Challenge #2

Will Your Income Pay the Bills?

How Much Money Do Families Need?

Right now, adults take care of many of your needs. However, you'll soon begin to take care of yourself. If there's a family in your future, you'll be contributing to a household.

Government data to the right, provides a picture of what it costs to take care of a household after deductions such as taxes, health insurance, etc. Note that it takes one full-time earner and a part-time earner to support

How Much Money Will You Need?

Now it's your turn. How much money will you need to cover your living costs after high school graduation or, if you choose, postsecondary education? The checklist on the previous page will help you create a budget.



Did You Know?

According to the Bureau of Labor Statistics, median weekly earnings were \$773 per week during the first four months of 2013. That's about \$40,000 per year. How does that compare with what you'd like to earn? What level of education typically provides that kind of income? What kind of occupation?

AVERAGE ANNUAL HOUSEHOLD EXPENSES

Item	Amount
Food at home and away	\$ 6,458
Housing	16,803
Apparel and services	1,740
Transportation	8,293
Health care	3,313
Entertainment	2,572
Personal insurance, retirement savings	5,424
Other expenditures (<i>Child's school fees, contributions, gifts, etc.</i>)	5,102
Annual after-tax expenditures	\$49,705

Based on 2011 Average Annual Consumer Expenditures, U.S. Department of Labor Bureau of Labor Statistics (<http://www.bls.gov/news.release/cesan.nr0.htm>). Average household includes 2.5 persons, 1.3 earners and 1.9 vehicles. Before-tax income was \$63,685.

YOUR ESTIMATED EXPENSES

Item	Amount
Food at home and away	\$ _____
Housing	_____
Apparel and services	_____
Transportation	_____
Health care	_____
Entertainment	_____
Personal insurance, retirement savings	_____
Other expenditures (<i>Education loans, etc.</i>)	_____
Annual expenditures	\$ _____
Annual take-home pay (<i>Full-time work, part-time work, monetary gifts, etc.</i>)	\$ _____
Less annual expenses	- _____
Balances (+/-)	\$ _____

Challenge #3

Learning and Earning

Why consider postsecondary education when you haven't graduated from high school yet? Career goals and educational choices go hand in hand. But that's just one reason to research education needed for careers you might like. As you can see by the following chart, often education and earnings go hand in hand.

Research Jobs You Might Like

Your challenge is to complete the table below by researching and listing ...

- Jobs you chose when you took the career personality assessment or other jobs you might like.

- Typical education needed to get those jobs.
- Median wages for those jobs – typically what you can earn after you have been on the job for a few years.

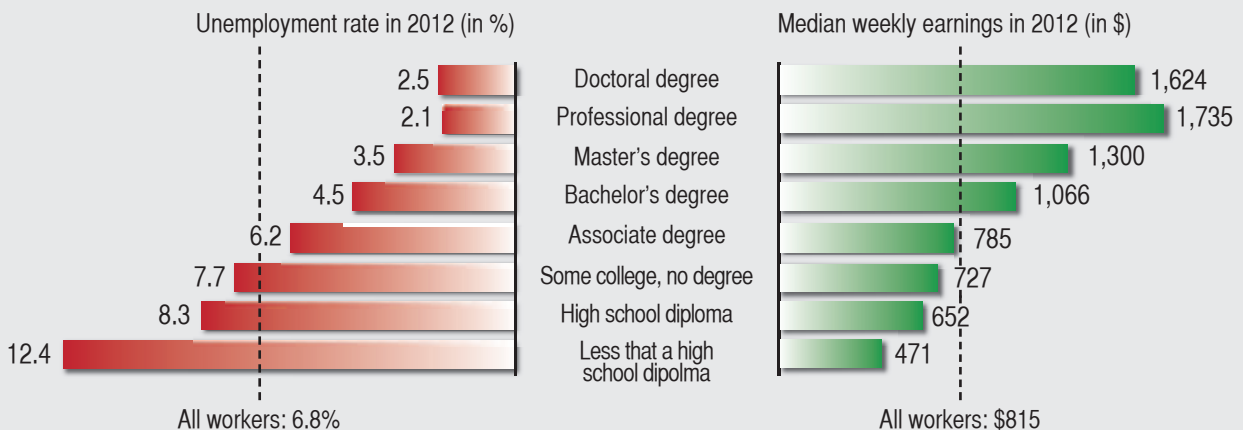
To do your research, refer to the “Explore Your Career Interests” section for lists of jobs in your two preferred occupations or access O*NET OnLine (<http://www.onetonline.org>), the *Occupational Outlook Handbook* (<http://www.bls.gov/ooh>) or other recognized sources.

A Matter of Degree

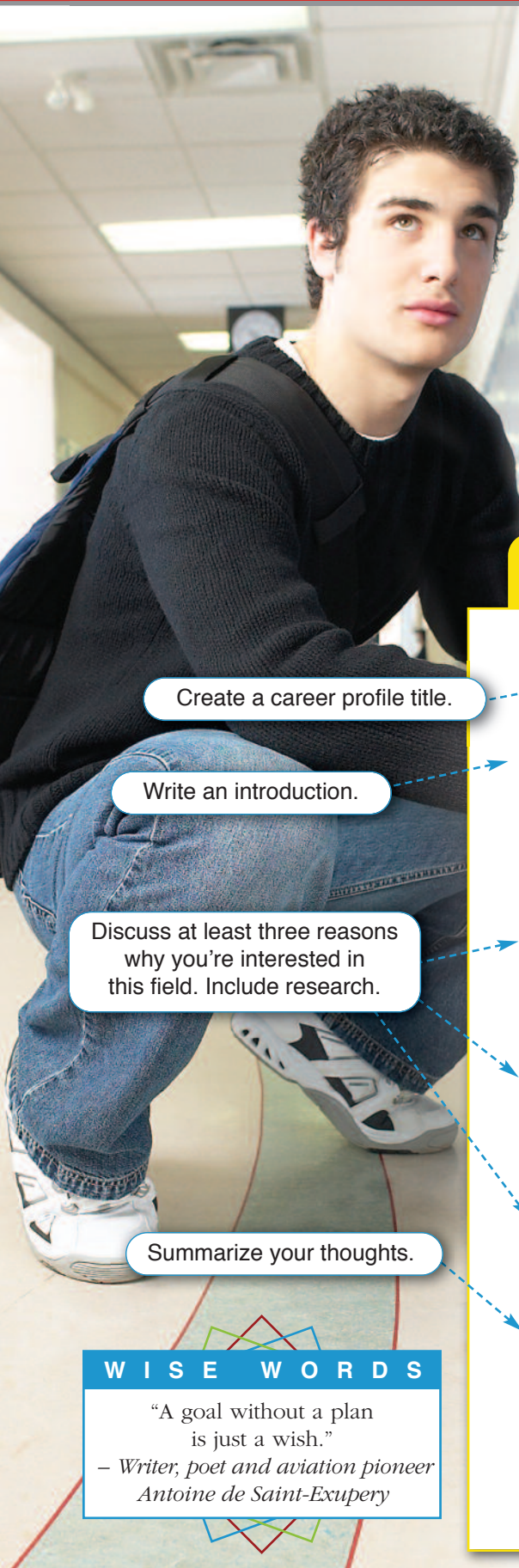
Access the following website for definitions of postsecondary degrees and certificates: Academic Degrees and Certificates – Arkansas Department of Higher Education at <http://www.adhe.edu/divisions/researchandplanning/Pages/degreedefinitions.aspx>. Find apprenticeship information at <http://www.dol.gov/dol/topic/training/apprenticeship.htm>.

My Job Choices	Education Needed	Median Wages

EDUCATION PAYS



Source: Bureau of Labor Statistics, Current Population Survey.



Personal Reflection

How I Picture My Future

While you were completing the three self-assessments, you had a chance to think critically about your “likes,” your personal accomplishments, the work environment you’d prefer and jobs you might want to pursue. You also researched education and income considerations.

Now it’s time to write a personal essay that describes your career aspirations and how you plan to achieve them. Plans can change, of course, but how you see yourself today is a great way to get a head start on creating your tomorrow.

Write your career profile (see sample below), or go to <http://carcom.com/myfuture.html> to complete and save.

Create a career profile title.

Write an introduction.

Discuss at least three reasons why you’re interested in this field. Include research.

Summarize your thoughts.

Tyler Steivart: Occupational Therapist

Sometimes children and adults who are ill or injured need new skills to go on with their lives – new ways to walk, to learn, to fix food, to button a shirt and to do other typical tasks. Occupational therapists help these patients gain skills they need for daily living.

I first learned about this career when a car hit my younger brother. A lot of medical people worked to help him recover, but he still needed to learn ways to help himself. His occupational therapist became his teacher, coach and friend.

As I watched the therapist work, I thought about a career in this field. I’m an athlete, and I like working with people in sports and school groups. A career quiz also showed that I might like a health career.

Health jobs pay well and are growing every year. With experience, occupational therapists earn about \$70,000 according to the U.S. Department of Labor. And jobs are available all over the country.

So while I’m still in high school, I will strive to earn good grades in science classes especially. I will also volunteer or get a summer job in health care. As I learn more, I may decide on another career, but I am sure it will be in health care.

W I S E W O R D S

“A goal without a plan is just a wish.”

– *Writer, poet and aviation pioneer Antoine de Saint-Exupery*

High School Planning

Professional Advice

Your Career Begins in High School

Patricia Elizondo believes that she has one of the best jobs in the world. She is Senior Vice President, Global Sales Integration – ACS/AOO at Xerox Corporation. That's the acquisitions operations office responsible for global sales integration of Affiliated Computer Services, one of the companies that Xerox purchased as part of its services-led initiative for \$6.5 billion.

"It's been a very exciting role for me to have," said Elizondo. Her career includes experience as an auditor, a customer services manager, a credit manager, a controller and a district manager of sales in major U.S. cities including Chicago, Indianapolis, Cleveland and Washington D.C.

Elizondo also brings a wealth of education to her job. She has a bachelor's degree in finance from Indiana University Bloomington and an MBA from the University of Notre Dame. However, she feels very fortunate to have supportive parents who cared about their six children doing well in public school.

"My father didn't think anything less than an A was acceptable in math and English," she said. "He felt that math was the foundation for everything you do in life.

And if you can't communicate, it's going to hurt you along the way."

She also credits her teachers, including a math teacher who commented that her brother was much better at the subject. Finding her voice, she said, "I really don't care about being better than my brother in math. I want to be better than you." He took her on, competing with her on the chalk board to see who could solve a problem first.

"It's a little lesson that served me well in business. I always remind my colleagues that we're not competing internally against our own Xerox family. We are competing against external competition."

Knowledge of a second language also is important in business. Markets in other parts of the world will continue to grow because they aren't as mature as the markets in the U.S., Elizondo explained. Raised bilingual, she is grateful that she can speak and write in Spanish. "I travel all over Europe, Spain, Latin America and Mexico. Nothing allows me to be more effective than to have knowledge of a second language."

Summing up the advice she has for students, Elizondo said, "Success is where hard work, tenacity and preparation meet opportunity. The habits formed in school – being prepared for quizzes and examinations – are the same disciplines that you need to prepare for that important client meeting or that important presentation to senior management. There is no substitute for preparation and hard work."

Writer Mary Pitchford is editor in chief.

HIGH SCHOOL OFFERS SPECIAL OPPORTUNITIES

Patricia Elizondo highly recommends that students take advantage of the various clubs and organizations their high school offers. They provide an opportunity for members to work collaboratively to achieve the objectives of that organization. "Whether you're the president of the club, one of the officers or just a member, you learn how organizations work," she said.

In fact, when Elizondo talks to potential employees, she asks, Did you belong to any school organizations? What kind of contributions did you make? What did you learn about collaboration and teamwork? What kind of leadership roles did you have? What did you learn? "Clubs are wonderful learning experiences and a safe environment for young high school students to test their leadership potential," she said.

Patricia
Elizondo



High School Planning

Start Your Educational Plan Today!



Over 3 million young people ages 16-24 graduated from high school between January and October 2012. About 2 million of them were enrolled in college in October 2012, according to the Bureau of Labor Statistics (<http://www.bls.gov/news.release/hsgec.nr0.htm>). What's the reason?

Many career choices require postsecondary education in order to get a job. Just take a look at the career cluster and pathway charts on pages 33-64 – in particular the charts that correspond with your interests. The charts contain salary and education data for more than 300 occupations, plus the projected growth rate over the next 10 years.

With postsecondary credentials or a degree in a high-demand field, job-seekers are more likely to get and keep a job, earn more money and advance in their fields. The chart on page 13 tells the story.

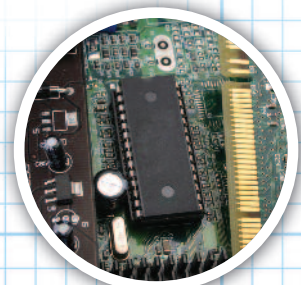
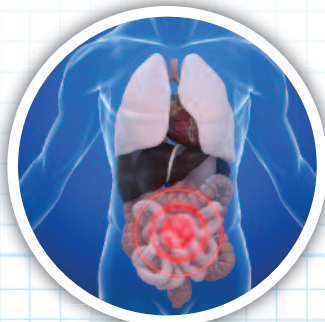
So if postsecondary education is required for your career, follow Patricia Elizondo's advice. High school is your starting place. That means you must begin planning for your future in your freshman year and graduate with a high school record that includes:

- Good grades in tough academic and career-related education classes and programs
- Participation in career-related extracurricular activities
- Good references from teachers and mentors, and
- A portfolio that includes career-related project examples or awards

Your school counselor can tell you about a variety of ways to get the education you need – college prep courses, career-related programs of study and other opportunities to learn and gain career experience while you're in high school. Popular programs include:

- **Career academies.** These college prep schools, or schools within schools, focus on particular career themes such as finance or hospitality.
- **Career cluster programs.** Career cluster programs of study are ways states, school districts and community colleges organize and provide CTE programs. These programs respond to area employment needs.
- **Career pathway programs.** Like cooperative education, apprenticeships, internships and career cluster programs, these programs connect students with employers, higher education and training, and credentials such as licenses, certificates and degrees.
- **Career-technical education.** Popular CTE programs include engineering technology, construction, culinary arts, health occupations, marketing, computer or automotive technology and more
- **Cooperative education and youth apprenticeship.** These school- and work-based programs include coursework and on-the-job experiences that prepare students to enter the workforce.
- **Dual credit.** Dual credit, also called dual enrollment, is a way juniors and seniors can earn high school and college credit at the same time.

Take advantage of these opportunities to learn. Connect with a program that can give you on-the-job experience. Strive for a solid school record. Join a career-technical student organization. Complete the planning guide in the center of this publication. And, from time to time, review the helpful High School Planning Checklist on page 23. Your effort will produce the biggest payoff of all – career success!



Learn More About Career Clusters and Pathways



ABOUT CAREER CLUSTERS

Career clusters are a framework for organizing and delivering career and technical education programs. According to the National Association of State Directors of Career Technical Education Consortium, the framework “helps students discover their interests and their passions, and empowers them to choose the educational pathway that can lead to success in high school, college and career.” The 16 clusters include:

- Agriculture, Food & Natural Resources
- Architecture & Construction
- Arts, A/V Technology & Communications
- Business Management & Administration
- Education & Training
- Finance
- Government & Public Administration
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics

High schools and postsecondary schools across the nation are developing educational opportunities that connect high school academic and technical education with higher education – the kind of education that leads to a career that meets your interests and needs.

Often called career clusters or pathways, these career-themed programs are created through partnerships that include high schools, school districts, technical schools, community colleges, colleges and universities, and representatives of business and industry in states and regions across the U.S. They give students a chance to explore careers, gain industry-recognized credentials and earn high school and college credit at the same time. Dual enrollment is important because it can help you save money and shorten the time it takes to achieve a postsecondary degree.

Learn more about these programs at <http://www.careertech.org>, <http://www.cord.org/career-pathways> and <http://nrccte.org/core-issues/programs-study>. Then contact your school counselor or counseling centers at local postsecondary schools for more information about programs in your community.

CAREER PATHWAY PROGRAMS

Created by area educational and business partners, career pathway programs of study often begin in high school and lead to postsecondary certificates and degrees. Following are a few examples:

- Johnson County Community College in Overland Park, Kansas, has a long list of high school programs of study that can be applied to an associate degree. Among them are computer-aided drafting and design, electronics technology, animation, interior design, biotechnology, dental hygiene, nursing and many more.
- Fox Valley Technical College in Appleton, Wisconsin, offers more than 200 programs in fields such as agriculture, aviation, business, construction, culinary arts, engineering, health science, information technology, law enforcement, manufacturing and marketing and transportation.
- In Oregon, a Portland Community College consortium has created several career focus areas. Among them are Applied Arts & Communications, Business & Management, Health Services, Human Services, Industrial & Engineering Systems and Natural Resource Systems.
- In Tennessee, a Nashville Community College graduate began his career as a computer networking engineer. His starting salary? \$50,000 a year! Now he’s working on a bachelor’s degree (<http://money.cnn.com/2013/02/26/pf/college/community-college-earnings/index.html>).



Get Tough About Getting Organized



Are you a procrastinator? You may already know that about yourself. If not, take a few moments to complete the quiz. Why? Because getting organized, managing your time and preparing for tests every single day is what's required to achieve life's important goals:

- A great grade-point average and an excellent high school record
- Acceptance from the postsecondary program of your choice
- And, ultimately, top job assignments that result in promotions and pay increases

Putting off projects till the last minute and rushing to re-read hastily scribbled notes and dozens of pages of text for tomorrow's big test will never pay off in the kind knowledge needed to land a good job. That's why it's time to start managing your future today.

Getting Organized

Too often people think they'll remember all of the things they have to do, from completing a project, to meeting a study partner after school, to booking a ride home after practice. But research demonstrates that switching from one task to the next takes a serious toll on productivity. According to author and educator Kendra Cherry, doing many different things at once can actually impair cognitive ability (<http://psychology.about.com/od/cognitivepsychology/a/costs-of-multitasking.htm>).

The following tips can help you organize everything from schoolwork to other life challenges:

- Toss or sell your junk, including old sports equipment, clothes you'll never wear again, toys from your childhood, etc.
- Start a filing system. List titles of materials you need to work on and store – folders for each course, for example, that contain files for each project.
- Create spaces and places for your stuff. Label and use computer or paper folders and files for current writing, math or design projects. Use digital storage media to back up finished projects and your digital portfolio. And label and use file folders, boxes or other containers to archive paper files, previous exam results you will need to review, project materials, awards or honors and equipment you currently use.
- Choose your own special place to study and do homework – a desk or table away from TV, noisy household activities and other distractions.

Managing Your Time

Time management allows you to effectively complete your schoolwork, participate in sports and hobbies, volunteer or work part-time, and still have fun with friends and family.

- Create a calendar and schedule your time.
- Make a list and prioritize homework and other tasks.
- Get to work. Do the hardest, longest tasks first. Then, when you're tired, do the easier tasks.
- Take a break. Sitting for too long will make you sluggish. A stretch break and a glass of water will improve your productivity.

Preparing for Tests

Testing doesn't end after high school graduation. Colleges ask for ACT or SAT test results. Apprenticeships have entrance tests. And many employers administer pre-employment tests of job skills.

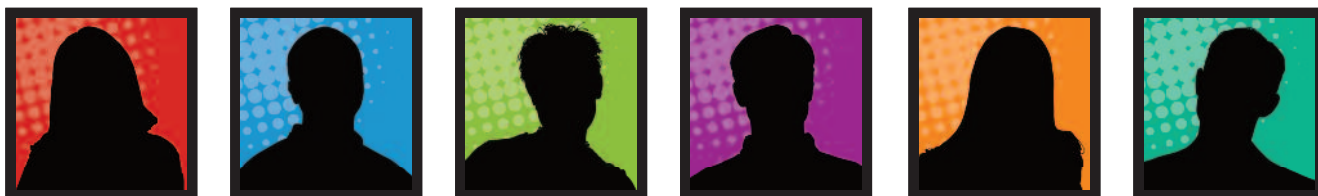
The following advice can help you improve test-taking skills both in school and on the job:

- Outline chapters as they are assigned.
- Highlight important facts.
- List topics to review and check them off.
- Review notes and homework frequently.
- Create flashcards for review.
- Make a voice recording of essential facts and listen to it.
- Complete practice tests and questions.
- Get help when you need it. Ask a teacher or call a friend if you don't understand something.
- Don't cram the night before a test. It will only make you confused, tired and anxious.

Then, on exam day, arrive early with any needed forms, information, notepads, tools and identification.

- Remember that a test isn't a race to the finish, so read directions thoroughly.
- Eliminate multiple choice answers that are obviously wrong.
- Choose answers that appear close to being correct instead of leaving an item blank.
- Recheck math calculations.
- For essays, make a quick mental outline related to key words and points cited in the question. Depending on time, write a few sentences or paragraphs that include an introduction, comments on each of the key points and a summary.

Whether it's a test, a homework assignment, a long-term project, needed education or a job you'd like, organizing, managing and controlling your time and your stuff will serve you well throughout your life.



How Well Do You Manage Your Life?

Take this quiz and see.

Give yourself a 3 for each "yes," a 2 for each "sometimes" and a 1 for each "no." Then add up your score. If you scored from 27-30 without a "no," you have excellent life management skills. If you scored from 20-60, you need some improvement in managing your life. If you scored from 10-19, it's time to turn every "no" and even each "sometimes" into a "yes."

Self-Management Skills

	Yes	Sometimes	No
1. I have a regular schedule for studying each day.	_____	_____	_____
2. I have a specific area or place I always use to study.	_____	_____	_____
3. When I study, I shut off my phone, music and TV and eliminate other distractions, including social media.	_____	_____	_____
4. My social life is planned around my exam schedule and required papers and projects.	_____	_____	_____
5. I post my assignments and exam schedule on a monthly calendar displayed on my computer, smartphone, bulletin board, door or wall.	_____	_____	_____
6. I start planning and researching a paper as soon as it's assigned rather than wait till right before it's due.	_____	_____	_____
7. I budget time to do extra readings in the subjects that interest me.	_____	_____	_____
8. I review my classroom notes nightly as well as before tests.	_____	_____	_____
9. I make time for household chores and for fun each day.	_____	_____	_____
10. I spend at least 20 minutes a day talking with my family.	_____	_____	_____
Total each column	_____	_____	_____

*Postsecondary Planning**Professional Advice*

Higher Education Is Your Chance to Succeed

You already have a fairly good idea about a future career and the kind of education you need. And you know that the latest data confirm the value of higher education – both in higher wages and job security. But when you look at Amanda Stein and Dennis Walcott's career paths, you'll discover that there's more than one kind of postsecondary education to consider.



Amanda Stein: Process Engineer

When Amanda Stein accepted a summer internship at Spirit Aerosystems in Tulsa, Oklahoma, she never expected it to lead to an aerospace industry career. She didn't take the opportunity lightly. Internships are important when it comes to getting a job.

Stein was introduced to day-to-day company operations at Spirit, absorbed everything and volunteered for whatever she could handle. Spirit liked her "I'll do it!" attitude and offered a full-time job as a quality systems specialist.

Then Stein went to work at Ducommun LaBarge Technologies as a process engineer. Ducommun LaBarge specializes in the production of highly complex, high-rate-of-change electronic and electromechanical products and systems. Today she is Site Operations Excellence Leader at Ducommun Aerostructure.

Jobs in science and technology fields pay extremely well. To soar to career heights in those fields, high school math and science classes are critical. Stein found

calculus skills later helped in understanding some advanced engineering concepts.

Stein has a bachelor's in statistics with a minor in mathematics and a master's in industrial engineering. And she has some advice to pass along to students. Don't give up if college math classes seem too difficult, she said. Most colleges and universities offer free tutoring in math centers.

Stein's hard-work attitude and her career skills also have contributed job success.

"No matter what you're hired to do, hard work gets noticed," she said. Then she added, "Dress every day in a way you would be at ease if you suddenly had to present a project to the company president – it does happen!"

Stein also suggests honing communication skills, but warns about today's common practices. "Avoid texting and emailing with acronyms. It's a hard habit to break and highlights lack of business savvy. In a work environment, everything you put in writing needs to look professional, even text messages."



Dennis Walcott: Senior Network Engineer

In the information technology world, network engineers maintain computer networks. They research and test network hardware (routers, switches, firewalls, etc.) to validate vendor feature and performance claims. They design networks, purchase hardware and install

equipment. Once the network is operational, they utilize software to track failure and bandwidth trends. And they analyze the data to determine the performance of the network as a whole and its individual components.

As a senior network engineer with Vulcan Inc., that's Dennis Walcott's job.

Getting into the business of networking was an easy transition for Walcott, who had always been interested in electronics. In high school, he took three years of electronics training (radio and television repair). Continuing his education in the military, he became an electronics technician and a quality assurance inspector. He used ATE (Automated Test Equipment) computer systems to troubleshoot missile support systems.

"Just about then computers started to take off, and so I naturally gravitated toward computers," he said, adding that the usual track would be a computer sciences degree from a four-year university.

But even more is required to excel at a career.

"Strong writing skills are definitely required," Walcott said. A lot of times your ideas or designs – the things

you are trying to accomplish – are vying with things other people are trying to accomplish, and there's a limited budget. You have to show in writing that the return on investment is worthwhile and your idea is sound."

Verbal communication is also important. "In meetings, particularly if you are troubleshooting chronic problems, or you are making a proposal that affects multiple groups, you have to be able to communicate that idea, not just in technical terms, but in laymen's terms. You have to be able to walk into a room, size up your audience and go," said Walcott, who overcame his fear of public speaking by talking to high school students about his job.

"In this fast-growing field, the pay and the perks are very good," he added.

Writer Joan Rhine, who interviewed Amanda Stein, has degrees in business and petroleum technology. Editor-in-Chief Mary Puchford interviewed Dennis Walcott.

FIND THE KIND OF EDUCATION YOU NEED

Visit with your school counselor and family members, search employment and postsecondary school websites, and read about program offerings that respond to your career goals. If you do your research and plan ahead now, higher education isn't only possible – it's your chance to succeed.

- **On-the-job training programs.** These employer-provided formal and informal programs are conducted by company trainers, managers or experienced employees at no cost to the employee.
- **Apprenticeships.** These formal, one- to six-year programs are usually registered with the U.S. Department of Labor. They provide classroom instruction and on-the-job training leading to licenses, certifications and degrees. Access more information at <http://www.doleta.gov/oa/apprentices.cfm>.
- **Short-term and one- or two-year certificates.** Certificates are granted for completing a program related to a trade or other occupation such as automotive technology and licensed practical nursing. These programs are offered at some high schools, technical schools and community colleges.
- **Associate degrees.** These degrees lead to entry-level employment or further education in a variety of fields. Usually they are granted after a two-year course of study at a community college, college, university or other degree-granting school. Are you thinking about continuing your education someday? Check if the school is accredited and whether program credits can be transferred to a college or university.
- **Bachelor's degrees.** Typically these degrees are granted after a four- or five-year course of study at a college or university.
- **Master's degrees.** Typically master's degrees are granted to students who have a bachelor's degree and have completed advanced study in their field. Passing the Graduate Records Examination (GRE) is usually required to enter master's programs, which often last two years.
- **Professional degrees.** Law and medicine are examples of professional degrees. These programs usually require an entrance examination such as the GRE, the Medical College Admission Test (MCAT) or the Law School Admission Test (LSAT).
- **Doctoral degrees.** Doctoral degrees are the highest academic or professional degrees in a variety of fields. They usually require both bachelor's and master's degrees, plus two to four years of study and research.

Postsecondary Planning

Have you decided on postsecondary education?

Start Planning for College Now!

If you've decided that postsecondary education is in your future, you'll be really glad you started planning and working toward your goals right away. Getting accepted not only means applying to more than one school that offers your kind of career program. It also means visiting the schools you might like to attend, assembling required credentials, finding ways to pay the bills and preparing for the interview.

Yes, getting accepted is just like getting a job!

Credentials

Once you've narrowed the list of schools that meet your career goals, access admissions criteria on their websites and follow the guidelines.

Typically, you will be asked to complete an application and submit it along with an application fee, recommendations, credentials such as a transcript of your high school classes, scores on the SAT and ACT tests and evidence of participation in extracurricular activities. Depending on the program you want to pursue, you may also need to write an essay or create a portfolio to include in your package.

Interviews

Was your application a winner? If so, you may be invited to interview with admissions personnel. So be prepared to answer questions or statements like these:

- Why do you want to attend our school? (Your answer shows how well you've done your research.)
- What kind of career (or major) do you want to pursue? How does your high school record reflect that?
- What is your favorite book? Or what book have you read recently? And what did you like about it? (Your answer will tell the interviewer whether you're a reader, a studier and a learner.)
- Tell me about a challenge you had to overcome. (The interviewer wants to hear how you solve problems.)
- What accomplishment or experience makes you really feel proud?
- What are your weak points? (Name one and emphasize how you have worked to overcome it.)

- What do you like to do in your spare time? ("Hangin' out" is not a good answer. Mention productive activities.)
- Do you have any questions? (Don't ask about information you can find on the school website, and don't say, "All my friends are going here." One strong answer might be "You have the kind of program I need to pursue my career goal.")

You'll also find lots of additional interview-related advice in the next section, including information on proper dress, behavior and more.

Other Do's and Don'ts

In addition to preparing good answers to interview questions, you also need to remember that "Actions speak louder than words." Like corporate human resources staff who review job applications, admissions personnel will be looking closely at your application. What will they think about you if they see:

- A sloppy application with misspellings, incomplete sentences, lists that lack parallel structure, empty spaces, etc.? (Complete a practice application first before submitting a final copy.)
- An incomplete application package? (If an essay or résumé is requested, create one for the package. In fact, it's a good idea to make a list of everything you need to include and to check it before sending.)



- A transcript that shows poor grades or lacks appropriate prerequisites for your major? (What school is going to accept a nursing student, an engineering student or an art student who hasn't produced good grades or even taken science or art classes in high school?)

Take a look at the “Postsecondary Planning Checklist” on this page. You'll see that applying for college takes more than a day.

In fact, college planning starts in high school where you'll gather the knowledge, skills, experiences and good grades required to achieve at both of your goals – higher education and a career that responds to your interests and needs.

For More Information

Go to “Finding the Right College for You” at <http://www.ed.gov/blog/2013/04/finding-the-right-college-for-you-tools-resources-from-ed>. Also see “How to Apply to College” at <http://www.wikihow.com/Apply-to-College>.



POSTSECONDARY PLANNING CHECKLIST

Ninth Grade

- Draft a high school and postsecondary plan that meets graduation requirements and responds to a future career goal.
- Participate in career-related activities.
- Attend college and career fairs.
- Create a portfolio that includes report cards, awards and volunteer and work activities.
- Talk with your parents and school counselor about higher education and how to pay for it.

Tenth Grade

- Review your educational plan, stay involved in activities, and update your portfolio.
- Take practice college entrance tests, such as the PSAT.
- Attend college and career fairs.
- Research postsecondary education options and costs, and begin to make financial plans.
- Find a career-related enrichment program, internship or summer job.

Eleventh Grade

- Check to see that your classes fulfill graduation requirements, and update your portfolio.
- Schedule college entrance tests, such as the SAT and ACT.
- Attend college and career fairs, narrow your choices, and schedule visits with admissions personnel at schools or training facilities.
- Stay involved in activities, and find a career-related enrichment program, internship or summer job.

Twelfth Grade

- Check to see that your classes fulfill graduation requirements, update your portfolio, and stay involved in activities.
- Complete the Free Application for Student Financial Aid (<http://www.fafsa.ed.gov>) and other financial forms.
- Apply to selected postsecondary programs. Be sure to include needed transcripts, fees, recommendations and requests for financial aid.
- Review acceptance letters from schools and any scholarship and financial aid offers.
- Compare education and financial options.
- Complete financial arrangements.
- Notify the selected school in writing with deposit attached. Ask the school counselor to forward final transcripts. Then notify other programs that you made another choice.

Finding Funding

Thinking about postsecondary education? Now's the time to think seriously about creating a funding plan. Start by finding the answers to tough questions like these:

- How much and what kind of education do I need to get the knowledge and skills required for a job I want?
- If I enroll in a lower-cost, two-year associate degree program, is the program accredited? Can credits be transferred to a university program if I want a bachelor's degree in the future?
- How much will my education cost?
- If I need to borrow money for college, will my future income cover both education loan payments and living expenses?
- How long will it take to pay off any loans?

Not many people can pay the full cost of postsecondary education – tuition, fees, books, living expenses, etc. But there are ways to achieve your educational goals. Get started by evaluating two or three schools that offer the kind of program you want – maybe a school near you. Then compare offerings and related costs. For more information:

- Go to the U.S. Department of Education's online College Affordability and Transparency Center at <http://collegecost.ed.gov>. You'll find lists of schools with the highest and lowest tuition and net price, information on specific school costs in comparison to similar institutions and more. Also see <http://www.studentaid.ed.gov>.
- Go to <http://www.finaid.org> for financial aid leads, tips and a variety of helpful loan calculators.
- Search online for state scholarship information.
- Search company and labor union websites for earn-and-learn programs and scholarships.
- Complete an application for federal aid at <http://www.fafsa.ed.gov>.

Also work with your family, school counselor and financial aid personnel at schools you'd like to attend to help you develop a reasonable funding plan.



BEWARE OF SCHOLARSHIP SCAMS

College funding scams abound, so be sure to protect yourself and your family from identity theft.

For example, don't provide your birthdate, Social Security or credit card number, bank account information or other personal data on financial aid websites or to someone who contacts you by phone or email with a financial aid offer. Also look carefully at offers from for-profit schools that may make money from high-interest loans. And for more information, go to:

Federal Trade Commission: <https://www.consumer.ftc.gov/articles/0082-scholarship-and-financial-aid-scams>

FinAid: <http://www.finaid.org/scholarships/scams.phtml>

How to Spot Scholarship Scams: <https://bigfuture.collegeboard.org/pay-for-college/grants-and-scholarships/how-to-avoid-financial-aid-scams>

U.S. Department of Education: <http://www2.ed.gov/about/offices/list/oig/misused/sscams.html>

Remember that you don't have to pay money to get money. There are many other ways to create a funding strategy that will provide the postsecondary education needed for a satisfying career.

Employability Skills

Professional Advice

How to Match Yourself with the World of Work

Not long after graduating from the University of Washington, Olasope Archer found a job that's the perfect match for her interests and skills. She works for AT&T and is associate manager of network engineering.

What makes her job the perfect match? According to Archer, "My background is in computer science, particularly software engineering, so basically I am a programmer. The job description said it wanted people who were interested in project management, and that is what I am interested in – project management."

Archer's first two weeks on the job were devoted to AT&T training. Then she "job-shadowed" an experienced employee who does what Archer is doing today.

Job duties include working with a team of project managers, helping them put project documentation together to present to the governance team. The team's job is to govern projects. As part of the team, Archer makes sure that documents are completed correctly – "the i's are dotted and the t's are crossed" – before the team presents the information to the board of directors.

"Our work is so busy, we have deadlines to meet, and there is something different every day. You have to be willing to learn," said Archer. She relies on her communication skills to find out what managers want and her problem-solving skills to give them what they need.

Archer also relies on email to get people to respond. "I work with great project managers, and when I send out emails, they respond immediately," she added. In addition to her computer science background,



Archer understood that knowing how to manage people is important.

"When I was at school, I chose to be the manager of several school projects. Through that process, I realized I really enjoyed project management, which is very similar to what I do today," she said. "I also was the president of my organization called WICS – Women in Computer Science. I put the things that I did for that organization on my résumé."

Archer advises students to become comfortable with Microsoft programs, including Word, Excel, Access and Project, if they want a job like hers. Becoming certified and learning about business management strategies such as "lean" and Six Sigma also would be helpful, Archer added. In fact, she is working to become certified in project management.

Looking ahead, Archer said, "Technology is growing so fast. There will always be a need for people who have an IT degree."

Mary Pitchford

NEED-TO-KNOW INFO

If a job at one of America's top businesses or industries is in your future, you will need to learn more about lean and Six Sigma – the two business strategies Olasope Archer mentioned in her career profile.

The purpose of *lean* is to continuously create more value for customers while eliminating waste. For more information, go to <http://www.lean.org/whatslean>.

Six Sigma describes a process that incorporates quality management and statistical methods to identify and remove defects in order to improve quality. Read more at http://en.wikipedia.org/wiki/Six_Sigma.

IT'S A FACT

Computer and mathematical occupations are expected to grow 22 percent by 2020 and produce 778,300 new jobs. (<http://www.bls.gov/opub/mlr/2012/01/art5full.pdf>).

Get Smart About Getting a Job

Searching for a job is exciting and challenging. Part of the challenge is to protect two of your most important assets – your identity and your good reputation. In addition to knowledge, skills and abilities, those assets are what employers want in a member of their team.

Avoid Identity Theft

Identity thieves don't just steal driver's licenses and Social Security cards. They also look for personal information on cover letters and résumés, so ...

- Be careful about placing complete personal contact information on national and international job sites. Your name and a dedicated email address are all someone needs to contact you.
- Phony recruiters, fake companies and criminals can access job databases and create websites seeking cover letters and résumés. If an unknown company contacts you, find out if it's real before you reply.
- Never give out your birthdate, birthplace, passwords, mother's maiden name, Social Security number, driver's license number, or other personal information to someone on the phone. Also don't supply it on your résumé or an application form. Simply fill in the blank with "Provided when hired."

For more information, review "Avoiding Online Job Scams" (<http://www.privacyrights.org/fs/fs25a-JobSeekerPriv2.htm>) and "How to Avoid Identity Theft When Job Searching" (<http://jobsearch.about.com/od/jobsearchprivacy/a/identitytheft.htm>).

Be Smart About Social Media

About 90 percent of employers will check your name in a search engine and find your social media profiles, according to a story in *U.S. News & World Report* (<http://money.usnews.com/money/blogs/outside-voices-careers/2011/10/27/employers-will-check-your-social-media-profiles>). They're looking for party photos, drug and alcohol use, inappropriate language and behavior, negative comments about employers and anything else that could affect your job or reflect on the company.

In fact, some employers will ask for access to your social media accounts. So be smart about using social media to present a professional image. And be smart about your friends and their contacts. "Digital dirt"

about you can make a bad impression on a current or future employer.

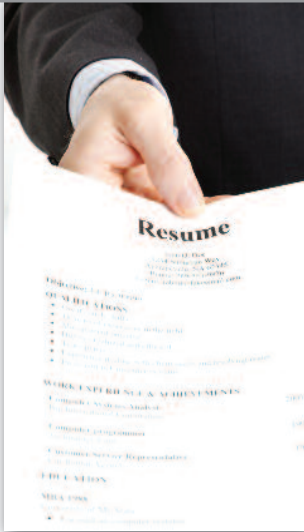
Count on a Background Check

You know that a bad credit score affects one's ability to buy a car, open a bank account, rent an apartment or get a job.

But did you know that many employers conduct drug testing and extensive background checks for past legal problems before they hire or promote someone? In fact, some employers are asking schools to check students' backgrounds before accepting them for internships.

For more information about dealing with background checks and digital dirt, access the Privacy Rights Clearinghouse (<http://www.privacyrights.org/fs/fs16-bck.htm>) and "Digital Dirt' Can Haunt Your Job Search" (<http://www.cnn.com/2009/LIVING/worklife/10/12/cb.digital.trail.job.search>).





Job-Getting Tips that Work

You're doing your job research. Perhaps you've signed up for a volunteer or part-time job to continue using your skills and build your network. Here are other job-getting tips that can work for you as well:

Customize Your Cover Letter and Résumé

Your cover letter and résumé are ways to tell an employer how your experience, education and skills meet company needs.

But here's a word to the wise – customize. Hiring managers can spot “canned” cover letters and résumés in a glance.

You'll find many pages of advice on the Internet about how to customize these job-getting marketing tools. Start searching at <http://www.bls.gov/opub/ooq/1999/summer/contents.htm> and http://www.quintcareers.com/resume_samples.html. Or begin with the model cover letter and résumé you see on the next two pages.

Get Ready for the Interview

What would an interviewer think if you asked for a pen, some paper and a phone book to complete an application? To be prepared:

- Take a note pad, a pen and pencil and money for parking.
- Bring the names, addresses and phone numbers of former employers or supervisors, your references (ask permission first) and schools you've attended.

They're needed, along with dates of employment and attendance, to complete the usual forms.

- Carry your photo ID and Social Security card, but, to avoid identity theft, present them only if the interviewer presents a solid job offer that you want to take.
- Prepare for questions that interviewers will ask you, such as “Why do you want to work here?” and “What skills do you have that will benefit our company?” Review the company website for information. Also go to QuintCareers.Com at http://www.quintcareers.com/interview_questions.html and http://www.quintcareers.com/interview_question_database.
- And bring questions of your own, including “What are the day-to-day responsibilities of this job?” and “What are your major expectations of employees?”

Behave Like a Pro

- Dress up, be on time, shake hands and speak professionally.
- Greet everyone you see with a smile and treat each person with respect. Interviewers often ask front-desk staff what they observed about an interviewee.
- Turn off your cell phone before you enter the front door.
- Be sure to send a thank-you note.

Sample Cover Letter and Résumé

A cover letter is your first chance to sell yourself. The sample below is like a 30-second TV spot or a magazine ad. It answers the “buyer’s” – in this case the hiring manager’s – main questions: “Can this person meet my needs?” and “Why should I ‘buy’ this particular person?”

KENNETH CAPABLE
1258 Elliott Drive
Hometown, MO 65505
537-515-1234
KC@somewhere.com

Month Day, Year

Karla Capitano
IT Systems Manager
TTET Energy Products, Inc.
Bigtown, Ohio 41112

Dear Ms. Capitano:

The data management position you posted online closely matches my experience. I feel that my technical skills and leadership abilities will contribute to your company’s growth.

In my current position, I work with information technology experts to design systems. My associate degree in information technology prepared me well for this position. I also use my writing and speaking skills to create presentations to inform and instruct IT users.

Please review the enclosed résumé. I believe my experiences and skills are well-suited for your data management position, and I look forward to discussing them with you. You may contact me any time by phone or email, and thank you for your consideration.

Sincerely,
Kenneth Capable
Enclosure

Paragraph 1 names the position you want and cites your value to the company.

Paragraph 2 summarizes the experience you have that best meets the employer’s needs.

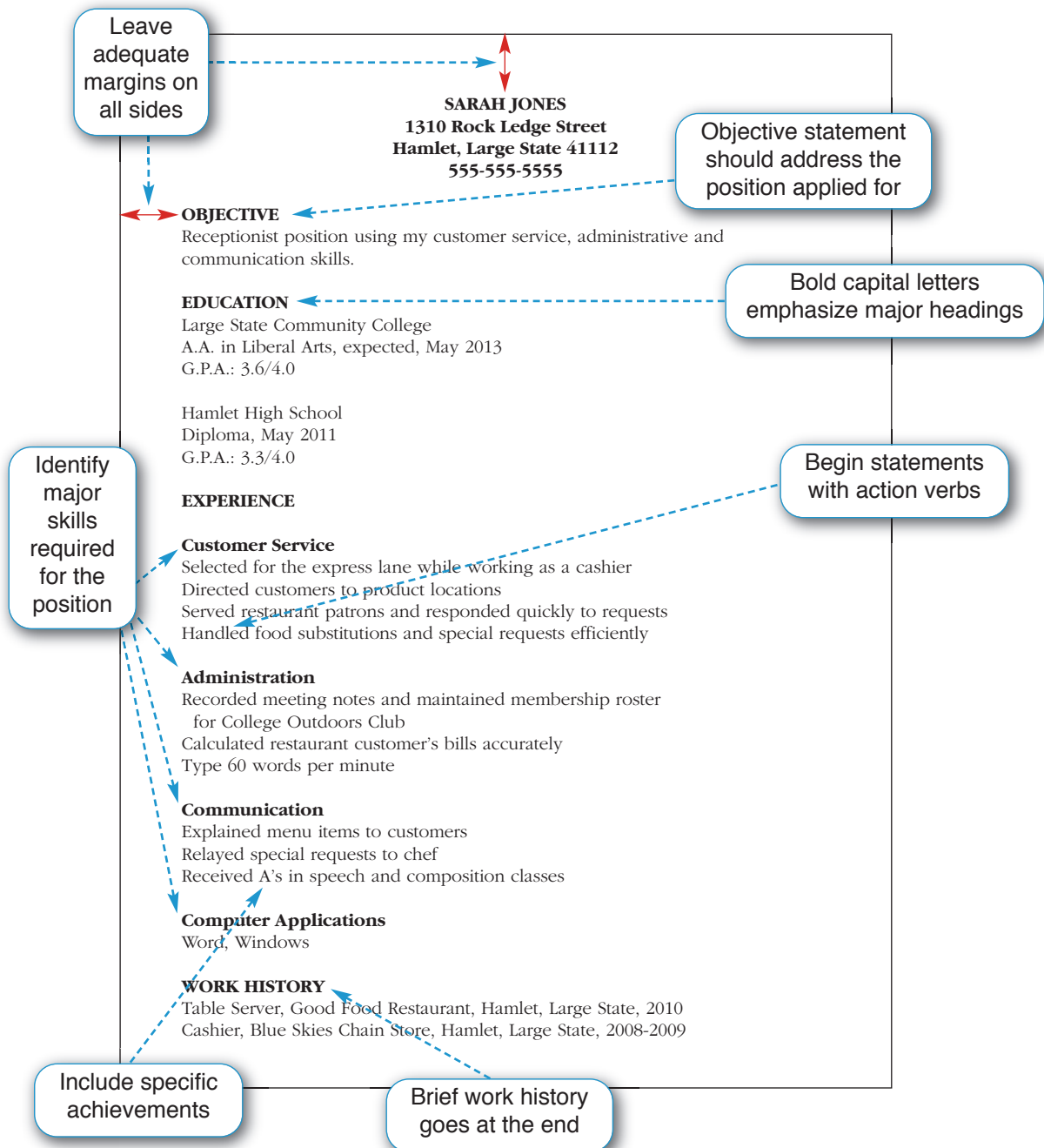
Paragraph 3 restates your value and asks for the “sale” – an interview.

Draft Your Own Cover Letter • Go to: www.carcom.com/mycoverletter.html • Fill it out and save.

Résumés and More

If you plan to look for a part-time summer job, likely you'll have to complete an application form like the one you see at [http://www .quintcareers.com/employment_application.pdf](http://www.quintcareers.com/employment_application.pdf). A résumé also may be required.

The “functional résumé” you see is great for entry-level applicants. It appears in a more extensive article on “Résumés, Applications, and Cover Letters” in the *Occupational Outlook Quarterly* at <http://www.bls.gov/opub/ooq/2009/summer/art03.htm>. For other résumé examples and advice, go to Quintessential Careers at http://www.quintcareers.com/resume_samples.html.



Draft Your Own Résumé • Go to: www.carcom.com/myresume.html • Fill it out and save.



Staying Hired

Getting a job is one thing. Keeping it is another. People who get fired too many times have a hard time finding future work. To help yourself stay hired, follow this advice from career experts:

- Be on time, ready to begin work.
- Dress and act appropriately, and speak politely. Business etiquette is a plus if you want to stay hired.
- Demonstrate energy, confidence, flexibility, problem-solving, leadership and communication skills.
- Read the employee handbook, and play by the rules when it comes to company requirements.
- Create a reputation as a trustworthy, reliable, productive worker.
- Use the phone, computer and company equipment for business purposes only.
- Don't gossip about the company, either online or with others. Gossip creates false information as it's passed around to people inside or outside of the company. Rumors can embarrass you, hurt your reputation and get you fired.
- Remember that company property is not your property. Leave it at the worksite.
- Sick? Call your boss when you're too ill to come to work, and let your boss know when you'll return.
- Vacation? Let your employer know at least two weeks in advance.
- Learn more about the company's goals and priorities. Then you'll understand which projects come first in line.
- Be a responsible team member, and complete your contribution on time.

- Let your boss or team leader know about your progress on a project. Ask for information or help as soon as you need it. Then your finished work will be acceptable, and you'll be able to meet your deadline.
- Keep your skills up to date. Read the latest information in print and online, and participate in workshops and classes. Your boss and others will see you as an expert.

PLAY IT SAFE

If you were a boss, what would you think if an employee ...

- Frequently roamed the halls and chatted with co-workers?
- Turned up in restricted areas or private offices?
- Took long breaks and often called in sick, particularly on Mondays and Fridays?
- Was texting or making frequent personal phone calls?
- Used the Internet to play games or visit social media sites?
- Made faces or inappropriate gestures?
- Flirted with or harassed other employees?

Your boss isn't the only watchdog. From security cameras to computer tracking software, the eyes of the company are upon you. So when it comes to keeping your job, play it safe.

Reality Check

Must-Have Job Skills

Employers are cautious about every dollar spent on employees. To land a job or win a promotion today, you'll need to demonstrate job skills like these:

- **Clear communications** – The ability to converse and write proposals coherently and spell and proof your work.
- **Personal branding** – Respectability, dignity, good character, courtesy, good behavior and other personal characteristics that reflect positively on you and your employer that are demonstrated both in person, in writing and in the way you use social media.
- **Flexibility** – The ability to quickly respond to your employer's needs.
- **Productivity improvement** – The ability to understand what's needed, look for ways to help and volunteer for projects.

SOURCE: "Must-Have Job Skills in 2013" by MarketWatch reporter Ruth Mantell, *The Wall Street Journal*, November 18, 2012

Don't Guess About Postsecondary Choices

Half of high school graduates did not evaluate postsecondary schools before applying and were disillusioned with their employment outcomes after graduating, according to a McKinsey & Co. study entitled *Voice of the Graduate*.

As part of the admissions process, you need to ask questions about postsecondary schools' graduation rates and alumni employment rates. And, if you're borrowing money to pay for college, do the math. After you graduate, will you earn enough money to pay college loans, rent, transportation and other living essentials?

SOURCE: "Overqualified Yet Underprepared, Graduates Face 'Unique Paradox': Study" by news associate Jermaine Taylor, CNBC, May 11, 2013 (http://www.cnbc.com/id/100727466#_gus)

Helpful Career Sites

Searching for education, career and job advice? Start searching here:

- CareerOneStop: <http://www.careeronestop.org>
- O*NET OnLine: <http://www.onetonline.org>.
- Salary.com: <http://www.salary.com>
- State labor department offices: http://www.dol.gov/whd/contacts/state_of.htm
- Federal government jobs: <http://www.usajobs.gov>

Top-Paying Majors

The National Association of Colleges and Employers found that six engineering majors were among the 10 highest-paid at the bachelor's-degree level, and liberal arts and sciences/general studies and history were the top-paid liberal arts majors, according to results of salary surveys published in January and April 2013.

Majors and starting salaries include:

- Computer engineering, \$70,400
- Chemical engineering, \$66,400
- Aerospace/aeronautical/astronautical engineering, \$64,000
- Mechanical engineering, \$62,900
- Electrical/electronics and communications engineering, \$62,300
- Civil engineering, \$57,600
- Computer science, \$64,400
- Finance, \$57,300
- Construction science/management, \$56,600
- Information sciences and systems, \$56,100
- Liberal arts and sciences/general studies, \$42,300
- History, \$41,200
- English, \$39,800
- Visual and performing arts, \$33,400

SOURCE: National Association of Colleges and Employers at <http://www.nacweb.org/salary-survey-data>.

What Skills Do Employers Want?

In addition to career-related classes, search company websites for other skills employers may want. For example, "Suppose you're sitting in a meeting with clients and someone asks you how long a certain digital project is slated to take ... If you want a job in media, technology or a related field, make learning basic computer language your goal," says Kirk McDonald president of PubMatic, an ad tech company.

SOURCE: "Sorry, College Grads, I Probably Won't Hire You," *The Wall Street Journal*, May 9, 2013.

Can't Find a Job at Home?

Explore relocation. Being more mobile increases the chance of gaining a job offer.

SOURCE: *Library Journal* at <http://reviews.libraryjournal.com/2012/01/collection-development/career-reality-check/>

How To Use Your Future Planning Guide

You have answered the questions and done the quizzes. You've thought about your future and how to fund the kind of life you want to live. You've reviewed data on the career clusters and related jobs that interest you. You've learned about education needed for the kinds of jobs you would like.

So now you're ready to complete your high school plan. Here's how:

- 1 List a career cluster and related occupation that you would enjoy (See pages 33-64):

Career Cluster: _____

Occupation: _____

For information, review sample high school plans of study (<http://www.careertech.org/career-clusters/resources/plans.html>)

- 2 Meet with your school counselor, who can:
 - Provide you with information about graduation requirements and high school programs of study
 - Help you create your plan both for high school and postsecondary education
 - Advise you about postsecondary education options, schools and scholarships
- 3 Research postsecondary options to learn more about:
 - Education needed in your field – certificate, associate degree, bachelor's degree or higher
 - Schools or programs that can meet your needs – high school career-technical education/dual credit options, apprenticeships, technical schools, community colleges, colleges or universities
 - Education-related costs and financing options

Based on that information, you're ready to draft a high school and postsecondary plan to share with your school counselor, family and other advisers. And if your plans change, change the plan. You've done the work to build the foundation for a successful future!





Growing Green

Whatever impacts our natural habitat and the production, processing and transportation of our food affects both our environment and our personal well-being. That's why people are becoming more concerned about conservation and sustainable agriculture and why more jobs in these fields are becoming "green jobs."

From farm jobs ... to food and soil science jobs ... to farmland and groundwater preservation ... to natural resources management ... to the business side of these industries – whatever kind of job you choose in the Agriculture, Food & Natural Resources career cluster – you'll need a background in science, technology, engineering and mathematics (STEM).

JOIN FFA

The National FFA Organization (<http://ffa.org>) helps members develop their talents, explore their interests and plan for their education, career and personal future in agriculture and natural resources. See your school counselor to find out if there's an FFA chapter at your school.

Your high school may offer a career cluster-related program of study that includes these subjects – subjects that can lead to postsecondary programs in the field you choose. In fact, many jobs in this cluster require an associate or a bachelor's degree.

So if you enjoy STEM-related school subjects and want to make a contribution to producing healthful food and a green environment, you will enjoy careers in agriculture and natural resources.

NATURAL RESEARCH

U.S. Department of Agriculture:
<http://www.usda.gov/wps/portal/usdahome>

U.S. Department of the Interior:
<http://www.doi.gov>

Farm Service Agency: <http://www.fsa.usda.gov>

Natural Resources Conservation Service:
<http://www.nrcs.usda.gov>

Rural Development: <http://www.rurdev.usda.gov>

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
FOOD PRODUCTS AND PROCESSING SYSTEMS			
Agricultural and Food Science Technicians	Associate degree	21,300 / 7 %	\$32,760 per year \$15.75 per hour
Agricultural and Food Scientists	Bachelor's degree, master's for advancement	33,500 / 10%	\$58,450 per year \$28.10 per hour
Management Analysts	Bachelor's degree	718,800 / 22%	\$78,160 per year \$37.58 per hour
PLANT SYSTEMS			
Biochemists and Biophysicists	Doctoral or professional degree	25,100 / 31%	\$79,230 per year \$38.09 per hour
Farmers, Ranchers and Other Agricultural Managers	High school diploma, plus experience, bachelor's preferred	1,202,500 / -8%	\$60,750 per year \$29.21 per hour
Soil and Plant Scientists	Bachelor's degree	11,860 / 10%	\$58,940 per year \$28.34 per hour
ANIMAL SYSTEMS			
Animal Scientists	Doctoral or professional degree	1,800 / 10 - 19 %	\$61,230 per year \$29.44 per hour
Veterinary Technologists and Technicians	Associate degree	80,200 / 52%	\$29,710 per year \$14.28 per hour
Zoologists and Wildlife Biologists	Bachelor's degree, master's for advancement	19,800 / 7%	\$57,430 annual \$27.61 per hour
POWER, STRUCTURAL AND TECHNICAL SYSTEMS			
Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary vocational training, associate degree preferred	141,100 / 3%	\$49,170 per year \$23.64 per hour
Heavy Vehicle and Mobile Equipment Service Technicians	Related high school courses, postsecondary programs and degrees preferred	179,200 / 16%	\$42,630 per year \$20.50 hourly
Water and Wastewater Treatment Plant and System Operators	High school diploma, certificate or associate degree	110,700 / 12%	\$40,770 per year \$19.60 per hour
NATURAL RESOURCES SYSTEMS			
Environmental Scientists and Specialists	Bachelor's degree	89,400 / 19%	\$61,700 per year \$29.66 per hour
Natural Sciences Managers	Bachelor's, master's or doctoral degree, plus experience	49,300 / 8%	\$116,020 per year \$55.78 per hour
Surveying and Mapping Technicians	High school diploma, postsecondary training, associate or bachelor's degree	56,900 / 16%	\$37,900 per year \$18.22 per hour
ENVIRONMENTAL SERVICE SYSTEMS			
Environmental Engineers	Bachelor's degree	51,400 / 22%	\$78,740 per year \$37.86 per hour
Environmental Engineering Technicians	Associate degree	18,800 / 24%	\$43,390 per year \$20.86 per hour
Environmental Scientists and Specialists	Bachelor's degree, master's for advancement	89,400 / 19%	\$61,700 per year \$29.66 per hour
AGRIBUSINESS SYSTEMS			
Environmental Compliance Inspectors	Bachelor's degree	217,000 / 10 - 19%	\$60,740 per year \$29.20 hourly
Financial Managers	Bachelor's degree, plus experience	527,100 / 9%	\$103,910 per year \$49.96 per hour
Purchasing Managers, Buyers and Purchasing Agents	Moderate-term training and experience	487,200 / 7%	\$58,360 per year \$28.06 per hour

Creating Our Built Environment

BUILDING TRENDS

Thinking of a career in architecture and construction? Here are some trends that will impact your future:

- **Environmental Design** – selecting furniture, fixtures and materials – often recycled – which are free of chemicals, hypoallergenic and energy efficient (also known as “green design”)
- **Ergonomic Design** – designing work spaces and furniture that emphasize good posture and minimize muscle strain
- **Elder Design** – planning, designing and constructing spaces that will aid in the movement of elderly and disabled people, including such things as widening hallways to accommodate wheelchairs

BUILDING KNOWLEDGE

Architecture Careers: <http://www.archcareers.org>

Construction Careers: <http://www.constructmyfuture.com> and <http://chooseconstruction.org>

Electrician Careers: http://chooseconstruction.org/trade_elec.htm

Engineering Careers: <http://www.discoverengineering.org> and <http://egfi-k12.org/>

Engineering Technicians: <http://www.eteducation.org>

Landscaping Careers: <http://www.asla.org>

GET INVOLVED

SkillsUSA is a national nonprofit organization serving teachers and high school and college students who are preparing for careers in trade, technical and skilled service occupations, including health occupations. The Technology Student Association (<http://www.tsaweb.org/TSA-Facts>) fosters personal growth, leadership, and opportunities in technology, innovation, design and engineering.

Wherever humans live, work or play ... in whatever way we get our food, water, clothing and the energy that powers our homes ... no matter how we travel by roads, bridges and air ... and whatever joy we experience from playgrounds, athletic fields and parks, we're sustained by our built environment.

It's the environment created by the people who plan, design, manage, build and maintain the surroundings and conditions that support our needs – the people who work in Architecture & Construction. And if you can handle the education and training needed, the variety of hours and work settings, and any licensing requirements and other demands, you're likely to enjoy a good income and increased job opportunities.

Bureau of Labor Statistics projections in the spring 2010 *Occupational Outlook Quarterly* (<http://www.bls.gov/opub/ooq>) indicate that construction industry employment will increase by 1.8 million workers between 2010-2020. And 358,000 new jobs will open for architectural, engineering and related workers.

If you're interested, realize that it's important to study hard in school and obtain a good education in science, technology, engineering and mathematics (STEM). And if you want to be an architect, add art classes to that mixture. Some undergraduate programs may require a design portfolio.

But hours of study and hard work often bring special rewards for people in architecture and construction – a job well done that will stand the test of time and the satisfaction of knowing that they've served the community.

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
DESIGN/PRECONSTRUCTION			
Architects	Bachelor's degree, license	113,700 / 24%	\$72,550 per year \$34.88 per hour
Architects, Landscape	Bachelor's degree	21,600 / 16%	\$62,090 per year \$29.85 per hour
Architectural and Engineering Managers	Bachelor's degree, experience	176,800 / 10 - 19%	\$119,260 per year \$57.34 per hour
Civil Engineers	Bachelor's degree	262,800 / 19%	\$77,560 per year \$37.29 per hour
Civil Engineering Technicians	Associate degree	79,000 / 12%	\$46,290 per year \$22.26 per hour
Cost Estimators	Bachelor's degree	185,400 / 36%	\$57,860 per year \$27.82 per hour
Interior Designers	Bachelor's degree	56,500 / 19%	\$46,280 per year \$22.25 per hour
Surveying and Mapping Technicians	Postsecondary training, associate or bachelor's degree	56,900 / 16%	\$37,900 per year \$18.22 per hour
Surveyors	Bachelor's degree	51,200 / 25%	\$54,880 per year \$26.39 per hour
CONSTRUCTION			
Brickmasons, Blockmasons and Stonemasons	Apprenticeship	104,800 / 40%	\$45,410 per year \$21.83 per hour
Carpenters	High school diploma or equivalent, apprenticeship	1,001,700 / 20%	\$39,530 per year \$19.00 per hour
Cement Masons and Concrete Finishers	High school diploma or equivalent, on-the-job training, apprenticeship	148,400 / 34%	\$35,530 per year \$17.08 per hour
Construction Equipment Operators	Apprenticeship, on-the-job or military training, trade school	404,900 / 23%	\$39,460 per year \$18.97 per hour
Construction Laborers and Helpers	Short-term on-the-job training, apprenticeship	1,250,200 / 25%	\$28,410 per year \$13.66 per hour
Construction Managers	Associate degree plus experience, bachelor's degree preferred	523,100 / 17%	\$83,860 per year \$40.32 per hour
Electricians	High school diploma or equivalent, apprenticeship, technical school, license	577,000 / 23%	\$48,250 per year \$23.20 per hour
First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent, some college, associate degree	559,000 / 20 - 28%	\$59,150 per year \$28.44 per hour
Plumbers, Pipefitters and Steamfitters	Apprenticeship, technical school, license	419,900 / 26%	\$46,660 per year \$22.43 per hour
Security and Fire Alarm Systems Installers	High school diploma or equivalent, some college	64,000 / 29% or higher	\$39,540 per year \$19.01 per hour
Sheet Metal Workers	Apprenticeship, technical school	136,000 / 18%	\$41,710 per year \$20.05 per hour
MAINTENANCE/OPERATIONS			
Construction and Building Inspectors	High school diploma, experience, certificate or license, associate or bachelor's degree	102,400 / 18%	\$52,360 per year \$25.18 per hour
General Maintenance and Repair Workers	High school diploma or equivalent, technical education	1,289,000 / 11%	\$34,730 per year \$16.70 per hour
Grounds Maintenance Workers	License for workers who apply pesticides	1,249,700 / 20%	\$23,740 per year \$11.41 per hour
Heating, Air Conditioning and Refrigeration Mechanics and Installers	Technical training, apprenticeship, certificate, associate degree	267,800 / 34%	\$42,530 per year \$20.45 per hour

Arts, A/V Technology & Communications



Entertainment and Information

Could there be a role for you?

When you attend a concert or a musical ... find helpful information on a health website ... view a newscast, movie or football game ... open the pages of a new novel ... or respond to a product ad, think about the industries and the jobs for people who gather and package your entertainment and information.

From broadcasting and print media to Internet blogs, performance venues and more, you'll find thousands of arts and communications specialists who work around the clock to create content and the environment in which it's delivered. There are jobs for animators, set and costume designers, stylists, performers, directors, lighting and sound technicians, videographers, producers, arts administrators, writers, editors, graphic designers, webmasters, technical specialists and more.

You'll find them at work in a variety of businesses and industries. From agriculture to banking and finance, education and government to health care, manufacturing to retail sales, employers all need communication professionals to handle website and video content, advertising and marketing programs, client and customer news, corporate financial communications and media relations.

Education Needed

Most of these jobs require postsecondary education that provides knowledge of a chosen field and technical skills as well.

A four-year college degree is the primary path to careers in writing, editing, reporting, advertising, design, marketing, technical communications and related fields, according to the Bureau of Labor Statistics.

Performing artists often begin training in childhood. Today, however, many earn college degrees so they can pursue related opportunities in the future.

With experience and a degree, performers can find jobs with theaters, symphonies, concert venues, galleries, museums, historical sites and universities, colleges and schools. Almost all arts administrators and arts educators have a four-year college degree or higher.

All of these fields offer job opportunities for information technology, media and communication equipment workers and other specialists. According to the Bureau of Labor Statistics, sound engineering technicians can best prepare by getting technical school, community college or college training in broadcast technology, sound engineering technology, communications technology, electronics or computer networking. Many audio and video equipment technicians have community college degrees as well.

Are you interested in entertainment and information? The Arts, A/V Technology and Communications career cluster includes a variety of occupations that combine creativity, imagination and technology.

CREATIVE RESEARCH

Animation: <http://www.disneyanimation.com>

Broadcast engineering: <http://www.ieee.org/index.html>

Graphic design: <http://nasad.arts-accredit.org>

Journalism: <http://www.spj.org> and <http://www.hsj.org>

Performing arts: Search <http://www.bls.gov/oco/home.htm> and <http://www.onetonline.org>.

Public relations: <http://www.prssa.org>

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
AUDIO AND VIDEO TECHNOLOGY AND FILM			
Broadcast and Sound Engineering Technicians	High school diploma or equivalent, technical certificate, associate degree	116,900 / 10%	\$39,870 per year \$19.17 per hour
Computer Programmers	Bachelor's degree	363,100 / 12%	\$71,380 per year \$34.32 per hour
Electrical and Electronics Installers and Repairers	Technical certificate	141,100 / 3%	\$49,170 per year \$23.64 per hour
PRINTING TECHNOLOGY			
Printing Workers (Includes Prepress Technicians, Press Operators and Print Binding and Finishing Workers)	Prepress Technicians: associate degree or certificate; others, high school diploma	304,600 / -4%	\$33,150 per year \$15.94 per hour
VISUAL ARTS			
Art Directors	Bachelor's degree, experience	73,900 / 9%	\$80,630 per year \$38.77 per hour
Commercial and Industrial Designers	Associate or bachelor's degree	41,000 / 10 - 19%	\$60,760 per year \$29.21 per hour
Curators, Museum Technicians and Conservators	Bachelor's degree, master's preferred	23,800 / 16%	\$42,310 per year \$20.34 per hour
Graphic Designers	Bachelor's degree	279,200 / 13%	\$43,500 per year \$20.92 per hour
Multimedia Artists and Animators	Bachelor's degree	66,500 / 8%	\$58,510 per year \$28.13 per hour
Photographers	Bachelor's or associate degree or technical certificate, depending on field	139,500 / 13%	\$29,130 per year \$14.00 per hour
PERFORMING ARTS			
Actors	Some college	66,500 / 4%	\$17.44 per hour; jobs usually short term
Film and Video Editors and Camera Operators	Bachelor's degree	58,300 / 4%	\$45,490 per year \$21.87 per hour
Music Directors and Composers	Bachelor's degree, experience	93,200 / 10%	\$45,970 per year \$22.10 per hour
Producers and Directors	Bachelor's degree, experience	122,500 / 11%	\$68,440 per year \$32.90 per hour
Set and Exhibit Designers	Bachelor's degree	11,700 / 10%	\$46,680 per year \$22.44 per hour
JOURNALISM AND BROADCASTING			
Advertising, Promotions and Marketing Managers	Bachelor's degree, experience	216,800 / 14%	\$108,260 per year \$52.05 per hour
Public Relations Managers and Specialists	Bachelor's degree	320,000 / 21%	\$57,550 per year \$27.67 per hour
Reporters, Correspondents and Broadcast News Analysts	Bachelor's degree	58,500 / -6%	\$36,000 per year \$17.31 per hour
Technical Writers	Bachelor's degree	49,500 / 17%	\$63,280 per year \$30.42 per hour
Writers and Authors	Bachelor's degree	145,900 / 6%	\$55,420 per year \$26.64 per hour
TELECOMMUNICATIONS			
Line Installers and Repairers	High school diploma or equivalent, technical instruction, long-term on-the-job training	269,100 / 13%	\$54,290 per year \$26.10 per hour
Telecommunications Equipment Installers and Repairers	Technical education, associate or higher degree, industry certification	194,900 / 15%	\$54,710 per year \$26.30 per hour



Thinking About a Career in Business?

It's a world of opportunity!

Nearly every day, you or someone you know will use or purchase a product or service. That product or service was created, produced, manufactured or offered by people who work in the world of business.

If you're interested in working in that world, you'll find a long list of opportunities. There are jobs for customer service representatives, administrative assistants, office managers, supervisors, department directors, accountants, high-powered decision makers and more. And you'll find jobs like these at multi-million-dollar companies, small or mid-sized businesses and nonprofit or government agencies.

Some People Create Businesses

Rather than working for others, some people like to set their own course, make their own decisions and use their energy and drive to create their own businesses. These entrepreneurs spend long hours at work, take financial risks and handle marketing, sales and customer service for their companies. But, as sales increase, so do profits and company growth.

Entrepreneurship may not be for everyone, but if you have a vision, a plan and the drive to succeed through your own work, it could be for you. Look at Bill Gates, founder of Microsoft Corporation. His vision of a computer software company started in his garage. Today, he's one of the most successful entrepreneurs in the world.

Want to Play with Money?

A love of math may mean a future job for you in the financial world.

In that world, you could work in a bank and eventually become a bank officer. You also could be a credit manager who lends money to people or businesses.

As an accountant, you could help individuals and businesses understand and keep track of income and expenses and complete complex tax forms. That's a helpful service when it comes to managing personal wealth and business health.

Or, with a knowledge of finance and economics, you could be a financial adviser, helping individuals and businesses earn money on savings accounts, stock purchases and other investments.

Do you want to make things happen in the business world? Everything you do in school – including the classes you take, your business electives, the organizations you join – will give you the knowledge, skills and experiences you need to succeed in the world of business.

BUSINESS INFORMATION

For an up-close, first-hand look at business careers, join a business student organization at your school. Ask your school counselor about Business Professionals of America (<http://www.bpa.org>), DECA (<http://www.deca.org>) and Future Business Leaders of America (<http://www.fbla-pbl.org>).



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
GENERAL MANAGEMENT			
Chief Executives	Bachelor's or master's degree, experience	370,000 / 3 - 9%	\$166,910 per year \$80.25 per hour
General and Operations Managers	Associate or bachelor's degree depending on field, experience	1,767,000 / 3 - 9%	\$95,150 per year \$45.74 per hour
Treasurers and Controllers	Bachelor's plus experience, master's preferred, certification	527,000 / 9%	\$103,910 per year \$49.96 per hour
BUSINESS INFORMATION MANAGEMENT			
Accountants and Auditors	Bachelor's degree	1,216,900 / 16%	\$61,690 per year \$29.66 per hour
Computer and Information Systems Managers	Bachelor's degree, experience	307,900 / 18%	\$115,780 per year \$55.67 per hour
Management Analysts	Bachelor's degree	718,800 / 22%	\$78,160 per year \$37.58 per hour
Network and Computer Systems Administrators	Bachelor's degree	347,200 / 28%	\$69,160 per year \$33.25 per hour
HUMAN RESOURCES MANAGEMENT			
Compensation and Benefits Managers	Bachelor's degree, experience	31,800 / 3%	\$89,270 per year \$42.92 per hour
Human Resources Managers	Bachelor's degree, experience	71,800 / 13%	\$99,180 per year \$47.68 per hour
Human Resources Specialists	Bachelor's degree	442,200 / 21%	\$52,690 per year \$25.33 per hour
OPERATIONS MANAGEMENT			
Administrative Services Managers	High school diploma or equivalent, bachelor's degree, experience	254,300 / 15%	\$77,890 per year \$37.45 per hour
Advertising, Promotions and Marketing Managers	Bachelor's degree, experience	216,800 / 14%	\$108,260 per year \$52.05 per hour
First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent, some college, bachelor's degree, experience	1,424,000 / 10 - 19%	\$48,810 per year \$23.47 per hour
Purchasing Managers, Buyers and Purchasing Agents	Managers: bachelor's or master's degree; others: high school diploma, experience	487,200 / 7%	\$58,360 per year \$28.06 per hour
Sales Managers	Bachelor's degree, experience	342,100 / 12%	\$98,530 per year \$47.37 per hour
ADMINISTRATIVE SUPPORT			
Bill and Account Collectors	High school diploma, related courses, on-the-job training, some college	401,700 / 14%	\$31,310 per year \$15.05 per hour
Bookkeeping, Accounting and Auditing Clerks	High school diploma, related courses, on-the-job training, associate degree	1,898,300 / 14%	\$34,030 per year \$16.36 per hour
Customer Service Representatives	High school diploma, some or associate or bachelor's degree depending on field	2,187,300 / 15%	\$30,460 per year \$14.64 per hour
Secretaries and Administrative Assistants	High school diploma, related technical education, associate degree	4,010,200 / 12%	\$34,660 per year \$16.66 per hour

Education & Training

Preparing Students for Life

Do you enjoy taking on big challenges? You'll find them if you choose a career in the Education & Training career cluster. Every day you'll deal with tight budgets, constant evaluation, reluctant students and lesson planning that meets both state and national standards and individual needs.

But you can be sure of one thing – you'll reap big rewards. As an educator, you'll help students overcome challenges and acquire the information, skills and personal qualities needed for future success. You'll experience personal rewards as well – days filled with lots of variety, new experiences and opportunities to interact with students and with interesting, educated people like you.

Education also offers good job opportunities. Employment in public and private educational services is anticipated to grow by 14 percent, adding about 1.8 million new jobs through 2020, according to Bureau of Labor Statistics projections. That's because greater numbers of children and adults are enrolling in all types of schools. And a large number of retirements will provide additional job openings.

That translates into good job prospects for educators at every level and for librarians, teacher assistants, office personnel and others.

Good jobs, however, aren't the biggest reward – or challenge – for future educators. As President John F. Kennedy once said, "The course of civilization is a race between catastrophe and education. In a democracy such as ours, we must make sure that education wins the race."

BECOMING A TEACHER

The traditional route to becoming a public school teacher involves several steps. Typically those include:

- Completing a bachelor's degree from a teacher education program
- Obtaining a state license or certification
- Proficiency in the use of computers and other technologies
- A student-teaching internship
- Passing a basic skills competency test
- Proficiency in a subject area
- Continuing education and demonstrated satisfactory performance for license renewal
- A minimum grade point average in some states
- A master's degree in some states

For more information, see the *Occupational Outlook Handbook* (<http://www.bls.gov/oo>).

WANT TO BE A TEACHER?

Future Educators Association (<http://www.futureeducators.org>) is an organization for high school students interested in education careers. Contact your school counselor to find out if your school has a chapter.

CAREER EDUCATION

Middle school principals and teachers: <http://www.amle.org>

School counselors: <http://www.schoolcounselor.org>

School principals: <http://www.naesp.org> and <http://www.principals.org>

Science teachers: <http://www.nsta.org>

Special education: <http://www.personnelcenter.org/choose.cfm>

Teacher organizations: <http://www.aft.org> and <http://www.nea.org>



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
ADMINISTRATION AND ADMINISTRATIVE SUPPORT			
Elementary, Middle and High School Principals	Master's degree, experience	236,100 / 10%	\$86,970 per year
Distance Learning Coordinators	Bachelor's degree, master's preferred	33,000 / 10-19%	\$76,730 per year \$36.89 per hour
Instructional Coordinators	Master's degree, experience	139,700 / 20%	\$58,830 per year \$28.28 per hour
Postsecondary Education Administrators	Master's degree, experience	146,200 / 19%	\$83,710 per year \$40.24 per hour
PROFESSIONAL SUPPORT SERVICES			
Audio-Visual and Multimedia Collections Specialists	Some college, bachelor's or master's degree	8,000 / 10-19%	\$44,580 per year \$21.43 per hour
Librarians	Master's degree	156,100 / 7%	\$54,500 per year \$26.20 per hour
Library Technicians and Assistants	High school diploma, postsecondary certificate, associate degree	231,500 / 10%	\$26,330 per year \$12.66 per hour
School and Career Counselors	Master's degree	281,400 / 19%	\$53,380 per year \$25.67 per hour
Speech-Language Pathologists	Master's degree	123,200 / 23%	\$66,920 per year \$32.17 per hour
TEACHING/TRAINING			
Adult Literacy and GED Teachers	Bachelor's degree, internship, master's preferred	86,900 / 15%	\$46,530 per year \$22.37 per hour
Career and Technical Education Teachers	Bachelor's degree, internship, related experience	103,000 / 2%	\$53,920 per year
High School Teachers	Bachelor's degree, internship	1,037,600 / 7%	\$53,230 per year
Kindergarten and Elementary School Teachers	Bachelor's degree, internship	1,655,800 / 17%	\$51,380 per year
Middle School Teachers	Bachelor's degree, internship	641,700 / 17%	\$51,960 per year
Postsecondary Teachers	Doctoral or professional degree	1,756,000 / 17%	\$62,050 per year
Preschool Teachers	Associate degree	456,800 / 25%	\$25,700 per year \$12.35 per hour
Self-Enrichment Teachers	High school diploma, experience in the subject, teaching experience	252,800 / 21%	\$36,340 per year \$17.47 per hour
Special Education Teachers	Bachelor's degree, internship	459,600 / 17%	\$53,220 per year
Teacher Assistants	High school diploma or equivalent, on-the-job training, associate degree	1,288,300 / 15%	\$23,220 per year

Financial Opportunities

If you would like to spend your workdays playing with money, you may want to choose a job in the Finance career cluster.

You might want to provide financial and investment planning services for individuals or small companies. You might want to work in the banking or insurance industries. You might want to handle financial management for large companies. Or if you're "money savvy" and have invested well, eventually you might want to become a real estate developer or venture capitalist, lending money to others to create new businesses.

Whatever finance pathway you choose, begin investing in your future while you're still in high school with classes in accounting, business, computing, higher-level mathematics, and economics and statistics. And if your school district has finance-related career majors, academies, career-technical education and other opportunities, consider enrolling.

Educational opportunities like those will provide the background needed to pursue further education. In fact, most jobs in the field require at least a bachelor's degree in accounting, business administration, economics, finance or other related majors. Experience and a series of examinations are also required for certification in many finance-related fields.

It's hard work. But if you are educated, motivated, like working with people and want a rewarding career, financial opportunities are waiting for you.

FINANCIAL RESEARCH

American Institute of Certified Public Accountants: <http://www.aicpa.org> and <http://www.startheregoplaces.com>

Be an Actuary: <http://www.beanactuary.org>

Business Professionals of America: <http://www.bpa.org>

Future Business Leaders of America: <http://www.fbla-pbl.org>

FINANCIAL PLANNING

The sooner you begin to invest your dollars the faster you'll become a millionaire. Start here:

A Four-Step Financial Guide to Your 20s: <http://www.kiplinger.com/columns/starting/archive/a-four-step-financial-guide-to-your-20s.html>

How to Make a Million at 25: <http://www.kiplinger.com/magazine/archives/2008/02/seven-figure-saving-strategy-for-your-twenties.html>

Calculate Your Savings: <http://www.hughchou.org/calc/savings.cgi> and <http://www.coolmath.com/calculators/index.html>

Credit Reports and Credit Scores: <http://www.federalreserve.gov/consumerinfo/default.htm>



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
SECURITIES AND INVESTMENTS			
Financial Analysts	Bachelor's degree	236,000 / 23%	\$74,350 per year \$35.75 per hour
Financial Clerks	High school diploma or equivalent, associate or bachelor's degree preferred	1,395,500 / 11%	\$33,710 per year \$16.21 per hour
Investment Fund Managers	Bachelor's degree	828,000 / 3 - 9%	\$99,540 per year \$47.85 per hour
Personal Financial Advisers	Bachelor's degree	206,800 / 32%	\$64,750 per year \$31.13 per hour
Securities, Commodities and Financial Services Sales Agents	Bachelor's degree, on-the-job training	312,200 / 15%	\$70,190 per year \$33.75 per hour
BUSINESS FINANCE			
Budget Analysts	Bachelor's degree	62,100 / 10%	\$68,200 per year \$32.79 per hour
Cost Estimators	Bachelor's degree	185,400 / 36%	\$57,860 per year \$27.82 per hour
Financial Managers	Bachelor's degree, experience	527,100 / 9%	\$103,910 per year \$49.96 per hour
Risk Managers	Bachelor's or master's degree	165,000 / 3 - 9 %	\$59,810 per year \$28.76
ACCOUNTING			
Accountants and Auditors	Bachelor's degree	1,216,900 / 16%	\$61,690 per year \$29.66 per hour
Bookkeeping, Accounting and Auditing Clerks	High school diploma or equivalent, on-the-job training	1,898,300 / 14%	\$34,030 per year \$16.36 per hour
INSURANCE			
Actuaries	Bachelor's degree, on-the-job training, certification	21,700 / 27%	\$87,650 per year \$42.14 per hour
Claims Adjusters, Appraisers, Examiners and Investigators	High school diploma or equivalent, related experience, degree sometimes preferred	290,700 / 3%	\$58,460 per year \$28.11 per hour
Insurance Sales Agents	High school diploma or equivalent, on-the-job training, bachelor's degree	411,500 / 22%	\$46,770 per year \$22.48 per hour
Insurance Underwriters	Bachelor's degree, on-the-job training	101,800 / 6%	\$59,290 per year \$28.51 per hour
Statisticians	Master's degree	25,100 / 14%	\$72,830 per year \$35.02 per hour
BANKING SERVICES			
Bill and Account Collectors	High school diploma or equivalent, on-the-job training	401,700 / 14%	\$31,310 per year \$15.05 per hour
Credit Analysts	Associate or bachelor's degree	63,000 / 20 - 28%	\$60,730 per year \$29.20 per hour
Loan Officers	High school diploma or equivalent, bachelor's degree for commercial loan officers	289,400 / 14%	\$56,490 per year \$27.16 per hour
Tellers	High school diploma or equivalent, on-the-job training	560,000 / 1%	\$24,100 per year \$11.59 per hour

Government Jobs Aren't Just for Politicians

Millions of people do the work of government. And they're employed in careers that span every career cluster.

In fact, about 2.5 million full-time workers and more than 400,000 part-time workers are federal government employees, according to the United States Census Bureau (<http://www.census.gov/govs/apes>). However, not all federal jobs are located in Washington, D.C. Most are located in communities across the nation.

If you'd like a federal government job or student internship, search <http://www.usajobs.gov> and <http://www.usajobs.gov/studentjobs>. Many state, county and local government agencies also have websites that list job opportunities.

Why consider a government job?

Typically, government jobs offer steady employment, a good income, health insurance, retirement plans and other benefits. They're also a great chance to serve your community and your country.

Chart on next page

LOOKING FOR A GOVERNMENT JOB?

Look at a few of the government jobs we found on city, county, state and federal government websites.

Accountants, auditors
Aircraft mechanics, service technicians
Biological scientists
Business operations specialists
Compliance officers
Computer specialists
Conservation scientists, foresters
Construction, extraction occupations
Correctional officers, jailers
Detectives, criminal investigators
Drafters, engineering and mapping technicians
Electrical and electronic equipment mechanics, installers and repairers
Engineers and engineering managers
Environmental scientists and geoscientists
Forest and conservation technicians
Inspectors, testers, sorters, samplers, weighers
Installation, maintenance and repair occupations

Judges, magistrates, lawyers, law clerks and other judicial workers
Licensed practical and licensed vocational nurses
Management analysts
Management, business and financial occupations
Natural sciences managers
Nursing aides, orderlies, attendants
Office and administrative support occupations
Physicians and surgeons
Police and sheriff's patrol officers
Production occupations
Professional and related occupations
Purchasing agents
Registered nurses
Secretaries
Service occupations
Tax examiners, collectors and revenue agents
Transportation occupations

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
GOVERNANCE			
Chief Executives (both public and private sectors)	Degree, experience	2,136,900 / 5%	\$101,250 per year
Governors*	Degree, experience	NA	\$70,000 - \$212,179 per year
White House Staff**	Degree, experience	468	\$42,000 - \$172,200 per year
NATIONAL SECURITY***			
Federal Agents (Access information at http://www.bls.gov/ooh/Protective-Service/Police-and-detectives.htm#tab-8).			
Military Commissioned Officers (O-3): Captain (Army, Air Force, Marines) or Lieutenant (Navy, Coast Guard)	NA	73,092	\$3,712 per month (entry level)
Military Enlisted Personnel (E-3): Private First Class (Army), Seaman (Navy, Coast Guard), Airman First Class (Air Force), Lance Corporal (Marines)	NA	233,263	\$1,730 per month (entry level)
FOREIGN SERVICE			
Information Security Analysts, Web Developers and Computer Network Architects (both public and private sectors)	Bachelor's degree, experience	302,300 / 22%	\$75,660 per year \$36.37 per hour
Interpreters and Translators	Associate, bachelor's or doctoral degree	58,000 / 29% +	\$44,160 per year \$21.23 per hour
PLANNING			
City and Regional Planning Aides	Bachelor's or master's degree	30,000 / 10 - 19%	\$38,800 per year \$18.66 per hour
Environmental Scientists and Specialists	Bachelor's degree	89,400 / 19%	\$62,920 per year \$30.25 per hour
Urban and Regional Planners	Master's degree	40,300 / 16%	\$63,040 per year \$30.31 per hour
REVENUE AND TAXATION			
Financial Analysts	Bachelor's degree	29,000 / 20 - 28%	\$74,350 per year \$35.75 per hour
Financial Examiners	Bachelor's degree	236,000 / 23%	\$74,350 per year \$35.75 per hour
Tax Examiners and Collectors and Revenue Agents	Bachelor's degree	74,500 / 7%	\$49,360 per year \$23.73 per hour
REGULATION			
Environmental Science and Protection Technicians, Including Health	Associate, bachelor's or master's degree	217,000 / 20- 28%	\$42,270 per year \$20.32 per hour
Regulatory Affairs Specialists	Bachelor's degree	217,000 / 10-19%	\$60,740 per year \$29.20 per hour
PUBLIC MANAGEMENT AND ADMINISTRATION			
Administrative Services Managers	High school diploma or equivalent, experience	254,300 / 15%	\$77,890 per year \$37.45 per hour
Court, Municipal and License Clerks	High school diploma or equivalent, some college	130,000 / 3 - 9%	\$34,300 per year \$16.49 per hour
General and Operations Managers	Associate or bachelor's degree depending on field, experience	1,767,000 / 3 - 9%	\$95,150 per year \$45.74 per hour

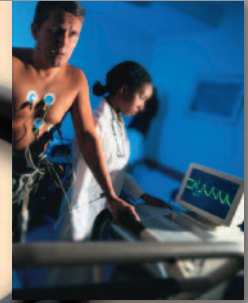
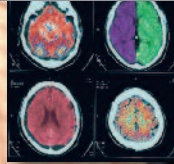
Additional Sources

*Governors: http://www.ebow.com/info_7855866_much-money-governor-make.html

**White House Staff: <http://www.whitehouse.gov/briefing-room/disclosures/annual-records/2011>

***Military Careers: <http://www.bls.gov/oob/Military/Military-Careers.htm#pay>

Health Science



Consider a Health Career

If your heart goes out to someone who is injured or ill, you may want to consider a career in health care.

If you understand what it's like to create and support the systems and people that work for a cure, you may want to consider a career in health care.

And if you want a well-paying job that provides personal satisfaction, a challenging work environment and the opportunity to live almost anywhere you choose, you may want to consider a career in health care.

In fact, one-third of the projected fastest-growing occupations are related to health care, which reflects increases in demand for services. That means you can find fast-growing jobs in all five Health Science career cluster pathways:

- Therapeutic services
- Diagnostic services
- Health informatics – the field for administrative and health information and technology workers
- Support services
- Biotechnology research and development

What's more, most jobs in these fields require less than four years of college education, although professionals who provide diagnostic and therapeutic services are among the most-educated workers. For more information, access the Virtual Career Network at <http://www.vcn.org/healthcare>. Whatever your interests and whatever level of education you want to pursue, you will very likely find a satisfying career in health.

HEALTH RESEARCH

Careers in Health Care: <http://www.ama-assn.org/ama/pub/education-careers/careers-health-care.page>

Dental Hygienists: <http://www.adha.org/aboutadha/index.html>

Dentists: <http://www.ada.org>

Emergency Medical Technicians: <http://www.naemt.org>

Health Information Managers: <http://www.ahima.org/careersinhim/default.aspx>

Medical Technologists: <http://www.americanmedtech.org/>

Nurses: <http://www.discovernursing.com/nursing-careers>

Pharmacists: <http://www.aphanet.org>, <http://www.ashp.org> and <http://www.nacds.org>

Physical Therapists: <http://www.apta.org>

Physicians: <http://www.ama-assn.org/ama/pub/education-careers/becoming-physician.page>

Radiologic Technologists: <http://www.asrt.org>

Respiratory Therapists: <http://www.aarc.org>

JOIN HOSA

The mission of HOSA – Health Occupations Students of America – is to enhance the delivery of compassionate, quality health care by providing opportunities for knowledge, skill and leadership development of all health science technology education students. Interested in a health career? Find out more at <http://www.hosa.org>.

Chart on next page



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
THERAPEUTIC SERVICES			
Dental Hygienists	Associate degree	181,800 / 38%	\$68,250 per year \$32.81 per hour
Dentists	Doctoral or professional degree, Internship/residency	155,700 / 21%	\$146,920 per year \$70.64 per hour
Pharmacists	Doctoral or professional degree, supervised work experience, license	274,900 / 25%	\$111,570 per year \$53.64 per hour
Physicians and Surgeons	Doctoral or professional degree, Internship/residency, license	691,000 / 24%	\$166,400 + per year or \$80.00 + per hour
Physician Assistants	Master's degree	83,600 / 30%	\$86,410 per year \$41.54 per hour
Physical Therapists	Doctoral or professional degree	198,600 / 39%	\$76,310 per year \$36.69 per hour
Registered Nurses	Bachelor's or associate degree, license	2,737,400 / 26%	\$64,690 per year \$31.10 per hour
Respiratory Therapists	Associate degree	112,700 / 28%	\$54,280 per year \$26.10 per hour
Veterinarians	Doctoral or professional degree	61,400 / 36%	\$82,040 per year \$39.44 per hour
Veterinary Technologists and Technicians	Associate degree	80,200 / 41.7%	\$29,710 per year \$14.28 per hour
DIAGNOSTIC SERVICES			
Cardiovascular Technologists and Technicians and Vascular Technologists	Associate degree	49,400 / 29%	\$49,410 per year \$23.75 per hour
Diagnostic Medical Sonographers	Associate degree	53,700 / 44%	\$64,380 per year \$30.95 per hour
Medical and Clinical Laboratory Technologists and Technicians	Bachelor's degree (technologists), associate degree (technicians), license	330,600 / 13%	\$46,680 per year \$22.44 per hour
Radiologic Technologists	Associate degree, license	219,900 / 28%	\$54,340 per year \$26.13 per hour
HEALTH INFORMATICS			
Medical and Health Services Managers	Bachelor's or master's degree in administration	303,000 / 22%	\$84,270 per year \$40.52 per hour
Medical Assistants	High school diploma or equivalent, on-the-job training	527,600 / 31%	\$28,860 per year \$13.87 per hour
Medical Records and Health Information Technicians	Postsecondary certificate or associate degree	179,500 / 21%	\$32,350 per year \$15.55 per hour
SUPPORT SERVICES			
Biomedical Engineers	Bachelor's degree	15,200 / 62%	\$81,540 per year \$39.20 per hour
Heating, Air Conditioning and Refrigeration Mechanics and Installers	Technical training, formal apprenticeship, associate degree	267,800 / 34%	\$42,530 per year \$20.45 per hour
Medical Equipment Repairers	Associate degree, on-the-job training	37,900 / 31%	\$44,490 per year \$21.39 per hour
BIOTECHNOLOGY RESEARCH AND DEVELOPMENT			
Biochemists and Biophysicists	Doctoral or professional degree	25,100 / 31%	\$79,390 per year \$38.17 per hour
Biological Technicians	Bachelor's degree	80,200 / 14%	\$39,020 per year \$18.76 per hour
Medical Scientists	Doctoral or professional degree	100,000 / 36%	\$76,700 per year \$36.87 per hour

Hospitality & Tourism

REGISTRATION

Making Memories

Whether traveling for pleasure or business, the first services visitors think about are lodging and food. In addition to making memories for vacationers and business travelers, those two services alone generate millions of jobs for entry-level workers and for highly skilled specialists and managers.

When it comes to vacationing, the worldwide tourism and recreation industries attract millions of travelers each year. And to support business activities, convention and meeting services draw thousands of others to cities across the nation. Combined, these travelers' needs create thousands of jobs for full-time and part-time workers of all ages who work for:

- Theme parks
- Cultural and natural attractions
- Events and festivals
- Historic preservation districts
- Sports and entertainment venues
- Hotels and restaurants
- Convention and meeting facilities and exhibit halls
- Tourism promotion agencies
- Shopping centers
- Tour operations
- Transportation industries

The Hospitality & Tourism career cluster prepares students to work in these interdependent lodging, food service, tourism and recreation-related industries. Depending on your interests, you may choose to pursue a career in one of the four pathways in this cluster:

- Restaurants and food beverage services
- Lodging
- Travel and tourism or
- Recreation, amusements and attractions

According to the American Hotel & Lodging Educational Institute, "Between its 7.4 million employees, \$188 billion in wages, and \$759 billion in sales, the travel industry is leading a recovery focused on job creation and positive gains for the economy." And according to the National Restaurant Association's 2012 Restaurant Industry Overview, restaurant-industry job growth has outpaced the national economy in 12 consecutive years, from 2000 through 2011. The industry also is one of the largest private-sector employers with 12.9 million employees, \$632 billion in sales and 970,000 locations.

To prepare for entry-level opportunities and a chance to move up to management careers, career-technical education and postsecondary certificates and degrees pay off. Technology skills are a plus. Larger hotels rely on computer specialists and information technology and audiovisual technicians to service websites and computer and communications networks. And food services rely on technology to enhance efficiency and productivity.

EXPLORING CAREERS

American Hotel & Lodging Educational Institute:
<http://www.ahlei.org>; click on "High School Program" and "Workforce Program"

National Restaurant Association:
<http://www.restaurant.org>

National Restaurant Association Educational Foundation: <http://nraef.org>

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
RESTAURANTS AND FOOD/BEVERAGE SERVICES			
Chefs and Head Cooks	High school, technical or culinary arts school, 2- or 4-year college program, experience	100,600 / little or no change	\$40,630 per year \$19.53 per hour
Dietitians and Nutritionists	Bachelor's degree, internship/residency	64,400 / 20%	\$53,250 per year \$25.60 per hour
First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent, experience	801,000 / 10 - 19%	\$29,550 per year \$14.21 per hour
Food Service Managers	High school diploma, experience; post-secondary education in related program	320,600 / -3%	\$48,130 per year \$23.14 per hour
LODGING			
First-Line Supervisors of Housekeeping and Janitorial Workers	High school diploma, some college, experience	227,000 / little or no change	\$35,230 per year \$16.94 per hour
Hotel, Motel and Resort Desk Clerks	High school diploma or equivalent	228,000 / 10 - 19%	\$20,130 per year \$9.68 per hour
Lodging Managers	Bachelor's or associate degree, certificate, experience	51,400 / 8%	\$46,880 per year \$22.54 per hour
TRAVEL AND TOURISM			
Customer Service Representatives	High school diploma or equivalent, some college, associate degree	2,187,000 / 10 - 19%	\$30,610 per year \$14.72 per hour
Meeting, Convention and Event Planners	Bachelor's degree, experience	71,600 / 44%	\$45,260 per year \$21.76 per hour
Public Relations Managers and Specialists	Bachelor's degree, experience	320,000 / 21%	\$57,550 per year \$27.67 per hour
Reservation and Transportation Ticket Agents and Travel Clerks	High school diploma or equivalent, some college	124,000 / 3 - 9%	\$33,300 per year \$16.01 per hour
Tour Guides	High school diploma, some college bachelor's degree	35,000 / 10-19%	\$23,620 per year \$11.36 per hour
RECREATION, AMUSEMENTS AND ATTRACTIONS			
Gaming Managers	High school diploma or equivalent, associate degree or bachelor's degree	3,000 / 10% - 19%	\$67,230 per year \$32.32 per hour
Grounds Maintenance Workers	No formal education; experience or training for advancement	1,249,700 / 20%	\$23,740 per year \$11.41 per hour
Museum Technicians and Conservators	Master's or bachelor's degree; some college, no degree	12,000 / 3 - 9%	\$38,010 per year \$18.27 per hour
Set and Exhibit Designers	Bachelor's degree	11,700 / 10%	\$48,680 per year \$22.44 per hour
Recreation Workers	Bachelor's degree	339,000 / 19%	\$22,260 per year \$10.70 per hour



Human Services



Meeting People's Needs

What kind of job would you think of first if someone said you ought to consider a career in human services? “Counselor” might very likely be the first occupation to come to mind. And there are a variety of counseling opportunities to consider in this fast-growing field.

On the job, counselors work with individuals or groups to identify behaviors and problems. Then they develop recovery programs that help their clients establish healthy behaviors and coping strategies. Often, counselors work with family members as well. Some counselors conduct community programs to educate the public.

According to the *Occupational Outlook Handbook* (<http://www.bls.gov/ooh>), many jobs in this field – including jobs for counselors, social workers and health educators – are professional positions that require a bachelor’s or master’s degree and a state license. Other jobs – such as jobs for social and human services assistants – usually require a high school diploma or equivalent, plus on-the-job-training for entry-level employment.

Social and human services assistants work with people who may need help finding a job or appropriate child care, or locating safe and adequate housing or getting nutritious food for their families. Home health and personal care aides help people who are disabled, chronically ill, cognitively impaired or need help with bathing, dressing and light housekeeping. Sometimes they give medication or check vital signs under the direction of a nurse or other health care practitioner.

These careers and many others are part of five Human Services career cluster pathways:

- Early childhood development and services
- Counseling and mental health services
- Family and community services
- Personal care services
- Consumer services

And careers in these fields are expected to produce many job opportunities. So if you want to make a difference in someone’s life, you are sure to find your future in human services.

JOIN FCCLA

Members of Family, Career and Community Leaders of America (<http://www.fcclainc.org>) acquire skills for life through character development, creative and critical thinking, interpersonal communication, practical knowledge and career preparation. Is there a chapter at your school? Join now!

CAREERS IN SERVICE

American Counseling Association: <http://www.counseling.org>

American Psychological Association: <http://www.apa.org>

American Association for Marriage and Family Therapy: <http://www.aamft.org>

American Mental Health Counselors Association: <http://www.amhca.org>

Association for Financial Counseling and Planning Education: <http://www.afcpe.org>

NAADAC – The Association for Addiction Professionals: <http://www.naadac.org>

National Association for the Education of Young Children: <http://www.naeyc.org>

National Organization for Human Services: <http://www.nationalhumanservices.org>



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
EARLY CHILDHOOD DEVELOPMENT AND SERVICES			
Child Care Workers	High school diploma or equivalent, on-the-job training, certificate	1,282,300 / 20%	\$19,300 per year \$9.28 per hour
Preschool and Childcare Center Directors	Bachelor's degree, experience	63,600 / 25%	\$42,960 per year \$20.65 per hour
Preschool Teachers	Associate degree	456,800 / 25%	\$25,700 per year \$12.35 per hour
Teacher assistants	High school diploma, on-the-job training, some college, associate degree	1,288,300 / 15%	\$23,220 per year
COUNSELING AND MENTAL HEALTH SERVICES			
Clinical, Counseling and School Psychologists	Master's, specialist or doctoral degree; license or certification	154,000 / 20 - 28%	\$67,880 per year \$32.64 per hour
Health Educators	Bachelor's degree	63,400 / 37%	\$45,830 per year \$22.03 per hour
Mental Health Counselors and Marriage and Family Therapists	Master's degree, internship/residency	156,300 / 37%	\$39,710 per year \$19.09 per hour
Social Workers	Bachelor's (entry level) or master's degree, license	650,500 / 25%	\$42,480 per year \$20.42 per hour
Substance Abuse and Behavioral Disorder Counselors	High school diploma and on-the-job training, certification, master's degree	1,288,300 / 15%	\$38,120 per year \$18.33 per hour
FAMILY AND COMMUNITY SERVICES			
Recreation Workers	Bachelor's degree	339,100 / 19%	\$22,260 per year \$10.70 per hour
Social and Community Service Managers	Bachelor's degree, experience	134,100 / 27%	\$57,950 per year \$27.86 per hour
Social and Human Service Assistants	High school diploma (entry level), on-the-job training, certification or college degree	384,200 / 28%	\$28,200 per year \$13.56 per hour
PERSONAL CARE SERVICES			
Barbers, Hairdressers and Cosmetologists	High school diploma or equivalent, state-approved cosmetology program, license	712,200 / 14%	\$22,500 per year \$10.82 per hour
First-Line Supervisors of Personal Service Workers	Technical school training or associate degree, related on-the-job experience	218,900 / 14%	\$35,230 per year \$16.94 per hour
Fitness Trainers and Aerobics Instructors	High school diploma or equivalent, related training and experience, certification	251,400 / 24%	\$31,090 per year \$14.95 per hour
Home Health and Personal Care Aides	High school diploma preferred, short-term on-the-job training or formal training	1,878,700 / 70%	\$20,170 per year \$9.70 per hour
CONSUMER SERVICES			
Customer Service Representatives	High school diploma, some or associate or bachelor's degree depending on field	2,187,300 / 15%	\$30,460 per year \$14.64 per hour
Interpreters and Translators	Bachelor's degree, fluency in English and another language, on-the-job training	58,400 / 42%	\$43,300 per year \$20.82 per hour
Loan Officers	High school diploma or equivalent; bachelor's degree for commercial loan officers	289,400 / 14%	\$56,490 per year \$27.16 per hour
Property, Real Estate and Community Association Managers	High school diploma, experience, related bachelor's or master's degree preferred	303,900 / 6%	\$51,480 per year \$24.75 per hour

Explore Information Technology

If you are interested in a job in the Information Technology (IT) career cluster, you are likely to find an employer who's interested in you. According to the Bureau of Labor Statistics (<http://bls.gov/news.release/ecopro.nr0.htm>), computer and mathematical occupations are expected to grow 22 percent – from 3,542,800 workers in 2010 to 4,321,100 workers in 2020. And entry-level, technical and professional careers are widely available.

The kind of work you can do involves the design, development, support and management of hardware, software, multimedia and systems integration services. And the places where you can work include small businesses, large corporations, government agencies, consulting and engineering firms, advertising agencies, media companies, hospitals, libraries, manufacturing companies, schools and school districts – anywhere you can imagine.

High school is a great place to connect with an IT career. In fact, your school may have classes and programs related to these IT cluster pathways:

- Network systems
- Information support and services
- Web and digital communications
- Programming and software development

You'll find many ways to enter occupations in the IT field. Your school counselor can tell you about career-technical education programs that offer hands-on training opportunities and certification. However, many employers prefer to hire applicants with some formal college education such as an associate or a bachelor's degree.

In fact, learning is lifelong in the IT world because technology is changing all the time. So if you enjoy keeping up to date with the latest technology and

would like to solve related problems, you can look forward to a challenging job filled with lots of personal satisfaction.

INTERESTED IN INFORMATION TECHNOLOGY

If your school has a Technology Student Association (TSA) chapter, you can get a head start on your IT career. Members apply and integrate science, technology, engineering and mathematics concepts through co-curricular activities, competitive events and related programs. For more information, go to <http://www.tsaweb.org>.

CERTIFICATION IN INFORMATION TECHNOLOGY

If you are interested in information technology, certification is a plus. Several IT companies provide certification in a variety of skills. You can access company websites for more information: Microsoft: <http://www.microsoft.com/learning/en/us/certification/cert-overview.aspx>

Cisco: http://www.cisco.com/web/learning/le3/learning_career_certifications_and_learning_paths_home.html

Comptia: <http://certification.comptia.org/home.aspx>

Adobe: <http://www.adobe.com/support/certification>

Oracle: http://education.oracle.com/pls/web_prod-plq-dad/db_pages.getpage?page_id=3&p_org_id=1001&lang=US



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
NETWORK SYSTEMS			
Computer and Information Research Scientists	Doctoral or professional degree	28,200 / 19%	\$100,660 per year \$48.39 per hour
Computer Network and Computer User Support Specialists	Technical school, related on-the-job experience; some college or associate degree	607,000 / 10 - 19%	\$47,660 per year \$22.91 per hour
Computer Systems Engineers/Architects	Some college, no degree; bachelor's degree or higher preferred	210,000 / 3 - 9%	\$79,930 per year \$38.43 per hour
Information Security Analysts, Web Developers and Computer Network Architects	Bachelor's degree, experience	302,000 / 22%	\$75,660 per year \$36.37 per hour
Telecommunications Equipment Installers and Repairers Except Line Installers	Certificate or associate degree; bachelor's degree sometimes needed; on-the-job training	194,900 / 15%	\$54,710 per year \$26.30 per hour
INFORMATION SUPPORT AND SERVICES			
Business Intelligence Analysts	Bachelor's degree	236,000 / 3 - 9%	\$79,930 per year \$38.43 per hour
Computer and Information Systems Managers	Bachelor's degree, experience	307,900 / 18%	\$115,780 per year \$55.67 per hour
Computer Systems Analysts	Bachelor's degree	544,400 / 22%	\$77,740 per year \$37.38 per hour
Database Administrators	Bachelor's degree, experience	110,800 / 31%	\$73,490 per year \$35.33 per hour
Network and Computer Systems Administrators	Bachelor's degree	347,200 / 28%	\$69,160 per year \$33.25 per hour
Technical Writers	Bachelor's degree, experience	49,500 / 17%	\$63,280 per year \$30.42 per hour
WEB AND DIGITAL COMMUNICATIONS			
Content Engineers*	Bachelor's degree	Not available	\$77,818 per year
Content Specialists*	Bachelor's degree	Not available	\$54,640 per year
Multimedia Artists and Animators	Bachelor's degree, on-the-job training	66,500 / 8%	\$58,510 per year \$28.13 per hour
Web Administrators	Some college, no degree; bachelor's degree	210,000 / 3 - 9%	\$79,930 per year \$38.43 per hour
PROGRAMMING AND SOFTWARE DEVELOPMENT			
Computer Hardware Engineers	Bachelor's degree	70,000 / 9%	\$98,810 per year \$47.50 per hour
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	Some college, no degree; associate or bachelor's degree	17,000 / 10 - 19%	\$45,890 per year \$22.06 per hour
Computer Programmers	Bachelor's degree	363,100 / 12%	\$71,380 per year \$34.32 per hour
Software Developers	Bachelor's degree	913,100 / 30%	\$90,530 per year \$43.52 per hour
Software Quality Assurance Engineers and Testers	Bachelor's degree	210,000 / 3 - 9%	\$79,930 per year \$38.43 per hour



Seeking Justice

If you have a compelling desire for justice that leads you to stand up for a friend ... call for help if you observe a crime or if someone's hurt or in danger ... or create better, more workable rules and regulations ... then you're a good candidate for a career in the Law, Public Safety, Corrections & Security career cluster.

There are many careers to explore along the five cluster pathways:

- Correction services
- Emergency and fire management services
- Security and protective services
- Law enforcement services
- Legal services

INVESTIGATE CAREERS

American Bar Association: <http://www.americanbar.org> (select Resources for Lawyers/Career Center/Career Resources/Choosing a Career Path)

Corrections Careers: <http://discovercorrections.com>, <http://www.corrections.com>, <http://www.aca.org> and <http://www.bls.gov/opub/ooq/2001/fall/art05.pdf>

Department of Homeland Security: <http://www.dhs.gov/careers>

Discover Policing: <http://discoverpolicing.org>

EMTs and Paramedics: <https://www.nremt.org/nremt/about/becomeInvolvedInEMS.asp>

Federal Bureau of Investigation: <https://www.fbijobs.gov>

Firefighting: <http://www.bls.gov/ooh/protective-service/firefighters.htm> and <http://www.usfa.fema.gov/nfa>

Forensic Sciences Foundation: <http://fsf.aafs.org>

Legal Assistants, Legal Secretaries and Paralegals: <http://www.nala.org> and <http://www.legalsecretaries.org>

Education and training can be obtained in high school career-technical education programs, at two- and four-year colleges and at technical schools and institutes. So if you're prepared, you can join the ranks of today's heroes who protect lives and property, keep our communities and our nation secure and help offenders build new lives.

INTERESTED IN LAW AND PUBLIC SAFETY?

Many careers in law and public safety are action oriented. To see if you have what it takes, check the boxes next to the questions where you can truthfully answer yes. Be honest!

- 1. Do you have an above-average IQ?
- 2. Are you in good physical shape?
- 3. Would you be comfortable in frightening situations where you could potentially be hurt?
- 4. Does the thought of helping others appeal to you?
- 5. Do you like working as part of a team?
- 6. Are you comfortable following orders?
- 7. Are you observant?
- 8. Are you detail-oriented?
- 9. Do you have good communication skills?
- 10. Are you a good listener?
- 11. Are you calm under pressure?
- 12. Are you curious and like to ask questions?

Did you answer yes to most of these questions? Then take the next step, and investigate your career choices.

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
CORRECTION SERVICES			
Correctional Officers	High school diploma, on-the-job training; bachelor's degree, experience for federal jobs	493,100 / 5%	\$39,020 per year \$18.76 per hour
First-Line Supervisors of Correctional Officers	High school diploma or equivalent, experience; some college or associate degree	42,000 / 3 - 9%	\$55,030 annual \$26.46 hourly
Probation Officers and Correctional Treatment Specialists	Bachelor's degree, on-the-job training	93,200 / 18%	\$47,200 per year \$22.69 per hour
Social Workers	Bachelor's (entry-level) or master's degree, license	650,500 / 25%	\$42,480 per year \$20.42 per hour
Substance Abuse and Behavioral Disorder Counselors	High school diploma and on-the-job training, certification, master's degree	85,500 / 27%	\$38,120 per year \$18.33 per hour
EMERGENCY AND FIRE MANAGEMENT SERVICES			
Business Continuity Planners	Some college, bachelor's or master's degree	1,064,000 / 10 - 19%	\$64,030 per year \$30.78 per hour
EMTs and Paramedics	High school diploma and CPR certification; technical or community college training, license	226,500 / 33%	\$30,360 per year \$14.60 per hour
Fire Inspectors and Investigators	High school diploma or equivalent, 2- or 4-year degree, experience	13,600 / 9%	\$52,230 per year \$25.11 per hour
Firefighters	High school diploma, related postsecondary degree, extensive training	310,400 / 9%	\$45,250 per year \$21.76 per hour
Hazardous Materials Removal Workers	High school diploma or equivalent, OSHA and on-the-job training, federal license	38,100 / 38%	\$37,600 per year \$18.08 per hour
SECURITY AND PROTECTIVE SERVICES			
Intelligence Research Specialist (Department of Homeland Security)*	Master's, JD, LLB or doctoral degree in related field; specialized experience, skills	Intelligence analysts overall: 119,000 / 3 - 9%	\$56,172.00 - \$88,349.00 per year
Loss Prevention Managers	NA	828,000 / 3 - 9%	\$99,540 per year \$47.85 per hour
Private Detectives and Investigators	Experience, on-the-job training, license, some college, no degree	34,700 / 21%	\$42,870 per year \$20.61 per hour
Regional Retail Loss Prevention Managers**	Associate or bachelor's degree	NA	\$73,567 per year
Security Guards and Gaming Surveillance Officers	High school diploma or equivalent, license	1,090,600 / 18%	\$24,380 per year \$11.72 per hour
LAW ENFORCEMENT SERVICES			
Criminal Investigators and Special Agents	High school diploma to college degree, experience	119,000 / 3 - 9%	\$71,770 per year \$34.51 per hour
Immigration and Customs Inspectors	High school diploma or equivalent, some college, bachelor's degree	119,000 / 3 - 9%	\$71,770 per year \$34.51 per hour
Police and Detectives	High school diploma to college degree, graduation from academy, on-the-job training	794,300 / 7%	\$55,010 per year \$26.45 per hour
LEGAL SERVICES			
Lawyers	Doctoral or professional degree in law, license	728,200 / 10%	\$112,760 per year \$54.21 per hour
Judges, Mediators and Hearing Officers	Law degree (judges); law, master's or doctoral degree (mediators, arbitrators, conciliators)	62,700 / 7%	\$91,880 per year \$44.17 per hour
Paralegals and Legal Assistants	Associate degree	256,000 / 18%	\$46,680 per year \$22.44 per hour

Additional Sources:

*<http://www.usajobs.gov>

**salary.com


Manufacturing

Manufacturing: A World of Opportunity

Manufacturing provides a world of opportunity for students who would like to be part of the process of producing products that people need and enjoy.

In fact, highly skilled workers are in demand to design, create and produce everything from automobiles and Harley-Davidson motorcycles ... to orthopedics and other medical goods ... to KitchenAid mixers ... to frozen pizzas and pastries we enjoy ... and much, much more. Today these highly skilled workers need a background in career-technical education and science, technology, engineering and mathematics (STEM) to do the job.

Find out more as you explore opportunities in the six Manufacturing career cluster pathways:

- Production
- Manufacturing production process development
- Maintenance, installation and repair
- Quality assurance
- Logistics and inventory control
- Health, safety and environmental assurance

And while you're doing your research, look for the good news about manufacturing jobs. According to data gathered by the National Association of Manufacturers (<http://www.nam.org/Statistics-And-Data/Facts-About-Manufacturing/Landing.aspx>):

- The United States is the world's largest manufacturing economy, producing 21 percent of global manufactured products.

- U.S. manufacturers perform two-thirds of all research and development in the nation, driving more innovation than any other sector of the economy.
- Manufacturing supports an estimated 17 million jobs in the U.S. – about one in six private sector jobs. Nearly 12 million Americans (or 9 percent of the workforce) are employed directly in manufacturing.

So if you would enjoy the kind of work where you can apply your interest in STEM, consider manufacturing. The industry could provide good opportunities for you.

MANUFACTURING RESEARCH

Society of Manufacturing Engineers Education Foundation: <http://www.smeef.org>

Metalforming Careers: <http://www.pma.org/home>
(Click on "Training and Education.")

Welding Careers:
<http://www.careersinwelding.com>

National Association of Manufacturers:
<http://www.nam.org>

National Council for Advanced Manufacturing:
<http://www.nacfam.org>

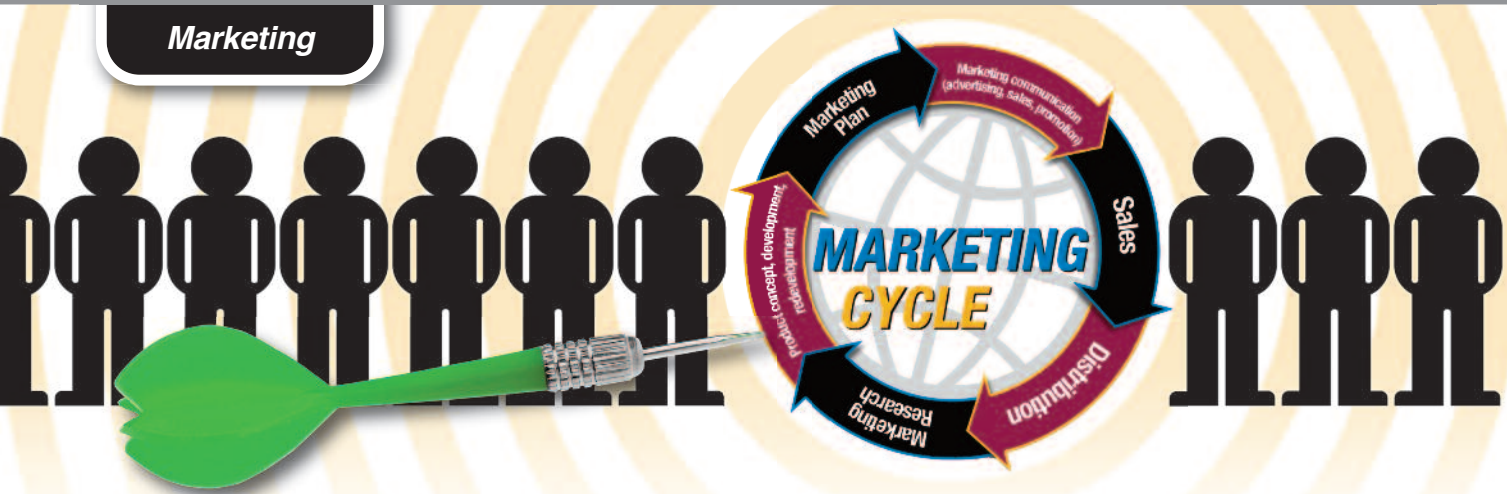
EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
PRODUCTION			
Assemblers and Fabricators	High school diploma, on-the-job training; formal training/associate degree (skilled jobs)	1,626,500 / 5%	\$28,360 per year \$13.63 per hour
Industrial Production Managers	Bachelor's degree, experience	150,300 / 9%	\$87,160 per year \$41.91 per hour
Machinists and Tool and Die Makers	High school diploma or equivalent, technical school or community college, on-the-job training	438,100 / 7%	\$39,910 per year \$19.19 per hour
Metal and Plastic Machine Workers	High school diploma or equivalent, on-the-job training, certificate program	939,700 / 6%	\$31,910 per year \$15.34 per hour
Painting and Coating Workers	High school diploma or equivalent, on-the-job training	155,200 / 9%	\$31,170 per year \$14.99 per hour
Welders, Cutters, Solderers and Brazers	High school diploma or equivalent, on-the-job training	337,300 / 15%	\$35,450 per year \$17.04 per hour
MANUFACTURING PRODUCTION PROCESS DEVELOPMENT			
Drafters	Associate degree	205,100 / 6%	\$47,880 per year \$23.02 per hour
Electrical and Electronic Engineers	Bachelor's degree, license	294,000 / 6%	\$87,180 per year \$41.92 per hour
Industrial Designers	Bachelor's degree	40,800 / 10%	\$58,230 per year \$27.99 per hour
Mechanical Engineers	Bachelor's degree, license	243,200 / 9%	78,160 per year \$37.58 per hour
Purchasing Managers, Buyers and Purchasing Agents	Managers: bachelor's or master's degree; others: high school diploma, experience	487,200 / 7%	\$58,360 per year \$28.06 per hour
MAINTENANCE, INSTALLATION AND REPAIR			
Electrical and Electronic Engineering Technicians	Associate degree	151,100 / 2%	\$56,040 per year \$26.94 per hour
Electro-Mechanical Technicians	Associate degree	16,400 / 1%	\$49,550 per year \$23.82 per hour
Industrial Engineering Technicians	Associate degree	62,500 / 4%	\$48,210 per year \$23.18 per hour
Industrial Machinery Mechanics and Maintenance Workers	High school diploma or equivalent, formal postsecondary training or associate degree	357,000 / 19%	\$44,160 per year \$21.23 per hour
Mechanical Engineering Technicians	Associate degree	44,900 / 4%	\$50,110 per year \$24.09 per hour
QUALITY ASSURANCE			
Quality Control Inspectors	High school diploma or equivalent, on-the-job training	416,100 / 8%	\$33,030 per year \$15.88 per hour
LOGISTICS AND INVENTORY CONTROL			
First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators	High school diploma or equivalent, some college, bachelor's degree, experience	199,000 / 10-19%	\$52,950 per year \$25.45 per hour
Material Recording Clerks	High school diploma or equivalent, basic computer skills, on-the-job training	2,812,900 / 2%	\$24,100 per year \$11.59 per hour
Transportation, Storage and Distribution, and Logistics Managers	Some college, bachelor's or master's degree, experience	99,000 / 10 - 19%	\$80,860 per year \$38.87 per hour
HEALTH, SAFETY AND ENVIRONMENTAL ASSURANCE			
Environmental Engineering Technicians	Associate degree	18,800 / 24%	\$43,390 per year \$20.86 per hour
Environmental Engineers	Bachelor's degree	51,400 / 22%	\$78,740 per year \$37.86 per hour
Occupational Health and Safety Technicians	High school diploma or equivalent, on-the-job training, certificate, associate degree	10,600 / 13%	\$45,330 per year \$21.79 per hour

Marketing



Marketing Success

You have a new product idea. Who will buy it? How do you know? Is it priced to sell?

Your initial research shows you might have a winner. How will you tell potential customers that it's available?

Where will your customers get your product? It must be available in stores, on e-commerce sites and in catalogs the day people first see your ads.

But before that happens, you need to show retailers the new product, tell them about it and arrange purchasing and shipping details. You also need to create buzz about your product using trade shows, giveaways, news releases, advertising, coupons, blogs and other marketing communications.

Will buyers like your product better than your competitor's product and want more? If you improve or change it, will more people buy it? Are retailers willing to stock it again?

Here's what successful companies know: Marketing is a continuum – an ongoing, interrelated cycle involved in meeting customer needs. Successful marketers include sales-oriented designers, writers, webmasters, researchers, customer service representatives and business executives. And to do

their jobs, they need both high school and post-secondary education and experience in their fields.

Your school counselor can help you with both if you have an interest in marketing. You'll need a course plan that begins with high school communication, arts, computer and business classes and activities. You'll also need to learn about postsecondary options available to you.

And if your school has a DECA chapter, join it. DECA (<http://www.deca.org>) prepares emerging leaders and entrepreneurs in marketing, finance, hospitality and management in high schools and colleges around the globe. You could be one of them.

MARKETING RESOURCES

American Advertising Federation:
<http://www.aaf.org>

American Marketing Association: <http://www.marketingpower.com>

Council of American Survey Research Organizations: <http://www.casro.org>

Dictionary of Marketing Terms: http://www.marketingpower.com/_layouts/Dictionary.aspx

Marketing Career Descriptions: <http://www.marshall.usc.edu/marketing/resources/resources-overview.htm>

Product Marketing Association:
<http://www.pma.com>

Sales and Marketing Executives International:
<http://www.smei.org>

WISE WORDS

"This may seem simple, but you need to give customers what they want, not what you think they want. And, if you do this, people will keep coming back."

– John Ilhan

(http://www.woopidoo.com/business_quotes/authors/john-ilhan/index.htm)



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
MARKETING MANAGEMENT			
Administrative Services Managers	High school diploma or equivalent, bachelor's degree, experience	254,300 / 15%	\$77,890 per year \$37.45 per hour
Advertising, Promotions and Marketing Managers	Bachelor's degree, experience	216,800 / 14%	\$108,260 per year \$52.05 per hour
Computer and Information Systems Managers	Bachelor's degree, experience	307,900 / 18%	\$115,780 per year \$55.67 per hour
Database Administrators	Bachelor's degree, experience	110,800 / 31%	\$73,490 per year \$35.33 per hour
PROFESSIONAL SALES			
Sales Engineers	Bachelor's degree, on-the-job training	66,400 / 14%	\$87,390 per year \$42.01 per hour
Sales Managers	Bachelor's degree, experience	342,100 / 12%	\$98,530 per year \$47.37 per hour
Wholesale and Manufacturing Sales Representatives	Varies: high school diploma through bachelor's degree, formal training, on-the-job training	1,830,000 / 16%	\$56,620 per year \$27.22 per hour
MERCHANDISING			
First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent, some college, associate degree, experience	1,620,000 / 3 - 9%	\$36,480 per year \$17.54 per hour
Merchandise Displayers and Window Trimmers	High school diploma or equivalent, some college, on-the-job training	91,000 / 10 - 19%	\$26,190 per year \$12.59 per hour
Purchasing Managers, Buyers and Purchasing Agents	Managers: Bachelor's or master's degree; others: high school diploma, experience	487,200 / 7%	\$58,360 per year \$28.06 per hour
Retail Sales Workers	Less than high school diploma, on-the-job training; diploma or equivalent preferred	4,465,500 / 17%	\$20,990 per year \$10.09 per hour
MARKETING COMMUNICATIONS			
Advertising, Promotions and Marketing Managers	Bachelor's degree, experience	216,800 / 14%	\$108,260 per year \$52.05 per hour
Art Directors	Bachelor's degree, experience	73,900 / 9%	\$80,630 per year \$38.77 per hour
Customer Service Representatives	High school diploma, some or associate or bachelor's degree depending on field	2,187,300 / 15%	\$30,460 per year \$14.64 per hour
Meeting, Convention and Event Planners	Bachelor's degree, experience	71,600 / 44%	\$45,260 per year \$21.76 per hour
Multimedia Artists and Animators	Bachelor's degree	66,500 / 8%	\$58,510 per year \$28.13 per hour
Public Relations Managers and Specialists	Bachelor's degree	320,000 / 21%	\$57,550 per year \$27.67 per hour
Top E-Commerce Executives*	Bachelor's degree, long-term experience	NA	\$177,813
MARKETING RESEARCH			
Computer Systems Analysts	Bachelor's degree	544,400 / 22%	\$77,740 per year \$37.38 per hour
Market Research Analysts	Bachelor's degree	282,700 / 41%	\$60,570 per year \$29.12 per hour
Statisticians	Master's degree	25,100 / 14%	\$72,830 per year \$35.02 per hour
Survey Researchers	Bachelor's degree	19,600 / 25%	\$36,050 per year \$17.33 per hour

Additional Source

*Top E-Commerce Executives (U.S. national average for entry-level workers): <http://salary.com>


 Science, Technology, Engineering & Mathematics

Engineer a Future Career

Create bionic legs to help a young woman run a marathon. Develop a creature-inspired robot to protect soldiers at war. Construct a worker-friendly computer hutch or ergonomic chair. Convert chemical and biological materials into needed pharmaceuticals. Or design and build a research facility, office building, bridge or home. Develop green technology. Or connect or program electronic gear.

Would these detail-oriented engineering and technical tasks – and the science and mathematics that support them – be fun for you? Then consider a career in the Science, Technology, Engineering and Mathematics (STEM) career cluster.

Engineers-to-be have more than 25 options. Fields include aerospace, chemical, pharmaceutical, civil, computer, electrical and electronics, industrial, mechanical, materials and mining. For each of these fields, you'll find many technical specialists. They work in automotive, biomedical, computer-aided drafting, equipment installation and maintenance technology and more.

Manufacturers need people trained in electronics, robotics, engineering, chemical and laser technology. Some need workers who design and build computer components or install and link computer equipment together.

Many of these jobs can be steppingstones to other careers. Technicians can train other technicians or manage safety and environmental programs. Or they can be technical writers, work in sales or management or create a business to sell new technologies. Some continue their education in scientific or medical fields.

Your skills in math and science and your “project logic” can lead to many career opportunities that help improve the quality of life for everyone.

TECHNICAL RESEARCH

American Chemical Society: <http://www.chemistry.org>

American Institute of Biological Sciences: <http://www.aibs.org/careers>

American Physical Society: <http://www.aps.org>

American Society for Engineering Education: <http://egfi-k12.org>

Cool Careers in Science: http://www.pbs.org/safarchive/5_cool/53_career.html

Engineering: <http://www.discoverengineering.org>, <http://www.swe.org> and <http://www.eteducation.org>

IEEE Computer Society: <http://www.computer.org>

JOIN NOW!

The Technology Student Association and Skills USA are great organizations for students who are interested in a career in science, technology, engineering or mathematics. Learn more about them at <http://www.tsaweb.org>, and <http://www.skillsusa.org>. Then ask your school counselor if there's a chapter at your school.

Chart on next page



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
ENGINEERING AND TECHNOLOGY			
Aerospace Engineers	Bachelor's degree	81,000 / 5%	\$97,480 per year \$46.86 per hour
Automotive Service Technicians and Mechanics	High school diploma, on-the-job training; postsecondary training preferred	723,400 / 17%	\$35,790 per year \$17.21 per hour
Biological Technicians	Bachelor's degree	80,200 / 14%	\$39,020 per year \$18.76 per hour
Biomedical Engineers	Bachelor's degree	15,700 / 62%	\$81,540 per year \$39.20 per hour
Chemical Engineers	Bachelor's degree	30,200 / 6%	\$90,300 per year \$43.42 per hour
Chemical Technicians	Associate degree, on-the-job training	61,000 / 7%	\$42,040 per year \$20.21 per hour
Civil Engineering Technicians	Associate degree	79,000 / 12%	\$77,560 per year \$37.29 per hour
Civil Engineers	Bachelor's degree, license	262,800 / 19%	\$77,560 per year \$37.29 per hour
Drafters	Associate degree	205,100 / 6%	\$47,880 per year \$23.02 per hour
Electrical and Electronic Engineering Technicians	Associate degree	151,100 / 2%	\$56,040 per year \$26.94 per hour
Electrical and Electronics Engineers	Bachelor's degree	294,000 / 6%	\$87,180 per year \$41.92 per hour
Environmental Engineers	Bachelor's degree	51,400 / 22%	\$78,740 per year \$37.86 per hour
Environmental Science and Protection Technicians	Associate degree, on-the-job training	29,600 / 24%	\$41,380 per year \$19.90 per hour
Mechanical Engineers	Bachelor's degree	243,200 / 9%	\$78,160 per year \$37.58 per hour
Mechanical Engineering Technicians	Associate degree	44,900 / 4%	\$50,110 per year \$24.09 per hour
Nuclear Engineers	Bachelor's degree	19,100 / 10%	\$99,920 per year \$48.04 per hour
Nuclear Medicine Technologists	Associate degree	21,900 / 19%	\$68,560 per year \$32.96 per hour
SCIENCE AND MATH			
Biochemists and Biophysicists	Doctoral or professional degree	25,100 / 31%	\$79,390 per year \$38.17 per hour
Chemists and Materials Scientists	Bachelor's degree	90,900 / 4%	\$69,790 per year \$33.55 per hour
Computer and Information Research Scientists	Doctoral or professional degree	28,200 / 19%	\$100,660 per year \$48.39 per hour
Conservation Scientists and Foresters	Bachelor's degree	34,900 / 5%	\$57,420 per year \$27.60 per hour
Environmental Scientists and Specialists	Bachelor's degree	89,400 / 19%	\$61,700 per year \$29.66 per hour
Geoscientists	Bachelor's degree	33,800 / 21%	\$82,500 per year \$39.66 per hour
Medical Scientists	Doctoral or professional degree	100,000 / 36%	\$76,700 per year \$36.87 per hour
Physicists and Astronomers	Doctoral or professional degree	20,600 / 14%	\$105,430 per year \$50.69 per hour
Statisticians	Master's degree	25,100 / 14%	\$72,830 per year \$35.02 per hour
Zoologists and Wildlife Biologists	Bachelor's degree	19,800 / 7%	\$57,430 per year \$27.61 per hour



Careers on the Move

If you're interested in an entry-level job that provides on-the-job training, a high-level management position or something in between, you will find an array of career possibilities in the Transportation, Distribution & Logistics career cluster. If you are looking for a career on the move, you'll likely find it in one of the following cluster pathways:

Transportation Operations. Along this pathway, you'll find specialties in air and space, rail, water and road transportation and in mass transit systems.

Logistics Planning and Management Services. Logistics involves people who manage and move an item from the place where raw materials are located, to the place where the item is manufactured or grown, to the place where it is distributed, to the place where it will be sold or used.

Warehousing and Distribution Center Operations. Materials on the move – whether it's raw materials like corn or manufactured materials like corn syrup and the containers that hold it – need someplace to stay en route to their final destinations. You'll find a variety of jobs at warehouses and distribution centers that store those materials.

Facility and Mobil Equipment Maintenance. Maintenance managers and engineers, industrial equipment mechanics and electricians and related technicians are needed to maintain equipment and facilities where goods are stored.

Transportation Systems/Infrastructure Planning, Management and Regulation. Specialists who plan for the roads, rails, bridges and air and water routes

make an important contribution. They're also involved in moving goods from one continent to another, one nation to another, one region to another, one state to another or even across town.

Health, Safety and Environmental Management. Specialists in this pathway work to prevent oil spills and other catastrophes, reduce pollution, preserve the environment and protect workers and all of us.

Sales and Service. Sales managers involved in transportation and logistics services, travel and transportation agents, customer service managers and counter and rental clerks support the logistics chain and people like us who depend on related products and services.

Altogether the industry provides thousands of career opportunities in transportation centers throughout the U.S. and across the globe.

LOGISTICAL RESEARCH

American Society of Transportation and Logistics: <http://www.astl.org>

Careers in Supply Chain Management: <http://www.careersinsupplychain.org>

Department of Transportation: <http://www.dot.gov/careers/index.html>

Federal Aviation Administration: <http://www.faa.gov/education/index.cfm>

EXPLORE YOUR CAREER INTERESTS



2010-2020 Projected Occupations in Demand

Career Cluster Pathways and Occupational Titles	Education or Training	Number of Jobs in 2010 / Projected Growth Rate	Median Pay
TRANSPORTATION OPERATIONS			
Airline and Commercial Pilots	Military training or associate or bachelor's degree, license, experience	103,500 / 11%	\$92,060 per year
Bus Drivers	High school diploma or equivalent, on-the-job training, CDL*	647,200 / 13%	\$29,160 per year \$14.02 per hour
Delivery Truck Drivers and Driver/Sales Workers	High school diploma or equivalent, on-the-job training	1,262,600 / 13%	\$27,050 per year \$13.00 per hour
Heavy and Tractor-Trailer Truck Drivers	High school diploma or equivalent, experience, on-the-job training, CDL*	1,604,800 / 21%	\$37,770 per year \$18.16 per hour
Water Transportation Occupations	Officers, engineers, pilots: bachelor's degree; MMC*; others: TWIC*, no degree	82,600 / 20%	\$46,610 per year \$22.41 per hour
LOGISTICS PLANNING AND MANAGEMENT SERVICES			
Administrative Services Managers	High school diploma, experience; bachelor's degree sometimes required	254,300 / 15%	\$77,890 per year \$37.45 per hour
Logisticians	Bachelor's or master's degree, experience	108,900 / 26%	\$70,800 per year \$34.04 per hour
Operations Research Analysts	Bachelor's degree	64,600 / 15%	\$70,960 per year \$34.12 per hour
WAREHOUSING AND DISTRIBUTION CENTER OPERATIONS			
Material Recording Clerks	High school diploma or equivalent, computer skills, on-the-job training	2,812,900 / 2%	\$24,100 per year \$11.59 per hour
Storage and Distribution Managers	Bachelor's degree, experience	99,000 / 10 - 19%	\$80,860 per year \$38.87 per hour
Supply Chain Managers	Bachelor's or master's degree, experience	828,000 / 3 - 9%	\$99,540 per year \$47.85 per hour
FACILITY AND MOBILE EQUIPMENT MAINTENANCE			
Aircraft and Avionics Equipment Mechanics and Technicians	Postsecondary award, Federal Aviation Administration certification	142,300 / 6%	\$53,220 per year \$25.59 per hour
Automotive Service Technicians and Mechanics	High school diploma, on-the-job training; postsecondary training preferred	723,400 / 17%	\$35,790 per year \$17.21 per hour
Heavy Vehicle and Mobile Equipment Service Technicians	High school diploma, postsecondary training, on-the-job training	179,200 / 16%	\$42,630 per year \$20.50 per hour
TRANSPORTATION SYSTEMS/INFRASTRUCTURE PLANNING, MANAGEMENT AND REGULATION			
Transportation Vehicle, Equipment and Systems Inspectors, Except Aviation	High school diploma or equivalent, some college, associate degree	27,000 / 10 - 19%	\$62,230 per year \$29.92 per hour
Urban and Regional Planners	Master's degree, experience	40,300 / 16%	\$63,040 per year \$30.31 per hour
HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT			
Health and Safety Engineers	Bachelor's degree	23,700 / 13%	\$75,430 per year \$36.26 per hour
Occupational Health and Safety Specialists	Bachelor's degree, on-the-job training	58,700 / 9%	\$64,660 per year \$31.09 per hour
Occupational Health and Safety Technicians	High school diploma, on-the-job training, associate degree or certificate	10,600 / 13%	\$45,330 per year \$21.79 per hour
SALES AND SERVICE			
Cargo and Freight Agents	High school diploma or equivalent, computer skills, on-the-job training	82,200 / 29%	\$37,150 per year \$17.86 per hour
First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent, some college, bachelor's degree, experience	1,424,000 / 10 - 19%	\$48,810 per year \$23.47 per hour

Abbreviations

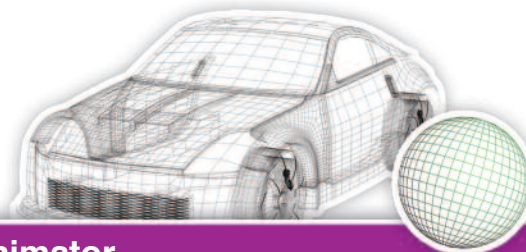
*CDL – Commercial Driver's License; MMC – Merchant Marine Credential; TWIC – Transportation Worker Identification Credential.

Education Pays



Civil Engineering Technician

Associate degree
\$46,290



Animator

Bachelor's degree
\$58,510



Surgical Technologist

Postsecondary certificate or
associate degree
\$39,920



Chef

Career-technical or
postsecondary education
\$40,630



Computer/Information Systems Manager

Bachelor's degree, experience
\$115,780



Electrician

Apprenticeship
(4-5 years), license
\$48,250

See your school counselor about programs at your high school that lead to postsecondary education and a future career.

Career Academies • Career-Technical Education • College Prep • Cooperative Education
Tech Prep • Youth Apprenticeship

SOURCES: <http://www.bls.gov/ooh> and <http://online.onetcenter.org>.



Are you ready to Make an Entrance?

Take the first step by joining a career-technical student organization. You'll learn and practice job skills. You'll also learn how to get and keep a job. And you'll soon discover that doors will begin to open for you.

Business Professionals of America (BPA)

Distributive Education Clubs of America (DECA)

Family, Career and Community Leaders of America (FCCLA)

Future Business Leaders of America (FBLA)

Future Educators Association (FEA)

Health Occupations Students of America (HOSA)

National FFA Organization

SkillsUSA

Technology Student Association (TSA)

