2013-14 Planner

AMERICAN CAREERS

It's Your Future

THINK ABOUT IT

Learning for Life

High school offers lots of new classes and experiences. But remember this – high school really is all about your future. Ask your school counselor about classes and career-related programs that will prepare you for life.

Career academies
Career-technical education
College prep
Career pathways
Cooperative education
Youth apprenticeship

AMERICAN CAREERS PLANNER

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Award-winning, research-based *American Careers* classroom programs integrate career and academic standards in content and learning activities.

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What career do you want to pursue when you get out of school?
How much money do you need to support yourself when you're an adult?
What kind of education do you need to achieve your dreams?

It's Your Future: Think About It

You may have started working on a future plan of study. But soon a school counselor or a teacher will ask you to complete a high school plan. Whether the planning form is online or in print, likely you will be asked to fill in the blanks with a choice of classes from a list of your school's courses and programs of study.

So what high school classes will you choose?
If you already have a future career in mind, and know what kind of education you need, high school planning should be fairly easy to do. Simply review graduation requirements and programs of study. Then select offerings that will support your future goals.

If you're like most people, however, you're interested in doing a lot of things.

This publication can help you to learn more about your special interests and how they're connected to careers you might like to explore. Then you can work on your own personal plan of study that will take you through high school and beyond.

In this section ...
- You will create lists of things you like to do.
- You will complete a "Career Cluster Buster Quiz" to discover clusters that interest you.
- And you will find charts with education and salary data for jobs in 16 career clusters, your favorites included.

In the next section ...
- You will discover "Big Ideas" that likely will have an impact on jobs in the future.
- You will gather information and think about the skills and challenges related to those fields.
- And you will discover which career clusters provide opportunities in those fields.

In the last section ...
- You will find out more about high school and postsecondary planning.
- And you will learn how to draft a simple plan for your future.

That information ... plus the knowledge you gained from the activities you've completed ... will help you create a high school plan of study that's designed just for you. It also will give you a head start on your own personal plan for the future.

1 List your personal interests and achievements.

It's great to have a job you like to do. So what do you like to do?

AT SCHOOL	OUTSIDE OF SCHOOL	ACHIEVEMENTS/AWARDS

2 What do others think?

What have family members, teachers, your school counselor and other adult friends noticed about your "likes"?

AT SCHOOL	OUTSIDE OF SCHOOL

Consider a Nontraditional Career

It pays to pursue one's career interests, including careers that are nontraditional for one's gender. Female engineers and male teachers or health care workers can benefit personally from a satisfying high-skill, high-wage, high-demand job.

3 Compare list #1 with list #2.

Write matching items here:

AT SCHOOL	OUTSIDE OF SCHOOL	ACHIEVEMENTS/AWARDS

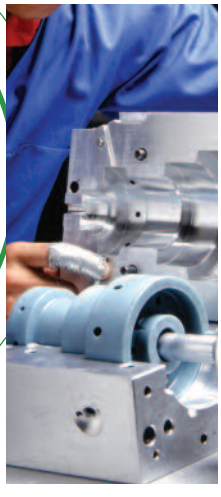
4 Think about jobs you might like.

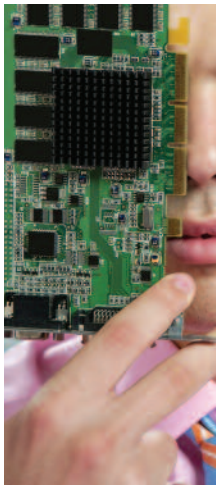
Review the lists of things you like to do. Think about some possible jobs, and discuss job ideas with friends and adults. Write a couple of job ideas and suggestions below. Then add to the list as you learn more.

MY LIST OF POSSIBLE JOBS

Wise Words

"The future depends on what we do in the present."
– *Mahatma Ghandi*





What's the Big Idea?

You'll find many definitions for "big idea," a phrase we use several times in this publication. A big idea could be a change in the way we think about and solve problems in the future. It could be an invention that makes life easier. It could be a combination of both. And it definitely has an impact on the way we live, the way we learn and how we support ourselves in the future.

There are several examples of big ideas that have changed our thinking and even the careers available to us in the future:

- Information technology and its impact on personal and business communication
- Global warming and its impact on individuals and corporations
- Health care and financial issues and their impact on future job trends

In the upcoming pages, you will find lesson topics linked to these and other issues. You will learn about future careers related to those lessons. And you will discover several need-to-know career words and concepts as you work toward creating your high school, college and career plan. The mini-glossary below will help you remember them.

Career Clusters

Career clusters are groups of occupations and career specialties. The occupations and specialties have common technical, academic and employability knowledge and skills that are needed for career success. Take the quiz that starts on the next page. You'll find some career clusters and jobs that you might like to pursue.

Career Pathways/Occupations/Career Specialties

Career pathways are subgroups of career clusters. Occupations and career specialties are subgroups of career pathways. An occupation or specialty requires specific advanced knowledge and skills. You'll find a list of career clusters and pathways at **http://www.careertech.org/career-clusters/glance/clusters-occupations.html.**

Plans of Study

A school or state may offer several "programs of study" to help students prepare for a career. Using a favorite program of study, you can draft a personal "plan of study" to follow in high school. Simply choose courses, activities and other learning experiences that will meet graduation requirements and help you achieve your goals. If your interests change, and they may, work with teachers, school counselors and your family to adjust your personal plan of study. It's a good idea to look at your plan of study at least once a year.

Need-to-Know Info

"Career clusters introduce you to the world of opportunity that exists, help you navigate through the options and ultimately help you settle on a career that aligns with your interests, says Kimberly A. Green, "because work should be fun, not just work!"

Green is the Executive Director of the National Association of State Directors of Career Technical Education Consortium (NASDCTEc). The States' Career Clusters Initiative is part of NASDCTEc. And the definitions on this page are excerpts from the National Sample Definitions created by the Career Clusters Initiative.

Career Cluster Buster Quiz

Deciding on a career can be exciting – and terrifying! And deciding which job to choose is one of the most difficult choices anyone can make.

Those decisions are rarely final. Studies indicate many college students change their major an average of three times. Knowing yourself and taking the time to identify your likes and dislikes can help you score high in decision making.

Career clusters can help. There are 16 different career clusters or groups of occupational and career specialties. So if trying to choose a career tests your patience, the following quiz may be your key to busting through to the right cluster for you!

By going through the process of elimination now, you'll test out of a lot of wasted time in the future.

Writer Pamela S. Bacon is a librarian, high school media specialist and author.

Cluster Buster #1 – Fill in the Blank

For each choice below, place a "Y" in the blank for "Yes" answers or an "N" in the blank for "No" answers.

GROUP ONE

	Do you ...	Y/N
1.	want to work with the environment?	
2.	have a knack with computers?	
3.	love to calculate and solve math problems?	
4.	enjoy building projects?	
5.	have a natural love for young children?	
6.	balance your savings account to the penny?	
7.	like to be in and around a hospital environment?	
8.	like to socialize?	
9.	care deeply about others' needs?	
10.	like to try out new software programs?	
11.	like to fight for the rights of others?	
12.	like to problem solve?	
13.	like to be a group leader?	
14.	excel at fundraisers?	
15.	wonder how things work or could work better?	
16.	like to travel?	

GROUP TWO

	Do you ...	Y/N
1.	like to work outdoors?	
2.	like relaying messages to others?	
3.	like to negotiate?	
4.	remember building blocks as a child?	
5.	like to give directions to others?	
6.	like working with money?	
7.	like to help others to feel better?	
8.	love to cook?	
9.	feel good about yourself after helping someone?	
10.	prefer working alone?	
11.	handle crises well?	
12.	like to figure things out?	
13.	feel comfortable making decisions for others?	
14.	like to argue?	
15.	love to solve complex mathematical problems?	
16.	like a varied schedule?	

GROUP THREE

	Do you ...	Y/N
1.	love animals and farms?	
2.	feel comfortable speaking in front of others?	
3.	enjoy bossing others?	
4.	like going to construction sites?	
5.	like communicating with young and old?	
6.	like to think through problems?	
7.	like to take care of the sick?	
8.	like to try out new vacation spots?	
9.	like to help others?	
10.	become fascinated around computers?	
11.	like being around a lot of action and commotion?	
12.	like to improve how things work?	
13.	like to attend meetings?	
14.	like to talk?	
15.	have a scientific mind?	
16.	like to be "on the go"?	

GROUP FOUR

	Do you ...	Y/N
1.	love planting and watching things grow?	
2.	like being creative?	
3.	like handling money?	
4.	like working outside?	
5.	like planning lessons to teach others?	
6.	like record keeping?	
7.	prefer working inside?	
8.	like to try out new recipes or restaurants?	
9.	feel comfortable being on call?	
10.	like creating?	
11.	feel calm under pressure?	
12.	like making things?	
13.	seek the limelight?	
14.	prefer a varied schedule with irregular hours?	
15.	love researching?	
16.	like learning other languages and cultures?	

GROUP FIVE

	Do you ...	Y/N
1.	enjoy studying fish in a pond or an aquarium?	
2.	have a flair for dramatics?	
3.	like being organized and efficient?	
4.	feel a need to have closure to projects?	
5.	have lots of patience?	
6.	deal precisely with figures?	
7.	like reading about health research?	
8.	like to plan?	
9.	like watching children play?	
10.	like to pay attention to details?	
11.	feel comfortable around weapons?	
12.	often visualize a final project before it's finished?	
13.	feel comfortable in front of a television camera?	
14.	consider yourself a people person?	
15.	believe science can help the world?	
16.	like to map out trips?	

GROUP SIX

	Do you ...	Y/N
1.	like to attend livestock fairs and auctions?	
2.	like telling a story – in words, online or in print?	
3.	like analyzing the stock market?	
4.	want to build your own home some day?	
5.	like to help others be successful?	
6.	like learning about stocks and bonds?	
7.	have a comforting nature?	
8.	feel comfortable flying?	
9.	work well with poor people and diverse groups?	
10.	like to experiment?	
11.	feel a strong sense of right and wrong?	
12.	enjoy working with machines?	
13.	like to work with others to solve problems?	
14.	put things together well?	
15.	like to work alone as well as with others?	
16.	like to drive for long distances?	

Cluster Buster #2 – Answer Key

Did you have any "Yes" answers to question #1 in Groups 1-6? If so, place a check in the appropriate boxes. Do the same for questions 2-16. Circle the numbers that have the most "Yes" responses. Then, match those numbers with the career cluster numbers in Cluster Buster #3 on the next page. If you had five or six "Yes" answers for any of the questions, then a career in that cluster may work for you. If you had several "ties," then it's a good idea to investigate several of those fields more closely.

QUESTION	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	TOTAL
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							

Cluster Buster #3 – Match the Numbers

1	2	3	4
Agriculture, Food & Natural Resources	**Arts, A/V Technology & Communications**	**Business Management & Administration**	**Architecture & Construction**
Animal care and service worker Environmental scientist Agriculture manager Biological scientist Veterinarian Conservation scientist Atmospheric scientist	Video producer Sound engineering technician Commercial and industrial designer Musician, singer and related worker Graphic designer	Human resource manager Administrative assistant Financial analyst Customer service representative Accountant	Construction manager Architect Carpenter Plumber

5	6	7	8
Education & Training	**Finance**	**Health Science**	**Hospitality & Tourism**
Teacher Librarian Adult literacy teacher Curriculum specialist School counselor Training specialist	Financial analyst Auditor Management analyst Personal financial adviser Cost estimator	Nurse Physical therapist Medical assistant Health services manager Medical transcriptionist Dental assistant Massage therapist	Food service manager Food and beverage server Gaming services worker Purchasing manager

9	10	11	12
Human Services	**Information Technology**	**Law, Public Safety, Corrections & Security**	**Manufacturing**
Fitness worker Barber, cosmetologist and other personal appearance worker Animal care and service worker Social worker	Computer systems manager Computer systems analyst Computer scientist Computer software engineer Operations research analyst	Legal assistant Emergency management specialist Hazardous material responder Case management specialist	Industrial designer Maintenance repair worker Industrial engineer Engineering technician

13	14	15	16
Government & Public Administration	**Marketing**	**Science, Technology, Engineering & Mathematics**	**Transportation, Distribution & Logistics**
Tax examiner Bank examiner Public relations specialist Personnel manager Land manager Park ranger	Retail salesperson Market researcher Advertising sales agent Demonstrator and product promoter Model Meeting and convention planner	Computer engineer Scientific research and development services Engineering and natural sciences manager Environmental specialist	Truck driver Flight engineer Commercial pilot Office and administrative support Packer and packager

You'll find many more jobs in these clusters. It pays to explore.

Learn More About Your Favorite Careers

It's time to explore some of your favorite careers. The charts on the next few pages, and others in this publication, list educational requirements and salary data for many good jobs. While looking at this information, ask yourself:

- **Do I want a "green job" or a career in one of the other groups of fast-growing fields featured in this publication?**
- **Do my career interests match the things I like to do at home and at school?**
- **Will my salary eventually pay for the lifestyle I want?**
- **Are jobs that interest me available in my area if I want to stay close to home?**
- **Is there a lot of competition in my area for jobs I might like? Will I have to move?**
- **If I decide I want to move, can I find a job in my new location?**
- **Will I enjoy continuing my education? Some jobs require a state or national examination and additional education to renew a license or certificate.**

Websites to Explore

Here are two great study guides if you want to read more about careers that interest you:

Occupational Outlook Handbook
http://www.bls.gov/ooh

*O*NET Resource Center*
http://www.onetonline.org/

Start Searching Here

Occupations • Education/Training • Salaries

Agriculture, Food & Natural Resources

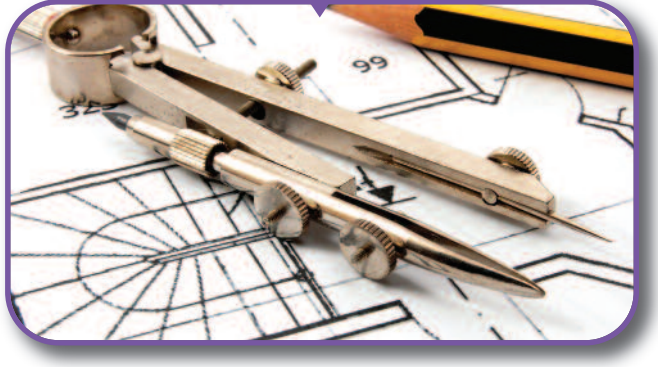
The Agriculture, Food & Natural Resources career cluster includes jobs for people who produce plants and animals for food, fiber, wood, landscaping and other products. It also provides jobs for people who process, sell, distribute and finance these efforts.

Agricultural and food science technicians	A	$ 32,760
Computer systems analysts	B	77,740
Environmental science and protection technicians	A	41,380
Environmental scientists and specialists	B	61,700
Farmers, ranchers and other agricultural managers	HS, OJT B, exp.	60,750
Financial managers	B, exp.	103,910
Forest and conservation technicians	A	33,390
Purchasing managers, buyers and agents	HS, OJT, B, exp.	58,360
Veterinarians	D	82,040
Zoologists and wildlife biologists	B, M, D	57,430

Architecture & Construction

The Architecture & Construction career cluster provides jobs for people who plan, design, manage, build and maintain the built environment. The built environment includes houses and apartments, office buildings, civic centers, hotels and motels, bridges and roads, parks and systems that process and distribute utilities such as water, electricity and gas.

Architects	B, lic.	$ 72,550
Carpenters	HS, OJT, app.	39,530
Civil engineers/technicians	B, lic./A	77,560/ 46,290
Construction and building inspectors	HS, OJT, cert, A, lic., exp.	50,180
Construction managers	A, B pref., exp.	83,860
Drafters	A	47,880
Electricians	HS, CTE, app., lic.	48,250
Heating, air conditioning, refrigeration mechanics and installers	CTE, cert., A, app.	42,530
Maintenance and repair workers	HS, CTE, OJT	34,730
Plumbers, pipefitters and steamfitters	HS., CTE, OJT, A, app., lic.	46,660



Abbreviations: *App. = apprenticeship program; A = two-year college associate degree; B = four-year college degree, bachelor of arts (BA) or bachelor of science (BS); cert. = certification; CDL = commercial driver's license; D = Ph.D., Ed.D. or other doctoral degree; CTE = career and technical education program; exp. = experience; FT = formal training; hr. = hour; HS = high school diploma; lic. = license; LLB = bachelor of laws; M = either a master of arts (MA), master of science (MS) or master's in business administration (MBA) degree; pref. = preferred; req. = required, requirements; OJT = on-the-job training; SC = some college or other postsecondary education; ST = special training*

Arts, A/V Technology & Communications

The Arts, A/V Technology & Communications career cluster consists of jobs for people who design, produce, exhibit, perform, write and publish multimedia content. The cluster also includes jobs for individuals who provide related technology services such as lighting, audiovisual, printing, computer and telecommunication services.

Actors*	FT, OJT, SC, B	$ 17.44/hr.
Advertising, promotions and marketing managers	B, exp.	108,260
Broadcast and sound engineering technicians	CTE, cert., A	39,870
Film and video editors and camera operators	B, OJT	45,490
Graphic designers	B, OJT	43,500
Line installers, repairers – telecommunications, cable	HS, OJT, app., cert.	54,290
Multimedia artists, animators	B	58,510
Musicians, singers	FT, OJT, B	22.39/hr.
Printing workers**	CTE, A	33,150
Producers and directors	B, exp.	68,440
Technical writers	B, exp., science knowledge	63,280

Employment usually short-term.

***Declining growth rate, but many opportunities available.*

Business Management & Administration

The Business Management & Administration career cluster provides jobs for people who plan, organize, direct and evaluate business activities in order to help their employers succeed. Employment opportunities are available in every sector of the economy including those represented by the other career clusters.

Accountants and auditors	B, cert.	$ 61,690
Administrative services managers	exp., A, B	77,890
Bookkeeping, accounting and auditing clerks	HS, OJT, CTE, A	34,030
Computer and information systems managers	B, M pref.	115,780
Computer support specialists	SC, A, B pref.	46,260
Customer service representatives	HS, OJT, A, B	30,460
Human resources specialists	B	52,690
Secretaries and administrative assistants	HS, CTE, A	34,660
Purchasing managers, buyers and agents	HS, OJT, B, exp.	58,360
Top executives	exp., B, M, D – varies	101,250

Education & Training

The Education & Training career cluster consists of jobs for people who plan, manage and provide education, training and support services related to learning.

Elementary, middle and high school principals	M, D pref., lic., exp.	$ 86,970
Instructional coordinators	M, exp., lic.	58,830
Librarians	M	54,500
Library technicians and assistants	HS, OJT, cert., A	26,330
Preschool and child care center directors	B, exp.	42,960
School and career counselors	M, exp., lic.	53,380
Speech-language pathologists	M, cert., lic.	66,920
Teacher assistants	HS, A	23,220
Teachers, career and technical education	B, internship, work exp., lic.	53,920
Teachers, kindergarten and elementary	B, internship, lic.	51,380
Teachers, middle school/ high school	B, internship, lic.	51,960/ 53,230

Finance

The Finance career cluster consists of jobs related to personal financial and investment planning, business financial management, banking and insurance.

Bill and account collectors	HS, OJT	$ 31,310
Bookkeeping, accounting and auditing clerks	HS, OJT, CTE, A	34,030
Budget analysts	B, M pref.	68,200
Claims adjusters, appraisers, examiners and investigators	HS, exp., CTE, B pref.	58,460
Financial clerks	HS, OJT; A, B pref.	33,710
Financial managers	B, M pref., cert.	103,910
Insurance sales agents	HS, OJT, B, lic., cert.	46,770
Investment fund managers	B	99,540
Loan officers	HS, OJT, B pref., lic., cert.	56,490
Personal financial advisers	B, lic.	64,750
Securities, commodities and financial services sales agents	B, M pref., lic.	70,190
Tellers	HS, OJT	24,100

Government & Public Administration

The Government & Public Administration career cluster comprises careers in national security, foreign service, planning, revenue and taxation, and regulation. It also comprises careers in government, management and administration at the local, state and federal levels.

Administrative services managers	exp., A, B	$ 77,890
Airmen, privates first class, seamen (E-3)	HS, FT, other	1,730, 1-2 yrs.
Appraisers and assessors of real estate	A, B pref., lic.	48,500
Computer and information systems managers	B, exp.	115,780
Computer support specialists	exp., A, B	46,260
Construction and building inspectors	HS, OJT, A, cert, lic., exp.	50,180
Tax examiners, collectors and revenue agents	B, OJT	49,360
Transportation security screeners, federal	HS, OJT	37,070
Urban and regional planners	M	63,040
White House staff	degree, exp.	45,000 - 172,500

Health Science

The Health Science career cluster includes jobs for people who plan, manage and provide therapeutic, diagnostic, information, support and biotechnology research and development services.

Biological technicians	B	$ 39,020
Biomedical engineers	B	81,540
Medical and clinical laboratory technologists/technicians	B/A or cert.	56,130/ 36,280
Medical equipment repairers	A, B, cert.	44,490
Medical records and health information technicians	cert., A	32,350
Medical transcriptionists	CTE, cert., A	32,900
Physicians and surgeons	D, intern-ship, lic.	166,400+
Radiologic technologists	A, lic.	54,340
Registered nurses	A, B, lic.	64,690
Respiratory therapists	A, B, lic.	54,280

Hospitality & Tourism

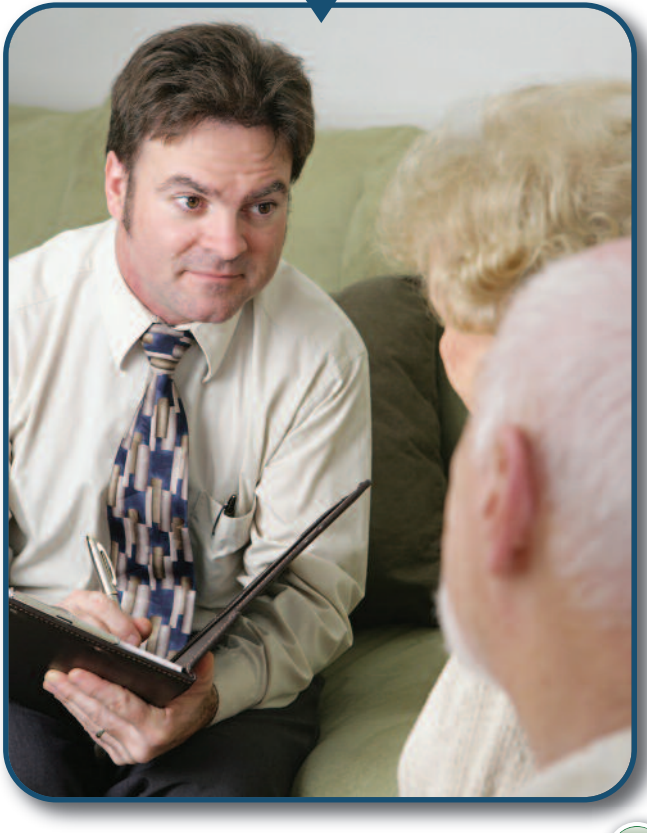
The Hospitality & Tourism career cluster consists of jobs for people who provide travel services and who manage, market and operate restaurants and other food services, lodging, attractions and recreation events.

Advertising, promotions and marketing managers	B, exp.	$ 108,260
Cooks, restaurant	OJT, CTE, app.	20,260
Food service managers	HS, OJT, CTE, SC, B	48,130
Lodging managers	B pref., A, cert., exp.	46,880
Meeting, convention and event planners	B	45,260
Receptionists	HS, CTE, OJT	25,240
Recreation workers	HS, OJT, FT, A, B	22,260
Information clerks (includes reservation, travel and ticket agents)	HS, OJT, FT, SC	29,990
Sales managers	B, exp.	98,530
Security guards	HS, OJT, FT, lic.	23,460

Human Services

The Human Services career cluster prepares people for jobs that relate to families and human needs.

First-line supervisors of personal service workers	CTE, A, OJT	$ 22,500
Home health and personal care aides	FT, exam, cert.	20,170
Mental health counselors and marriage and family therapists	M, internship, lic.	39,710
Preschool teachers	A, exp.	25,700
Psychologists (includes clinical, counseling and school psychologists)	D, cert., lic.	68,640
Rehabilitation counselors	M	32,350
Social and community services managers	B, M pref., OJT	57,950
Social and human service assistants	HS, OJT, CTE, A, cert.	28,200
Social workers (includes child and family, health care, others)	B, M, lic.	42,480



Information Technology

The Information Technology career cluster provides jobs for people who develop computer software programs, integrate business communications systems, manage and support these systems, and design, write and produce multimedia content.

Computer and information systems managers	B	$ 79,930
Computer hardware engineers	B	98,810
Computer network and computer user support specialists	CTE, OJT, SC, A	47,660
Computer programmers	B	71,380
Computer systems analysts	B	77,740
Database administrators	B, exp.	73,490
Information security analysts, web developers and computer network architects	B, exp.	75,660
Multimedia artists and animators	B	58,510
Network and computer systems administrators	B	69,160
Software developers	B	90,530
Technical writers	B, exp.	63,280
Web administrators	SC, B	79,930

Law, Public Safety, Corrections & Security

The Law, Public Safety, Corrections & Security career cluster consists of jobs for people who plan, manage and provide legal, public safety, homeland security and protective services. The cluster also includes people who provide professional and technical support services.

Correctional officers	HS, OJT	$ 39,020
Criminal investigators and special agents	HS, A, B, exp.	71,770
Emergency medical technicians (EMTs)/ paramedics	HS, FT, cert./ A, lic.	30,360
Firefighters	HS, exams, FT, SC, app., physical req.	45,250
Intelligence research specialists (Department of Homeland Security)*	M, JD, LLB or D; special-ized exp.	56,172 - 88,349
Lawyers	B, law degree, bar exam, lic.	112,760
Paralegals and legal assistants	A	46,680
Police and detectives	HS, exams, FT, A, B pref., physical req.	55,010
Probation officers and correctional treatment specialists	B, OJT	47,200

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

Manufacturing

The Manufacturing career cluster consists of jobs for people who plan, manage and perform the processing of materials into intermediate or final products. The cluster also encompasses jobs for professional and technical support people who plan and control production and provide maintenance and manufacturing/process engineering services.

Drafters	A	$ 47,880
Electrical and electronic engineering technicians	A	56,040
Electrical and electronic engineers	B, lic.	87,180
Environmental engineering technicians	A	43,390
Environmental engineers	B	78,740
First-line supervisors/ managers of transportation and material-moving machine and vehicle operators	HS, SC, B, exp.	52,950
Industrial designers	B	58,230
Industrial production managers	B, exp.	87,160
Machinists and tool and die makers	HS, CTE, OJT	39,910
Mechanical engineers	B, lic.	78,160
Occupational health and safety technicians	HS, OJT, cert., A	45,330
Purchasing managers, buyers and agents	HS, OJT, B, exp.	58,360
Welders, cutters, solderers and brazers	HS, CTE, OJT	35,450

Marketing

The Marketing career cluster provides jobs for people who plan, manage and perform marketing activities to achieve an organization's objectives. Those activities include research, sales, marketing communications and merchandising.

Advertising, promotions and marketing managers	B, exp.	$ 108,260
Art directors	B, exp.	80,630
Computer and information systems managers	B	79,930
Customer service representatives	HS, OJT, A, B	30,460
Market research analysts	B	60,570
Public relations managers and specialists	B, exp.	57,550
Retail salespersons	OJT	20,990
Sales engineers	B, exp.	87,390
Sales managers	B, exp.	98,530
Wholesale and manufacturing sales representatives	HS, FT or B in specialty	56,620

Science, Technology, Engineering & Mathematics

The Science, Technology, Engineering & Mathematics career cluster consists of jobs for people who plan, manage and provide scientific research and professional and technical services. Examples include laboratory and testing services, and research and development services related to physical science, social science and engineering.

Biochemists and biophysicists	D	$ 79,390
Biological technicians	B	39,020
Chemical technicians	A, OJT	42,040
Chemists and materials scientists	B	69,790
Drafters	A	47,880
Electrical and electronic engineering technicians	A	56,040
Engineers (biochemical, civil, computer hardware, electrical, energy, industrial, mechanical, etc.)	B, lic.	83,340 overall
Environmental scientists and specialists	B	61,700
Geoscientists	B	82,500
Zoologists and wildlife biologists	B	57,430

Transportation, Distribution & Logistics

The Transportation, Distribution & Logistics career cluster consists of jobs for individuals who plan and manage the movement of people, materials and goods by road, pipeline, air, rail and water. The cluster also provides jobs for professional and technical support workers who plan and manage transportation infrastructure, coordinate logistics services and maintain mobile equipment and facilities.

Aircraft pilots and flight engineers	FT, A, B exam, lic., exp.	$ 92,060
Automotive service technicians, mechanics	HS, OJT, CTE, SC	53,220
Bus drivers	HS, FT, CDL	29,160
Cargo and freight agents	HS, OJT, computer skills	37,150
Delivery truck drivers and driver/sales workers	HS, OJT	27,050
Heavy and tractor-trailer truck drivers	HS, OJT, exp., CDL	37,770
Ship, boat captains	OJT, FT, Coast Guard exam, lic.	61,960
Storage and distribution managers	B	80,860
Train engineers and operators	HS, OJT, FT	46,100
Water transportation occupations	Various credentials	46,610

Create a Career Profile

Career profiles can give you a personal look at real-world jobs through the eyes of people who work in them. You'll find that many career profiles are available on the Web, like the profile of Ellen Henry on this page.

Now it's your turn to create a career profile of someone who has a job you might like.

1. Think of someone you'd like to interview. You could interview a family member, a family friend or someone your teacher knows. Or someone at your doctor's office, a store where you shop or a restaurant where you dine. If you want to interview someone else with a career you might like, ask a family member for help.

2. Research your interviewee's job. These websites will help:
   - **http://www.bls.gov/ooh.** Click on the A-Z index that you find in the middle of the page.
   - **http://www.accessexcellence.org/RC/CC/CP**
   - **http://www.maa.org/careers/profiles.html**
   - **http://www.nursesource.org/description.html**
   - **http://www.asis.org/careerprofiles/careerprofiles.html**

3. Create a list of questions you would like to ask your interviewee, such as:
   - What company do you work for?
   - What is your job title?
   - Why or how did you choose your career?
   - What kind of education does your job require?
   - What do you do on the job?
   - What do you like about your job?

4. Contact the person to introduce yourself. Explain the purpose of your interview. Set up a time to talk in person or on the phone. And before the interview begins:
   - Introduce yourself again.
   - If you have a tape recorder, ask the person's permission before you turn it on.
   - If you are taking notes, let the person know it will take a little time to write his or her responses to your questions.
   - Ask for the correct spelling of the person's name.
   - Thank the person for the interview.

5. Publish and share interviews. Here are a few ideas:
   - Work with your teacher and other students to create and print a career profile booklet for everyone in the class.
   - Post interviews on a special section of the school website.
   - As a class, create an exhibit on school bulletin boards with the principal's permission.
   - Or think of other ideas for publishing your work.

ELLEN HENRY, BUYER

Ellen Henry is a kid at heart. This is a good thing since she spends most of her days working with stuffed animals. She buys and helps design the latest plush animals for Hallmark Cards, Inc.

If a product isn't selling, Ellen Henry needs to find a replacement for it. She also works with designers to figure out which plush animals will sell in the future.

On-the-job training and a college degree helped Ellen Henry get the job she has today. What she enjoys is working with people and stuffed animals like her plush friend Lola.

Writer Sandra Moran interviewed Ellen Henry.

The BIG Idea: COMMUNICATION

Communication skills are important to every job on the planet. You may say that you don't need to know how to communicate, because you are going to work for yourself. Think about it. You will need to set up a bank account, pay bills, buy a car, arrange for maintenance for your home or car and much more.

You will also want to communicate with your coworkers, customers and friends – texting, talking on the phone or making plans to get together. All of these examples require communication skills.

You already know that communication skills include speaking, writing and listening. Body language is also important. Every person needs to use these skills effectively to be able to communicate well.

In fact, the National Communication Association estimates that 75 percent of a person's day involves communicating in some way. Effective communication is the key to get you to where you want to be.

Your experiences communicating with your friends and family are good practice to prepare for a job. Your ability to communicate effectively will help determine the quality of the rest of your life as well.

Communication: It's About Connecting

I'm sure you understand the text message on the smartphone. Who else would understand it? Your parents? Your 80-year-old neighbor? Your best friend?

Mobile phones and text messaging have altered the way we communicate. Messaging is not just a new technology. It is a new language. Although some businesses are using this method of communication, many major companies are training employees in traditional communication practices. It is important to practice some of the communication skills essential for today's workforce. Here is a list of commonly used communication skills:

Essential Communication Skills

A.	Use appropriate body language.
B.	Speak clearly.
C.	Listen carefully.
D.	Solve problems.
E.	Make eye contact.
F.	Write clearly.
G.	Write to convey meaning.
H.	Write using correct grammar.
I.	Send clear, concise verbal messages.
J.	Ask questions to gain information.
K.	Speak with authority.
L.	Use organization to engage employees.

Communicating on the Job

Look at the job descriptions below. In the space to the right, record the skill or skills required by each job task. For example, "report project status to manager" requires F, G and H.

Job Description	Communication Skills Required
ELECTRONIC GAME DEVELOPER	
Report project status to manager.	
Work well with cross-functional teams.	
Able to openly discuss proposals.	
Use skills in collaboration and negotiation.	
THEATER TICKET OFFICE MANAGER	
Communicate with event promoters.	
Supervise and delegate tasks to employees.	
Develop work schedules for employees.	
Stay up to date with new developments.	
MOVIE THEATER ASSISTANT MANAGER	
Interview and select staff.	
Create interest for special events.	
Possess excellent organizational skills.	
Manage crowds.	
SPORTS MARKETING ACCOUNT EXECUTIVE	
Entertain clients.	
Prepare accurate, timely, regular reports.	
Attend networking events.	
Act as point of contact to the media.	

Think About Communicating

1. What skills did you list that are required for all jobs?

2. What skills did you list that are unique to a specific job?

3. What classes could you take that would help you improve your communication skills?

4. Review the descriptions of the 16 career clusters on pages 11-18. Communication skills are required in all 16. Write the names of your top three clusters from page 8. Select one job title from each of those clusters on page 9. Describe how a person working in that job would use communication skills using the letters on page 20.

	Cluster	Job Title	Communication on the Job
1.			
2.			
3.			

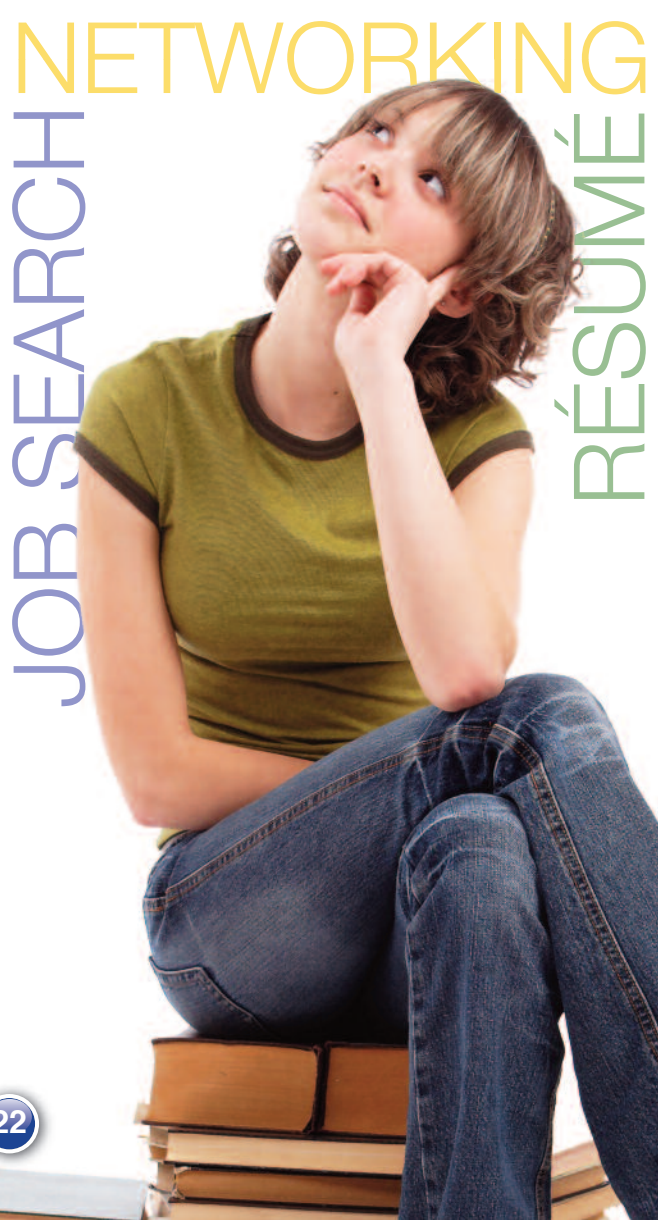
Job Hunting: Communication Skills Required

In this section, you learned about on-the-job communication skills. Even before you get a job, however, you'll have to use those skills to find one. Job-finding tasks often include:

- Writing a résumé and cover letter
- Researching advertised jobs and
- Networking

You will find a lot of "how-to" links on the Internet when it's time to write a résumé and cover letter. Some links appear below.

You can search for advertised jobs at Monster and CareerBuilder.com, the big job search engines. You can also search for jobs on the websites of local employers, professional organizations and the news media. Simply follow the "careers" or "employment" links.



However, there's another, better way to find a job – networking. Telling people you know about your job search, asking for names of other people to contact and accessing some social networking sites on the Web are great ways to hunt for a job.

In fact, networking is considered the most important job-hunting communication technique. "At the very most – and some say this number is too high – only about 15-20 percent of all available jobs are ever publicly advertised in any medium," according to Randall S. Hansen, Ph.D. Hansen founded Quintessential Careers, a well-known career development website.

And when it comes to social networking, you and your friends may already have a presence on several popular sites, including the ones in the list below. In the future, you'll want to use these sites to pursue job possibilities.

But employers use these sites, too. So if you're looking for a job, don't post anything you wouldn't want a future employer to see. And if you're employed, don't trash your current employer or supervisor.

As a serious job seeker, you will want to use all of your networks and all of your communication skills to make connections and find a job that's right for you.

Looking for a Job?

Here are some websites that can help with a job search:

CareerBuilder.com
Facebook
LinkedIn
Monster.com
Twitter
USAJOBS.gov

Practice Résumé Writing

Now it's time to create your cover letter and résumé. Go to **http://carcom.com/site/practiceresume.html.** Here are some helpful sites on the following topics:

Cover letter and résumé samples and tips – **http://www.bls.gov/opub/ooq/2009/resume.pdf**

Job search advice, tips and tools – **http://quintcareers.com**

Social media tips – **http://jobsearch.about.com/od/networking/a/socialmedia.htm**

You've done your networking. You've completed an application form. Or you've sent a résumé and cover letter. Now what?

The Interview: Will Your Communication Skills Pay Off?

Your networking and writing skills paid off. Someone wants to interview you. Now what?

Whether it's a child care job, a lawn-mowing job, a fast-food job, an internship or a full-time, after-graduation job, an employer will have a series of questions to ask you. But questions are only part of the interview process.

It's What You Say

The following scenario and the job search tips at **http://jobsearch.about.com/od/interviewsnetworking/u/jobinterviews.htm** will help walk you through a typical interview.

- You'll call the interviewer to arrange an interview time and date.
- You may greet a receptionist before you're escorted to an interviewer's office.
- As your interviewer leads you through a list of questions, you'll talk about your skills and how they'll help the company.
- You'll make polite conversation with and say good-bye to the people you've met.

It's How You Say It

It's not just what you say that counts. It's also what the interviewer hears. So ...

- Speak with a smile in your voice, and, even though you may be nervous, try not to speed up.
- Don't interrupt. Listen first to what the interviewer is asking. Then respond. (You've already written and practiced some questions and answers, right?)
- Use language, not "slanguage." Your interviewer will listen for how well you'll communicate on the job.

Some Typical Interview Questions

- Tell me about yourself.
- What do you know about our company? (Or child care? Or lawn mowing?)
- What can you do for us?
- Why did you leave your last job?
- What would you do if ...?

It's the Impression You Make

What you do and what you wear communicate a lot about you.

- Dress appropriately, and don't chew gum. Also review the Etipedia® Business Content tips at **http://emilypost.com/business-etiquette.**
- Watch your body language. Move with confidence, sit up straight with a smile on your face, and make eye contact with your interviewer.
- Practice good manners. Go to **http://www.mindtools.com/CommSkll/FirstImpressions.htm** for more information. And turn off and tuck away your phone.
- Finally, call or write a follow-up note to thank the interviewer for the opportunity, and state again that you'd really like the job.

Communication Jobs

Obviously, interpersonal communication skills cross every human interaction, both with people close to us and people with whom we work. However, many industries require excellent communication skills in specific fields. Do you excel at speech, writing, debate, design, negotiation and other related skills? If so, you may want to consider the following career clusters and related careers.

Arts, A/V Technology & Communications

Advertising, promotions and marketing managers help develop policies and strategies and oversee their companies' advertising and promotion.
Education: Bachelor's or higher degree, experience and related career-technical education helpful
Income: $108,260

Broadcast and sound engineering technicians handle electrical and electronic equipment needed for radio or TV broadcasts, concerts, plays, musical recordings or movies.
Education: Certificate or associate degree; related career-technical education helpful
Income: $39,870

Graphic designers use color, type, illustration, animation, photography and various print and electronic layout techniques to design and produce displays, promotional and informational materials, packaging, logos and websites.
Education: Bachelor's degree; related career-technical education helpful
Income: $43,500

Business Management & Administration

Human resources managers and specialists work to attract, motivate and retain qualified employees. Human resources personnel must speak and write effectively and be able to work with and supervise people of various ages, backgrounds and levels of education and experience.
Education: Bachelor's degree. Ability to speak a foreign language is an asset.
Income: $52,690 - 89,270 depending on industry, level of experience, training, location and firm size

Information Technology

Computer network and computer user support specialists provide technical assistance, support and advice to individuals and organizations that depend on information technology.
Education: Career-technical education, on-the-job training, certification programs, some college or associate degree
Income: $47,660

Technical writers use nontechnical language to create operating or assembly instructions and other online or printed documentation for technical support staff, consumers and others.
Education: Bachelor's degree, experience or knowledge in a technical subject and experience or knowledge in Web design and computer graphics
Income: $63,280

Education & Training

Librarians manage and help people access information from the Internet, print materials and other resources.
Education: Master's degree in library science
Income: $54,500

Teachers help students in kindergarten through high school learn academic subjects, solve problems and develop critical-thinking skills.
Education: Bachelor's degree; state certification
Income: $51,380 - 53,920

Human Services

Mental health counselors and marriage and family therapists help people manage or overcome mental and emotional disorders and problems with relationships.
Education: Master's degree; internship, state license
Income: $39,710

Law, Public Safety, Corrections & Security

Police officers protect lives and property. Detectives and criminal investigators, who sometimes are called agents or special agents, gather facts and collect evidence of possible crimes.
Education: Varies from high school diploma through college degree; formal training; physical requirements; related career-technical education helpful. Bilingual applicants with college training have the best opportunities.
Income: $55,010

Marketing

Market research analysts study market conditions in local, regional, or national areas to examine potential sales of a product or service. They help companies understand what products people want, who will buy them and at what price.
Education: Bachelor's degree
Income: $60,570

Sources: Occupational Outlook Handbook, ***http://www.bls.gov/oob,*** *and O*NET OnLine,* ***http://www.onetonline.org.*** *Income is median, unless otherwise noted.*

The BIG Idea: ENTERTAINMENT

What is entertainment? Is it playing video games? Going to a museum? Shopping? Playing soccer? Watching TV? Attending a football game? Reading? Sending text messages? Knitting? Going to a concert? Watching 3-D TV? Eating out?

There are so many forms of entertainment out there that it's really hard to define. Entertainment has different meanings to different people. When you really think about it, entertainment is nothing more than doing something that you enjoy. What may be entertaining to some may be totally boring for others.

Jobs in the Entertainment Industry

There are lots of job opportunities in the entertainment industry. You may first think of actors and all the people who support that job, such as lighting designers, the film crew and makeup artists. But there are thousands of other opportunities.

Here are some entertainment occupations you might not have thought about:

- Animal trainers
- Lawyers
- Event planners
- Accountants and
- Truck drivers.

Follow these directions to search for jobs in the entertainment industry in each of the 16 career clusters:

- Go to **http://entertainmentcareers.net/sbjobs.**
- Look for the category, "Browse all regions by category," on the left column of the page.
- Find 16 jobs, one for each of the 16 career clusters.
- Complete the chart on the next page.

Connections aren't always obvious. An animal trainer is directly connected to entertainment, but the job also is tied to the Agriculture, Food & Natural Resources cluster.

Career Cluster	Job Title
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	

People Working in the Entertainment Industry

What do people do who work in the entertainment industry?

- Go to **http://www.thecareerproject.org.**
- Look at "Profile Category" in the left column
- Click on "Arts/Entertainment."
- Browse and explore the list of job titles to get a better sense of what people do in those occupations.

You probably noticed that the entertainment industry is organized into several different segments. A person can specialize in one of those segments. For example:

- Electronic games
- Movies
- Sports

Choose three jobs that interest you at **http://www.entertainmentcareers.net.** List each of the three titles on one of the blank spaces below. Then complete the information requested for each job title.

Job Title #1:

Describe what that person would be doing on the job:

… in the electronic games industry

… in the movie industry

… in the sports industry

Job Title #2:

Describe what that person would be doing on the job:

… in the electronic games industry

… in the movie industry

… in the sports industry

Job Title #3:

Describe what that person would be doing on the job:

… in the electronic games industry

… in the movie industry

… in the sports industry

From these profiles and job descriptions, you can see that the entertainment industry is filled with opportunities.

The World of Entertainment

Entertainment appears to be glamorous. The world is full of people who want jobs in the entertainment industry. How do you get one of them?

Some say that it takes perseverance and a lot of luck. It also takes education and experience. Look at some opportunities in the entertainment field and what it takes to get the job.

TV Sports Anchor

- Take high school classes in English, public speaking, journalism and related computer software
- Volunteer at a TV station or work as an intern
- Participate in school journalism and school sports activities, and become well-informed about a variety of sports
- Develop good interviewing, speaking, critical-thinking, information-gathering, organizational and writing skills
- Get a four-year degree in broadcasting
- Be willing to work irregular hours
- Be self-motivated and detail-oriented

Dancer

- Train, exercise and attend dance classes from an early age
- Study and practice dance moves
- Perform in volunteer and paid roles
- Work with choreographers, partners and ensembles
- Audition for roles or membership in dance companies
- Stay up to date with current dance trends
- Be willing to work irregular hours, often nights and weekends

Concert Roadie (Audio Equipment Technician)

- Study and stay up to date with computer, electronic and audio and video technology
- Volunteer to set up and operate audio and video equipment
- Join a high school audiovisual club
- Learn to anticipate and solve problems
- Read, understand and act on written instructions
- Complete a high school or postsecondary career-technical education program or degree
- Be willing to work irregular hours, often nights and weekends

Animator

- Take high school classes in art, drama, photography and computing
- Learn software for design, photo imaging, computer-aided drafting, video creation, editing Web development, as well as HyperText Markup Language (HTML)
- Learn production techniques for film, video and electronic media
- Volunteer or intern at a production company
- Develop speaking, writing and critical-thinking skills
- Develop observation and visualization skills
- Complete a four-year degree in animation from an art institute, college or university

Concert Promoter (Public Relations Specialist)

- Take high school classes in English, public speaking, journalism and related computer software
- Volunteer or work at a public relations or marketing agency
- Participate in school music and become well-informed about the kinds of music you plan to promote
- Develop good interviewing, speaking, critical-thinking, information-gathering, organizational and writing skills
- Get a four-year degree in public relations, marketing or journalism
- Be willing to work irregular hours
- Be self-motivated and detail-oriented

These are just five opportunities. To find others, you might go to **http://www.onetonline.org.**

Entertainment Jobs

People who like to express creative ideas through music, drama or dance often find their "career home" in the entertainment industry. However, these jobs are more likely to be part time. Yet some jobs that support the arts, entertainment and recreation fields offer full-time work and high wages. The following career clusters and related occupations provide information on both types of jobs.

Architecture & Construction

Landscape architects plan and design land areas for such projects as parks and other recreational facilities, airports, highways, hospitals, schools, land subdivisions and commercial, industrial and residential sites.
Education: Bachelor's degree, internship, license
Income: $62,090

Set and exhibit designers design special exhibits and movie, television and theater sets. May study scripts, confer with directors and conduct research to determine appropriate architectural styles.
Education: Bachelor's degree
Income: $46,680

Arts, A/V Technology & Communications

Actors express ideas and portray characters in theater, film, television, and other performing arts media. They also work at theme parks or for other live events.
Education: Formal training at an acting school or university, on-the-job training, union membership
Income: $17.44 per hour; varies widely due to short-term nature of many jobs

Multimedia artists and animators create animation and visual effects for television, movies, video games, and other media. They create two- and three-dimensional models and animation.
Education: Bachelor's degree, on-the-job training
Income: $58,510

Music directors lead orchestras and other musical groups during performances and recording sessions.
Education: Formal training in music, plus bachelor's or higher degree and experience
Income: $41,270 for salaried music director; varies widely for others due to short-term nature of many jobs

Producers and directors are in charge of creating motion pictures, television shows, live theater and other performing arts productions.
Education: Bachelor's degree, experience
Income: $68,440

Business Management & Administration

Accountants and auditors prepare, analyze and verify financial documents in order to provide information to clients and employers.
Education: Bachelor's or higher degree; certification preferred
Income: $61,690

Agents and business managers of artists, performers and athletes represent and promote individuals who are experienced in these fields to prospective employers. Agents and business managers may also handle contract negotiation and other business matters for clients.
Education: Bachelor's degree
Income: $64,790

Hospitality & Tourism

Animal trainers train animals for riding, security, performance or obedience or for assisting persons with disabilities.
Education: On-the-job training; bachelor's degree and additional skills for marine mammal trainers
Income: $25,980

Chefs and head cooks direct the preparation, seasoning, and cooking of salads, soups, fish, meats, vegetables, desserts or other foods. They may also plan and price menu items, order supplies and keep records and accounts.
Education: Career-technical education, related on-the-job experience, culinary arts school, or a 2- or 4-year degree
Income: $40,630

Lodging managers make sure that guests on vacation or business travel have a pleasant experience, while ensuring that an establishment is run efficiently and profitably.
Education: Certificate, associate degree, bachelor's preferred, related on-the-job experience
Income: $46,880

Meeting, convention and event planners coordinate all aspects of professional meetings and events. They choose meeting locations, arrange transportation and coordinate other details.
Education: Bachelor's degree and work-related experience in hotel sales and marketing or other related experience
Income: $45,260

Transportation, Distribution & Logistics

Truck drivers pick up and deliver freight. Responsibilities also may include loading and unloading, keeping activity logs and making sure equipment is in good condition.
Education: Career-technical education; commercial driver's license (CDL), on-the-job training, experience
Income: $37,770, heavy truck and tractor-trailer drivers; $27,050, delivery truck drivers

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Sources: Occupational Outlook Handbook, ***http://www.bls.gov/oob,*** *and O*NET Resource Center,* ***http://www.onetonline.org/.*** *Income is median, unless otherwise noted.*

The BIG Idea: GREEN

Green is a popular word. Why is it so popular?

The concept of green is popular because we need to use resources responsibly so that future generations will have resources to meet their needs. This goal requires attention and planning from individuals, families and communities. The good news is that there also will be career opportunities for you.

It's too early in the process to know what needs to be done or all the changes that need to be made. But we do know that there is a wave of green jobs coming, and it would be good to learn how to build a future in one of these jobs.

What is green? Green means go. Green means money. Green means St. Patrick's Day. What is a green job? There is no standard definition for a green job. What we do know is that you can find a green job in almost any industry.

Green Opportunities in Everyday Activities

Every move you make puts you face to face with green opportunities. Read the following list of everyday activities to start looking at some of the opportunities:

- Eating fast food
- Driving a car
- Using your cell phone
- Opening a package
- Buying clothes
- Choosing personal care products
- Taking care of a lawn
- Taking a nice, long shower
- Drinking bottled water
- Turning up the thermostat when you are cold

Take a Closer Look at Opening a Package

In the left column, you see a list of challenges related to opening a package. In the right column, you see a list of career clusters that would have green job opportunities for solving that problem.

	Green Challenges	Cluster(s) That Address the Challenge
1.	Use environmentally friendly materials.	Manufacturing
2.	Find biodegradable alternatives.	Science, Technology, Engineering & Mathematics
3.	Analyze costs.	Finance
4.	Transport using renewable energy.	Transportation, Distribution & Logistics
5.	Design to reduce the volume of waste.	Arts, A/V Technology & Communications
6.	Stock products in green-friendly packaging.	Business Management & Administration
7.	Understand and promote green-friendly issues.	Marketing

Choose one other green opportunity from the "Everyday Activities" list on page 30. Complete the chart below for that activity. In the left column, list green challenges. In the right column, list career clusters with green job opportunities for meeting each challenge. Refer to the career clusters information on page 34.

Green opportunity:

	Green Challenges	Cluster(s) That Address the Challenge
1.		
2.		
3.		
4.		
5.		
6.		
7.		

After you complete this list, you probably could think of things that you see or do every day that could be added to the list of challenges.

Green Jobs are Growing

When businesses want to renovate or demolish an old building, they call France Environmental, Inc., in Richmond, Virginia, to find out if there are any environmental hazards – hazards such as radon, mold, asbestos and lead leakage from storage tanks. Engineer Joseph France and his team of environmental engineering technicians then take needed steps to determine if there are any hazards and how to remove them.

Biological scientist Young-Ki Jo spends a lot of time traveling to different locations in Texas chasing fungi causing crop diseases and working to manage them. As an assistant professor and extension pathologist at Texas A&M University, the plant pathologist shares what he has learned about soybean fields, rice paddies and sod farms with growers, managers and students.

Pollution control technician Nancy Gallinaro has spent more than 30 years making dirty water clean. As director for wastewater operations and maintenance in Boston, Massachusetts, she worked with mechanics, electricians, welders, pipefitters, licensed supervisors and managers to get the job done. Today she is director for strategic planning at the Palm Beach County Water Utilities Department in Wilmington, North Carolina. "It's just a huge, huge job!" she said.

Green jobs are expected to grow much faster than average and that means a bright future for students who want to contribute to a healthy environment.

Sandra Moran

▲ *Joseph France*

▲ *Young-Ki Jo*

▲ *Nancy Gallinaro*

How to Get a Green Job

Interested in science, technology, engineering and mathematics? If so, these interests can lead to high school classes and career-technical education programs, postsecondary education and a green career.

In every state, green jobs are growing, and you can earn related certificates, two-year associate degrees and bachelor's and higher degrees at public technical schools, community colleges and universities.

In Wyoming, for example, programs like these include civil engineering/water resources, earth and environmental science, farm and ranch resource management, wind energy and more. The North Carolina Community College System provides educational opportunities in advanced manufacturing, aerospace, green energy/technology, life sciences and health care. In Kansas, Johnson County Community College offers programs such as landscape technician, soil and plant scientist, energy auditing technician, geological sample test technician and others. JCCC is just one of more than 30 postsecondary schools in the state.

So if you want a green job or another STEM career, meet with your school counselor, go online and complete the tasks on the next page to learn more.

Green Job Options

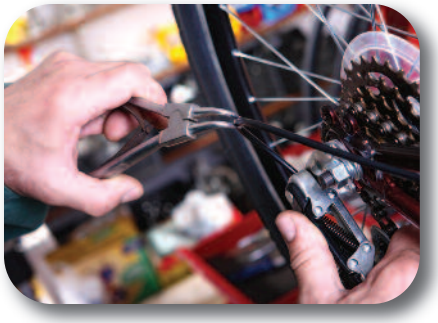
In the first section of the publication, you took a Cluster Buster Quiz. Use the results of that quiz to explore green job options for you. Write the career cluster names of your highest number of "Yes" responses on page 8.

	Career Cluster Names
1.	
2.	
3.	
4.	
5.	

Now it's time to look at green jobs in your selected career clusters. Look for Green Job Titles for each cluster on page 34. Then …

1. On page 34, circle the five highest career clusters from your Cluster Buster Quiz.
2. Put a checkmark beside each job title that interests you in those clusters.
3. Record five of those job titles that you checked in the chart below.
4. Write which of your school classes would help you in each of those jobs.

	Job Titles That Interest Me	School Classes That Would Help Me in That Job
1.		
2.		
3.		
4.		
5.		



Green Job Titles - 16 Career Clusters

Agriculture, Food & Natural Resources
- ☐ Habitat restoration specialist
- ☐ Agricultural technician
- ☐ Hydrologist
- ☐ Atmospheric scientist
- ☐ Pollution control technician

Architecture & Construction
- ☐ Electrician
- ☐ Construction inspector
- ☐ Civil engineering technician
- ☐ Solar installer foreman
- ☐ Civil engineer

Arts, A/V Technology & Communications
- ☐ Audio engineer
- ☐ Technical writer
- ☐ Advertising and promotion manager
- ☐ Broadcast technician
- ☐ Multimedia artist

Business Management & Administration
- ☐ Sustainability analyst
- ☐ Green entrepreneur
- ☐ Purchasing manager
- ☐ Environmental health and safety technician
- ☐ Sustainability communications manager

Education & Training
- ☐ Energy efficiency specialist
- ☐ Environmental health educator
- ☐ Earth science professor
- ☐ Teacher assistant
- ☐ Library technician

Finance
- ☐ Chief sustainability officer
- ☐ Budget analyst
- ☐ Sustainable investment analyst
- ☐ Environmental accountant
- ☐ Title examiner

Government & Public Administration
- ☐ Land use planner
- ☐ Urban planning assistant
- ☐ Construction building inspector
- ☐ Real estate appraiser
- ☐ Arbitrator

Health Science
- ☐ Environmental epidemiologist
- ☐ Compliance manager
- ☐ Nursing informatics specialist
- ☐ Biomedical equipment technician
- ☐ Pharmacy technician

Hospitality & Tourism
- ☐ Ecotourism travel guide
- ☐ Food service manager
- ☐ Hotel housekeeping manager
- ☐ Event planner
- ☐ Restaurant manager

Human Services
- ☐ Cosmetologist
- ☐ Recreational therapist
- ☐ Personal trainer
- ☐ Industrial organization psychologist
- ☐ Employment specialist

Information Technology
- ☐ Network administrator
- ☐ Computer support specialist
- ☐ Robotics technician
- ☐ Solar power plant maintenance specialist
- ☐ Electronic home entertainment equipment installer

Law, Public Safety, Corrections & Security
- ☐ Firefighter
- ☐ Criminal investigator
- ☐ Hazardous materials responder
- ☐ Security systems designer
- ☐ Forensic scientist

Manufacturing
- ☐ Quality assurance project manager
- ☐ Process control technician
- ☐ Calibration technician
- ☐ Computer system installer
- ☐ Computer-aided programmer

Marketing
- ☐ Environmental marketing specialist
- ☐ Organic products sales representative
- ☐ Bicycle sales and service
- ☐ Public relations specialist
- ☐ Merchandise buyer

Science, Technology, Engineering & Mathematics
- ☐ Environmental researcher
- ☐ Environmental geologist
- ☐ Environmental science technician
- ☐ Pollution control technician
- ☐ Industrial engineer

Transportation, Distribution & Logistics
- ☐ Automotive technician
- ☐ Warehouse manager
- ☐ Transportation planner
- ☐ Traffic scheduling analyst
- ☐ Traffic technician

The BIG Idea: HEALTH

How many of these medical TV shows have you watched?

The Doctors
Grey's Anatomy
The Dr. Oz Show

There are many opportunities to watch medical shows on TV. But there's more you need to know if you're interested in a health career.

The health care and social assistance sector of the economy is projected to gain the most jobs between 2010-2020 – 5.6 million of them. In fact, one-third of the fastest-growing occupations are related to health care, according to the Bureau of Labor Statistics **(http://bls.gov/news.release/ecopro.nr0.htm).**

For example, health care practitioner and technical occupations are expected to grow 25.9 percent, which includes 712,000 new jobs for nurses. And health care support occupations are expected to grow 34.5 percent, which includes 706,000 new jobs for home health aides.

Here are some reasons people are interested in working in the health care industry:

- It is fast paced.
- You deal with life or death situations.
- New patients come in every day.
- No one day is the same as the last one.
- There is a potential for high pay.
- You can make an impact on the world.

But another important reason might be that right now it's an industry where you probably can get a job! You can find other reasons by looking at **http://explorehealthcareers.org/en/issues/news/Article/178/Top_10_Reasons_to_Pursue_a_Health_Career_Now.**

The Future of Health Care Careers

Have you thought about what health career would appeal to you? There are many more health care career opportunities than becoming a doctor or a nurse. For example, if you take all the doctors and nurses out of any hospital, who would be left? The health care industry is much bigger than doctors and nurses.

To learn more about health careers, go to **http://explorehealthcareers.org/en/home.** On this website you can:

1. Explore health careers. In the left column of this website is an extensive list of specific health careers.
2. Browse the list.
3. Select three careers that interest you

From information provided for these three careers, complete the activity on the next page.

Job Title #1:

1. Facts from the overview:
2. Salary range for the job:
3. Years in school after high school graduation:
4. Job outlook:
5. Highlights from the career profile of someone working in the job:
   (Click on a job title at **http://explorehealthcareers.org/en/home.)**

Job Title #2:

1. Facts from the overview:
2. Salary range for the job:
3. Years in school after high school graduation:
4. Job outlook:
5. Highlights from the career profile of someone working in the job:
   (Click on a job title at **http://explorehealthcareers.org/en/home.)**

Job Title #3:

1. Facts from the overview:
2. Salary range for the job:
3. Years in school after high school graduation:
4. Job outlook:
5. Highlights from the career profile of someone working in the job:
   (Click on a job title at **http://explorehealthcareers.org/en/home.)**

From what you learned about these three jobs, would you be interested in pursuing one of them? Why? If not, why not?

Interested in Learning About Health Careers?





You read the definition of career clusters and career pathways on page 5. The Health Science cluster has five pathways. They are:

- Therapeutic Services
- Diagnostic Services
- Health Informatics
- Support Services
- Biotechnology Research and Development

Look at the description of the Health Science cluster, occupations, education/training and salaries on page 14. To get a broader view of the types of jobs in this cluster, go to **http://www.careertech.org/career-clusters/resources/career-frames.html.** On that page you will see the Health Science pathways and a list of jobs in each pathway.

Scan the list of jobs. From that list, write occupations that would fit in the following categories:

1. Administrative Health

2. Animal Health

3. Environmental Health

4. Preventative Health

5. Mental Health


Health Information on the Net

The Internet is changing the way we find information. That includes the way we find health information. According to the Pew Internet & American Life Project study, **http://www.pewinternet.org/Reports/2003/Internet-Health-Resources.aspx?r=1,** searching for health information online is the second most popular activity online after email. Scarborough Research, **http://www.slideshare.net/nielsenwire/teen-health-perceptions-study,** reports that half of all teens use the Internet for health information.

What kind of health information can you get online? The answer is, almost any kind! You don't even have to see another doctor for a second opinion. You can get an online second opinion. With millions of Americans searching for health information on the Web, how can you find out what information is true and what is not reliable?

As with searches for any information on the Web, if you use sites that end in dot-gov, dot-edu and dot-org, you will get information that's not connected with a company trying to sell a product. There are more, but here are two good sources for credible health information: **http://www.nlm.nih.gov/medlineplus/** and **http://www.healthfinder.gov.**

On the Medline Plus site, **http://www.nlm.nih.gov/medlineplus/healthywebsurfing.html,** you will find information to help you evaluate the quality of health information on the Web. This site will also provide links for more information.

The Medical Library Association has a resource to help you understand common medical terms. They are called Medspeak Terms. That site can be found at **http://www.mlanet.org/resources/medspeak/index.html.** One part of this site, "Diagnosing Websites," explains how to evaluate health care information.

Don't believe everything you read. Just because it's in print doesn't mean it's true!

Health Jobs

The jobs on this page are part of the Health Science career cluster. They depend on knowledge and skills from other career clusters as well. In fact, the skills you gain in any of the clusters noted below can lead to careers in a variety of fields. However, health care is a growing industry. That means jobs are fairly easy to find. The Bureau of Labor Statistics predicts that the health care and social assistance sector is projected to gain the most jobs (5.7 million) by 2020. And health care support jobs are expected to grow most rapidly (34.5 percent).

Health Science/Business Management & Administration

Medical assistants work in doctors' offices, handling clerical tasks and many clinical duties.
Education: Varies from career-technical education and on-the-job training to a two-year associate degree
Income: $28,860

Medical records and health information technicians organize and manage health information data by ensuring its quality, accuracy, accessibility, and security in both paper and various electronic classification systems.
Education: Postsecondary certificate or associate degree; professional certification
Income: $32,350

Health Science/Human Services

Home health and personal care aides help people who need assistance to live in their own homes or in residential facilities instead of in health facilities or institutions.
Education: Formal training and certification test to work for agencies that receive Medicare or Medicaid payments.
Income: $20,170

Psychologists study mental processes and human behavior by observing, interpreting, and recording how people relate to one another and the environment.
Education: Master's, specialist or doctoral degree; license
Income: $68,640

Social workers help people cope with life problems. Some diagnose and treat mental, behavioral and emotional issues.
Education: Bachelor's or master's preferred, depending on specialty; license
Income: $42,480, depending on specialty

Health Science/Science, Technology, Engineering & Mathematics

Dental hygienists clean teeth, examine patients for oral diseases and provide other preventative dental care.
Education: Associate degree or higher; license
Income: $68,250

Dispensing opticians help select and fit eyeglasses and contact lenses following prescriptions written by ophthalmologists or optometrists.
Education: High school diploma, on-the-job training, certificate or associate degree; license required in some states
Income: $32,940

Medical and clinical laboratory technologists and technicians collect samples and perform tests to analyze body fluids, tissue and other substances.
Education: Technologists, bachelor's degree; technicians, associate degree or certificate; license in some states
Income: Technologists, $56,130; technicians, $36,280

Pharmacists fill prescriptions, counsel patients about medications and help them choose over-the-counter drugs and medical equipment.
Education: Doctor of Pharmacy degree from an accredited school, license.
Income: $111,570

Physical therapists help people who have injuries or illnesses improve their movement and manage their pain. They also help rehabilitate and treat patients with chronic conditions or injuries.
Education: Doctoral or professional degree; license
Income: $76,310

Physicians and surgeons diagnose and treat injuries and illnesses. Physicians examine patients, take medical histories, prescribe medications and order, perform and interpret diagnostic tests. Surgeons operate on patients to treat injuries, diseases and deformities.
Education: Doctoral or professional degree, internship/residency, depending on specialty; license
Income: $202,392, primary care physicians; $356,885, specialists

Radiologic technologists perform diagnostic imaging examinations using x-ray, computed tomography (CT) and magnetic resonance imaging (MRI) equipment.
Education: Associate degree most common; license
Income: $54,340

Registered nurses record patients' medical histories and symptoms, help perform diagnostic tests and analyze results, operate medical machinery, administer treatment and medications and help with patient follow-up and rehabilitation.
Education: Associate or bachelor's degree or diploma from an approved nursing program ; license
Income: $64,690

Sources: Occupational Outlook Handbook, ***http://www.bls.gov/oob,*** *and O*NET Resource Center,* ***http://www.onetonline.org.*** *Income is median, unless otherwise noted.*

The BIG Idea: MONEY

Budget
Set Goals
Save
Invest
and Spend

You have been told that responsible money management is one of the most important skills you will ever learn. So how do you learn to manage money?

- By watching your parents?
- From the Internet?
- From watching TV?
- At school?
- From your friends?

There is no shortage of information available on how to manage money. Most of the information you hear and read about managing your money says the same thing: budget, set goals, save, invest and spend.

You will soon learn that life is a lot easier when you learn how to manage your money. Go beyond budgeting to get some practice to help you reach your goals.

Dealing with Financial Challenges

Read the following situations. To complete the project:

1. Choose one situation.
2. Identify his or her financial challenges.
3. Explain what the individuals might do to make financial situations better.
4. Identify who or what might help them.

Jermain and Sue

Jermain, age 23, and Sue, age 22, have been married for four years. They would like to buy a house because houses are not as expensive as they were last year. Can they afford to buy a house? Here are the facts:

- Both have full-time jobs with a joint income of $3,400 per month.
- They lease two cars. Jermain's truck lease is due to expire in three months. The payment is $269 per month. Sue pays $425 per month on her car lease which expires in two years.
- Their car insurance payments total $3,200 per year.
- They will need a down payment of $5,000 for the house they would like to buy.

Bill

Bill recently graduated from high school and lives with his mom. He just got a full-time job as a checker at the local grocery store. Here are the facts:

- He works 40 hours per week at $10.00 per hour, making $20,800 per year. He never seems to have any money in his checking account.
- He lives with his mom and pays her $40 per week for rent and food. He wants to get his own apartment.
- His 2003 car breaks down a lot. He pays more than $2,000 per year for his car insurance.
- He is going to school at night to become a welder. The tuition is $250 per month. He is guaranteed a job making $35 per hour when he finishes his training.
- His girlfriend's birthday is coming up. He has saved $75 for a payment on a $265 bracelet for her.

Blair

Blair is a single parent with two children ages six and eight. She works in a doctor's office and makes $32,000 a year. She pays $800 a month for a two-bedroom apartment. Here are the facts:

- She was unemployed for a few months before she found her job and ran up a $3,000 credit card bill. She always makes the minimum payment on time but it is not easy.
- Her children have friends in the apartment complex that come to their apartment to play after school. They frequently like to stay and eat.
- Blair likes to shop on her lunch break. The shops in the neighborhood where she works are more expensive than stores in her neighborhood. Time with her children is more important.
- She wants to take her children to see their grandparents. She needs to save about $1,000 for the trip.

Two Career Clusters Focus on Money Skills

Both the Finance and the Business Management & Administration career clusters feature jobs that emphasize money skills. Some of those job titles include:

- Payroll, credit or collections manager
- Certified public accountant
- Auditor
- Purchasing agent
- Financial adviser
- Tax preparer
- Loan officer
- Insurance sales agent
- Appraiser
- Bookkeeper
- Bank teller

In the banking and insurance industries, a high school diploma can lead to many entry-level jobs. However, a four-year college degree and experience are usually required to become a manager.

In the investment industry, about two out of three workers have bachelor's or higher degrees. According to the *Occupational Outlook Handbook,* financial clerks often have two- or four-year college degrees in business or economics. The most successful workers at all levels have an aptitude for working with numbers.

In fact, all companies, government agencies and nonprofits have a financial component. So if you are interested in a financial career, now is the time to develop your money-related math skills.

Money Jobs

Interested in working with money? The Business Management & Administration career cluster provides jobs managing money for businesses and organizations. And you'll find openings in every sector of the economy, including education, entertainment, government, health, manufacturing and more. The Finance cluster involves financial planning, banking and insurance. And jobs are plentiful for anyone with money-related math skills.

Business Management & Administration

Bookkeeping, accounting and auditing clerks update and maintain accounting records, including calculating expenditures, receipts, accounts payable and receivable, and profit and loss.
Education: High school diploma with related career-technical education; sometimes postsecondary education or an associate degree in accounting preferred
Income: $34,030

Financial managers oversee the preparation of financial reports, direct investment activities and implement cash management strategies. Titles include controller, treasurer or finance officer, credit manager, cash manager, risk and insurance manager and manager of international banking.
Education: Bachelor's degree in finance, accounting, economics or business administration; master's degree or certification preferred
Income: $103,910

Financial clerks do administrative work for banking, insurance and other companies. They keep records, help customers and carry out financial transactions.
Education: High school diploma, related career-technical education, on-the-job training; brokerages prefer a 2- or 4-year college degree in business or economics.
Income: $33,710

Purchasing managers, buyers and purchasing agents buy products for organizations to use or resell. They evaluate suppliers, negotiate contracts and review product quality.
Education: Varies from on-the-job training to bachelor's degree; depending on industry, master's degree in engineering, business, economics or an applied science.
Income: $95,070, purchasing managers; $56,580, purchasing agents except wholesale, retail and farm products; $54,220, buyers and purchasing agents, farm products; $49,650, wholesale and retail buyers

Finance

Appraisers and assessors of real estate estimate the value of real property – land and the buildings on that land – whenever it is sold, mortgaged, taxed, insured or developed.
Education: Apprenticeship, associate or bachelor's degree, depending on specialty
Income: $48,500

Bank tellers process routine transactions for customers that include cashing checks and making deposits, loan payments and withdrawals.
Education: High school diploma, background check and on-the-job training
Income: $24,100

Loan officers Loan officers evaluate, authorize or recommend approval of loan applications for people and businesses.
Education: High school diploma and on-the-job training; bachelor's degree in finance, business economics or a related field for commercial loan officer positions; license for mortgage loan officers
Income: $56,490

Personal financial advisers assess the financial needs of individuals, help them plan for short-term and long-term financial goals and help them with investments (such as stocks and bonds), tax laws and insurance decisions.
Education: Bachelor's or master's degree finance, economics, accounting, business, mathematics or law; state licenses required if buying or selling stocks, insurance or other financial products.
Income: $64,750

Business Management & Administration/Finance

Accountants and auditors prepare, analyze and verify financial documents in order to provide information to clients and employers.
Education: Bachelor's or higher degree; certification preferred
Income: $61,690

Sources: Occupational Outlook Handbook, ***http://www.bls.gov/oob,*** *and O*NET Resource Center,* ***http://www.onetonline.org.*** *Income is median, unless otherwise noted.*

The BIG Idea: STEM

▲ *Marc J. Petersen*

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

Solutions to today's biggest problems require innovators, inventors, logical thinkers and strong communicators, all of whom need a solid background in STEM. An acronym for science, technology, engineering and mathematics, STEM describes the education needed to prepare for successful careers in these fields.

Job opportunities for STEM professionals are endless. With the right knowledge and skills, they can work outdoors or in an office, a classroom or a research lab.

For example, Marc J. Petersen, a mechanical and process engineer, used to take his toys apart to see how they worked and was always good at math and sciences in school. Today he is still pursuing his interest in how things work and what makes things run.

At Boeing's Research and Technology Group in Auburn, Washington, Peterson works in the welding, joining and forming technologies area. According to Petersen, "We try to take existing methods and materials and improve on them. Since we're an aerospace industry, our goals are to decrease weight, decrease the cost of building an airplane and improve the processes as a whole," he explained.

Petersen has bachelor's and master's degrees in mechanical engineering, one of a variety of engineering fields that require a bachelor's degree to pursue an entry-level job. However, if you would prefer a job in engineering technology, look for a two-year associate degree program found at many community colleges.

Some obvious places to look for STEM jobs are in natural resources, manufacturing, biotechnology, engineering, energy and health care, all of which rely on STEM knowledge and skills. Other places are not so obvious, like construction, retail, transportation and hospitality. These industries also rely on STEM knowledge and skills.

Still interested in a STEM career? The project on the next page can help you decide. Simply review the "STEM Jobs Overview" on page 45 and the 16 career clusters charts on pages 11-18. To learn more, go to the *Occupational Outlook Handbook* **(http://www.bls.gov/ooh)** and *O*NET OnLine* **(http://www.onetonline.org).**

A little research related to STEM jobs and needed skills and education may very well lead you to a lot of job opportunities in this fast-growing, high-paying field!

Advice for Future Engineers and Scientists

If you're interested in STEM, Marc J. Petersen has some helpful advice:

- Math and the sciences are the basis of engineering, and that's a great place to start.
- Be really serious about writing and oral communication, specifically technical writing.
- If you're technically inclined, shop classes are always good to take.
- Most engineering professions require a bachelor's of science degree, whether it's in mechanical, electrical or chemical engineering, or in materials science. There are a lot of options depending on your interests and where you see yourself going.

Job Title #1:

1. Facts from the overview:
2. Salary range for the job:
3. Classes and career-technical programs I can take in high school:
4. Years in school after high school graduation:
5. Job outlook:

Job Title #2:

1. Facts from the overview:
2. Salary range for the job:
3. Classes and career-technical programs I can take in high school:
4. Years in school after high school graduation:
5. Job outlook:

Job Title #3:

1. Facts from the overview:
2. Salary range for the job:
3. Classes and career-technical programs I can take in high school:
4. Years in school after high school graduation:
5. Job outlook:

From what you learned about these three jobs, would you be interested in pursuing one of them? Why? If not, why not?

STEM Jobs Overview

Responsible use of our resources, our growing reliance on technology and the need for more and better medicines and treatments have created in-demand jobs related to the Science, Technology, Engineering and Mathematics (STEM) career cluster. So if you're interested in growing these skills, you'll be ready to join the workforce of the future.

Agriculture, Food & Natural Resources

Agricultural and food science technicians apply their knowledge of biology, chemistry, physics, animal science and agricultural engineering to measure and analyze the quality of food and agricultural products. They work in offices, laboratories and processing plants.
Education: Associate degree
Income: $32,760

Architecture & Construction

Energy engineers design, develop and evaluate energy-related projects and programs to reduce energy costs or improve energy efficiency during the designing, building or remodeling stages of construction.
Education: Bachelor's degree; license
Income: $90,580

Business Management & Administration

Chief sustainability officers develop strategies to address issues such as energy use, resource conservation, recycling, pollution reduction, waste elimination, transportation, education and building design to ensure compliance with environmental or governmental regulations. Usually self-employed, they consult with management, shareholders, customers and employees to address sustainability issues.
Education: Bachelor's or master's degree; related training; experience
Income: $166,910

Government & Public Administration

Construction and building inspectors inspect structures using engineering skills to determine structural soundness and compliance with specifications, building codes and other regulations. Inspectors also issue violation notices and stop-work orders, conferring with owners, violators and authorities to explain regulations and recommend corrections needed.
Education: Career-technical education, on-the-job training, certificate or associate degree
Income: $52,360

Health Science

Biomedical engineers apply knowledge of biology, engineering and biomechanical principles to the design, development and evaluation of biomedical products and systems. Product examples include artificial organs, prostheses and medical instruments. Health systems include medical information systems and health management and care delivery systems.
Education: Bachelor's degree
Income: $81,540

Information Technology

Software developers create computer programs. Some develop the applications that allow people to do specific tasks on a computer or other device, such as games or word processing. Others develop the underlying systems that run the devices, control networks and allow users to interact with their computers, phones, etc.
Education: Bachelor's degree
Income: $90,530

Manufacturing

Electrical and electronic engineering technicians help engineers design and develop computers, communications equipment, medical devices, navigational equipment and other electrical and electronic equipment. They work primarily in manufacturing settings, utilities, and research and development laboratories.
Education: Associate degree
Income: $56,040

Marketing

Green marketers analyze green energy marketing trends to predict future conditions. They also analyze regional energy markets, including energy pricing, market structures, energy generation competition and energy transmission constraints. Based on their findings, they create and implement methods to market green products and services.
Education: Bachelor's or master's degree
Income: $87,650

Science, Technology, Engineering & Mathematics

Medical scientists study biological systems to understand the causes of diseases and other health problems. Those who do cancer research, for example, might combine drugs that could slow the progress of the disease and then study that combination in a clinical trial.
Education: Doctoral or professional degree
Income: $76,700

Transportation, Distribution & Logistics

Civil engineers apply engineering standards and state or federal construction policies to design and supervise large construction projects, including roads, buildings, airports, tunnels, dams, bridges, and systems for water supply and sewage treatment.
Education: Bachelor's degree; license
Income: $77,560

Sources: Occupational Outlook Handbook, ***http://www.bls.gov/oob,*** *and O*NET Resource Center,* ***http://www.onetonline.org.***
Income is median, unless otherwise noted.

Questions About High School? A Good Plan Will Help!

If you're like your classmates, you have lots of questions about high school:

- What program of study do I choose?
- How hard will it be?
- Will I have friends?

Creating a program you like will motivate you to work hard, meet assignment deadlines and get help when needed. When you meet daily work goals, the work won't seem so hard. And participating in activities is a way to make many new friends. When you focus on your future and plan ahead, you'll feel confident about going to high school.

What Program Do I Choose?

You've had some time to learn and think about a career cluster you would like to explore. You may even have a particular career in mind. Now write your favorites below. It will help you remember to choose classes or programs that support your goals. You can always change your mind later.

A favorite career cluster: _____

A favorite career: _____

When it comes to choosing classes and programs, your school counselor or teacher will provide a list, either in print or online. Share this information with your family, and tell them about your career ideas. Ask them to help you create a personal plan of study that's best for you.

Your plan, of course, will include classes required for graduation. And it will include classes to complete one of the programs of study your school offers. Here are some examples of program options to ask about:

- Career-technical education programs
- Career cluster or pathway programs
- Dual high school/college credit programs
- Cooperative education
- Youth apprenticeship
- Career academies
- Advanced placement (AP) programs
- International baccalaureate (IB) programs

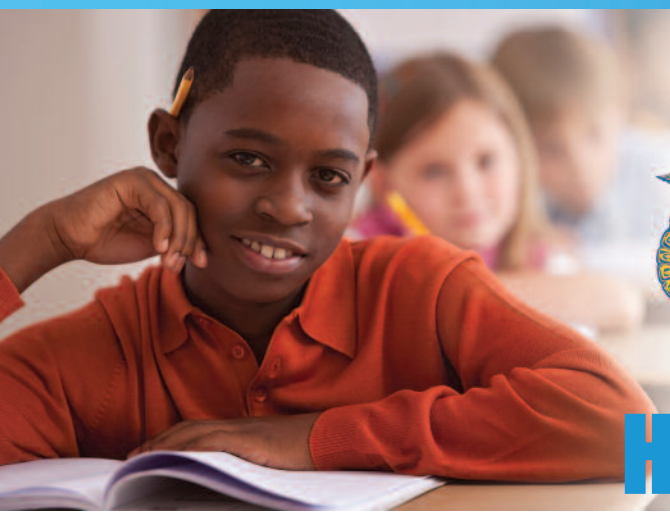
With a plan in hand, you will find lots of things to enjoy about high school – classes that interest you, new experiences and many newfound friends.

Dual Credit: A Head Start on College

Depending on your career direction, college could be part of your future after high school. If so, there may be a way to get a head start – dual credit. Your school counselor can tell you if it's available at your high school.

Dual credit is a great way for juniors and seniors to take some high school classes and earn both high school and college credit at the same time. Classes may be held at your high school, at a local community college or college, or online.

The benefit? You can earn an associate degree or higher in a shorter period of time. For more information, search online, or go to **Answers.com.**



How to Find Friends

Friends are important. But when you get to high school, some of your middle school friends won't be in the same classes or activities. And that's okay.

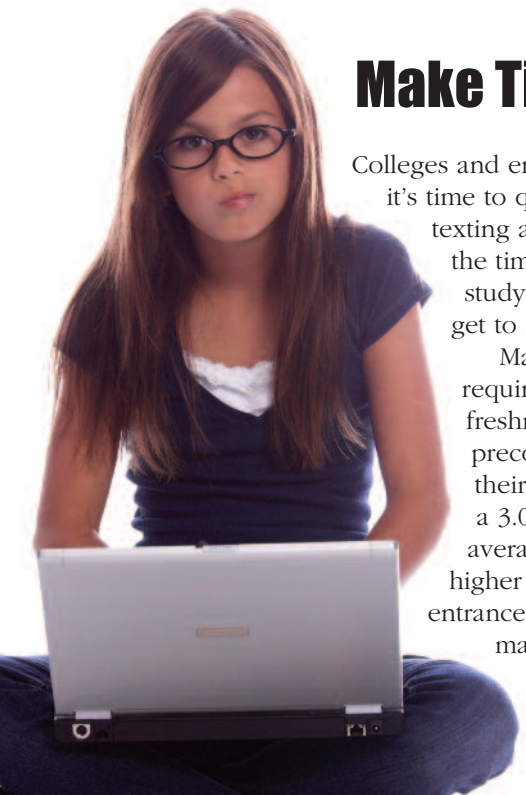
In addition to classes, high school offers an array of activities. Join some that you like, and you will find new friends-to-be all around you.

Think about sports, music, theater, school publications, JROTC ... and science, computer and foreign language clubs. Also think about career-related organizations such as:

- Business Professionals of America **(http://www.bpa.org)**
- DECA **(http://www.deca.org)**
- Family, Career and Community Leaders of America **(http://www.fccla.com)**
- Future Business Leaders of America **(http://www.fbla-pbl.org)**
- Future Educators Association **(http://www.futureeducators.org)**
- Health Occupations Students of America **(http://www.hosa.org)**
- National FFA Organization **(http://www.ffa.org)**
- SkillsUSA **(http://www.skillsusa.org)**
- Technology Student Association **(http://www.tsaweb.org)**

School organizations are a great way to make friends who like the same things you do. And colleges will assess your volunteer commitments.

So to make your new activities work for you, be friendly, positive and helpful. Take a step forward when someone asks for volunteers. In just a few weeks, you'll discover new friendships and experiences to enjoy for years to come.



Make Time to Study!

Colleges and employers alike say it's time to quit playing games, texting and tweeting all the time and start studying when you get to high school.

Many colleges now require incoming freshmen to show precollege classes on their transcripts, have a 3.0 grade point average and achieve higher college entrance test scores. And many employers are asking applicants to pass spelling and grammar tests in addition to job-related tests. They don't want employees to embarrass the company when communicating with customers.

So turn off your cell phone, music and TV and make time and space for studying. Here's how:

- Create a a regular place to study and a regular schedule for studying each day.
- Post short- and long-term assignments on a monthly calendar.
- Review classroom notes nightly as well as before tests.
- Plan your social life around your exam schedule.
- Start a paper or a project as soon as it's assigned.

For more information, go to **http://www.howtostudy.org.**

It's Smart to Plan Ahead!

Many careers require postsecondary education. Therefore, early in your high school experience, consider the kind of education you will need after you graduate. Depending on your career interests, you will want to think about some postsecondary options like these:

- Apprenticeship
- The military
- A short-term certificate program at a career-technical school or community college
- A community college associate degree
- A four-year college or university bachelor's degree
- Higher education

The following checklist will help you think about your future plan.

Questions About College?

You'll find tips on preparing for postsecondary education, choosing a school, student aid and more at **http://studentaid.ed.gov.**

Eighth Grade

- [ ] Consider career directions.
- [ ] Draft a high school plan.
- [ ] Consider career-related high school programs.

Ninth Grade

- [ ] Review your high school plan and think about career choices.
- [ ] Create a portfolio of report cards, honors and awards, activities and volunteer and work experiences.
- [ ] Join a student organization.
- [ ] Attend career and college fairs.
- [ ] Consider education after high school and how to pay for it.

Tenth Grade

- [ ] Review and update your high school plan and portfolio.
- [ ] Take practice college entrance tests.
- [ ] Attend career and college fairs.
- [ ] Research costs of postsecondary education and begin to make financial plans.
- [ ] Apply for a career-related summer job or enrichment program.

Eleventh Grade

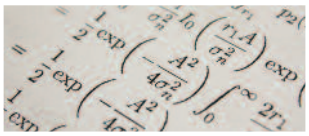
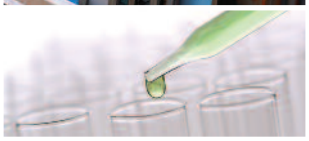
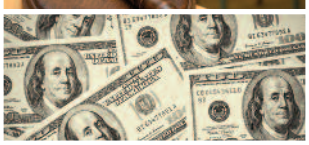
- [ ] Check to see if you're meeting graduation requirements.
- [ ] Schedule college entrance tests.
- [ ] Attend career and college fairs and narrow future career and educational choices.
- [ ] Schedule interviews with admissions personnel. Visit schools or training facilities.
- [ ] Apply for a career-related summer job or enrichment program.
- [ ] Practice writing for postsecondary applications.

Twelfth Grade

- [ ] Check to see if you're meeting graduation requirements.
- [ ] Complete the Free Application for Student Financial Aid **(http://www.fafsa.ed.gov)** and any other financial forms.
- [ ] Apply to your choice of programs, pay fees and provide transcripts, recommendations and financial aid requests.
- [ ] Review acceptance letters, and compare scholarship and financial aid offers.
- [ ] Select the program you like. Notify the institution in writing with deposit attached. Have your high school forward final transcripts. Notify other programs that you've made another choice.
- [ ] Complete financial arrangements.

What's the First Step in Finding the Right Career?

Consider your interests. Then consider jobs that will let you do what you like to do.

 **Math**	Statistician, electrical engineer, surveyor, physicist, cost estimator, actuary
 **Reading**	Writer, editor, secretary, librarian, reporter
 **Science**	Chemist, pharmacist, pilot, environmental scientist, engineering technician
 **Social Studies**	Economist, human resources assistant, politician, psychologist, urban planner
 **Music and Arts**	Actor, photographer, artist, disc jockey, designer, musician
 **Building and Fixing Things**	Carpenter, automotive mechanic, drafter, architect, civil engineer, electrician
 **Helping People**	Teacher, child care worker, firefighter, nurse, social worker, doctor
 **Computers**	Database administrator, computer support specialist, computer hardware engineer, computer software engineer, webmaster, systems analyst
 **Law**	Police officer, lawyer, court reporter, judge, paralegal
 **Managing Money**	Accountant, financial analyst, loan officer, bookkeeping clerk, real estate agent
 **Sports**	Dancer, professional athlete, coach, recreation and fitness worker, recreational therapist
 **Nature**	Zookeeper, landscape architect, farmer, veterinarian, agricultural and food scientist

Find out more at **http://www.bls.gov/k12/index.htm.**

LOOKING FOR

CAREER EXPERIENCE

WHEN YOU'RE IN

HIGH SCHOOL

More than a million and a half high school students belong to career-technical student organizations. They're a great way to experience future careers. So with a career in mind, join one of these career-technical student organizations.

- 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)