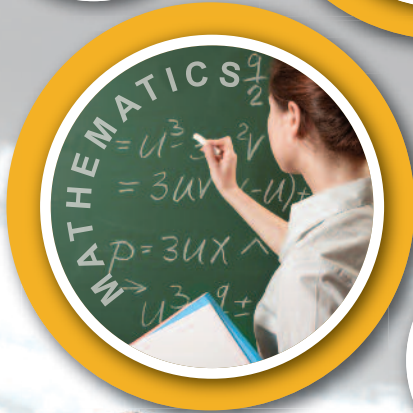


A M E R I C A N

# CAREERS<sup>®</sup>



EXPANDING CAREER OPTIONS



## National Alliance for Partnerships in Equity

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Dear Parents,

You play a vital role in helping your son or daughter develop the knowledge, skills, abilities and confidence needed to launch your child into the future. One of the most important choices teens will make will be the career they choose – and research tells us that the primary influencer of that choice is you.

Now is the time to take the opportunity you have to engage your teens in exploring and discovering all the possibilities that exist for them. The world of work that your son or daughter is entering is nothing like the one you experienced. With the world becoming a global marketplace and the increasing use of technology, career options are no longer being defined by time and place. Students have much greater career options within a much more competitive labor market, making it necessary to master both academic and technical skills now in order to secure a high-skill, high-wage career in the future.

As you guide your teens through the process of considering their future, encourage them to explore a wide array of options. Help them avoid being limited by stereotypes or the fear of the unknown. Consider ways to help them explore career fields where they have no experience. You can start by sharing and discussing the articles in this publication. Talk about the careers they know and the ones that need to learn more about and create a plan for them to explore all the options. These plans could include taking a career-related course at school, participating in an exploratory summer camp or after-school program, spending a day job shadowing or connecting with someone in the career field who could serve as a role model or mentor. As a parent, you can act as a guide to help your sons and daughters learn new things and discover their passion for a career that is right for them. You never know what you might discover while leading this journey too!

This edition of American Careers for parents focuses on nontraditional careers, fields where men or women make up 25 percent or less of the workforce. Help your teens explore these career fields as viable options, and don't let their gender create limits for their future. Take the time to sit down and discuss the career information the following pages have to offer your son or daughter and you!

Good luck on your journey!



Sincerely,

Mimi Lufkin, CEO  
National Alliance for Partnerships in Equity  
[www.napequity.org](http://www.napequity.org)  
[www.stemequitypipeline.org](http://www.stemequitypipeline.org)



*Mimi Lufkin*

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# EMPLOYMENT TRENDS

## What Are STEM Careers? And Why Are They Important?



**F**rom smartphones to robotic surgical systems, to clean energy solutions, to green construction techniques, to cutting-edge medical research, to cloud computing, thousands of job opportunities are available today. Even more are on the horizon for students who have a background in STEM.

The acronym stands for **science, technology, engineering** and **mathematics**. And parents and teachers both play key roles in encouraging students to pursue both STEM education and the growing number of STEM-related career opportunities.

In *STEM: Good Jobs Now and for the Future*, the U.S. Department of Commerce reported that:

- STEM occupations are projected to grow by 17.0 percent from 2008 to 2018, compared to 9.8 percent growth for non-STEM occupations.
- STEM workers command higher wages, earning 26 percent more than their non-STEM counterparts.
- More than two-thirds of STEM workers have at least a college degree, compared to less than one-third of non-STEM workers.
- STEM degree holders enjoy higher earnings, regardless of whether they work in STEM or non-STEM occupations.
- STEM workers are also less likely to experience joblessness than their non-STEM counterparts.

Information like that is important for all students, girls in particular. For example, in *Women in STEM: A Gender Gap to Innovation*, the Commerce Department reported that:

- Although women fill close to half of all jobs in the U.S. economy and are half of the college-educated workforce, they hold less than 25 percent of STEM jobs.
- Women hold a disproportionately low share of STEM undergraduate degrees, particularly in engineering.
- Women with STEM jobs earned 33 percent more than comparable women in non-STEM jobs.

Despite various reasons for those statistics, including gender stereotyping, businesses frequently voice concerns about the supply of STEM workers and want to increase the number of students pursuing education in STEM fields, including young women. In fact, some are partnering with schools to interest students in STEM careers, to help teachers with curriculum and to provide internships, scholarships and job opportunities for students.

### Parents Are Key

In surveys by ASQ, the American Society for Quality, professional engineers noted that parents were the first and major influence in their decision to pursue a career in the field. And if you wait until high school to talk about any career, STEM or otherwise, you're too late, according to an article in *eSchool News*.

So, as a parent, what can you do to engage your child's interest in STEM-related classes and to encourage your child to consider a related career? There are several suggestions in the next article.

Also point out and talk about the contributions STEM professionals make in our lives, from the toys they create to the household repairs they make, to the medicines we take, to the bridges we cross, to the websites we access. Describe how you use STEM subjects at work. And ask people who have STEM-related careers to tell your child how they use science, technology, engineering and mathematics in their fields.

In all, satisfying, well-paying jobs await students with a background in STEM.



## SKILLED TRADES ARE THE HARDEST JOBS TO FILL

When coaching your child about careers, you may want to talk about jobs that often can't be outsourced or done by a robot. Many are STEM-related jobs.

According to a 2010 survey by Manpower, the employment services firm, skilled trades top the list of U.S. jobs most in demand. These STEM-related jobs are followed by jobs for sales representatives, nurses, technicians, drivers, restaurant and hotel staff, management and executives, engineers, doctors and non-nursing professionals, and customer service and support personnel.

## STEM CAREER TRENDS

The people who predict job trends see a bright outlook for STEM occupations, particularly those related to information technology, health care, business and the “green” careers involved in conserving energy, developing alternative energy, reducing pollution or recycling, according to the Occupational Information Network (O\*NET). Some are nontraditional careers for women, although that may vary by state. For more information, go to <http://www.onetonline.org/find/stem>.

### Chemistry

Biochemists and biophysicists  
Chemical engineers  
Chemical equipment operators and tenders  
Chemical technicians  
Chemists  
Natural sciences managers  
Soil and plant scientists

Environmental compliance inspectors  
Environmental engineers and technicians  
Environmental restoration planners  
Environmental science and protection technicians  
Environmental scientists and specialists

### Computer Science

Business intelligence analysts  
Computer hardware and software engineers  
Computer programmers  
Computer security specialists  
Computer support specialists  
Database administrators  
Network systems and data communications analysts

### Life Sciences

Dietitians and nutritionists  
Food scientists, technicians and technologists  
Medical scientists  
Microbiologists  
Natural science managers  
Soil and plant scientists  
Zoologists and wildlife biologists

### Engineering

Agricultural engineers  
Architects and architectural drafters  
Biochemical and biomedical engineers  
Civil engineers  
Electrical and electronics engineers and technicians  
Mechanical engineers and technicians  
Wind turbine service technicians

### Mathematics

Accountants and auditors  
Mathematicians and mathematical research technicians  
Operations research analysts  
Physicists  
Risk management specialists  
Statisticians

### Environmental Science

Biofuels/biodiesel technology and product development managers  
Climate change analysts

### Physics/Astronomy

Atmospheric, Earth, marine and space scientists  
Biophysicists  
Nanosystems engineers  
Nuclear equipment operation technicians  
Nuclear medicine technologists  
Photonics engineers

# TALKING WITH YOUR CHILD ABOUT THE FUTURE



## 14 TIPS FOR PARENTS

**W**hen it comes to choosing a career, believe it or not, most teens really do listen to their parents! Yet it's confusing for teens to consider career choices. They're surrounded by often-conflicting messages from advertising, the media, educators and friends.

Here are some things you can do to provide good advice:

- 1. Debunk the stereotypes.** Remind all young people that most men and women will work for pay most of their lives. Every individual needs to be prepared to support himself or herself. Nontraditional occupations provide more income for women and often a healthier, more flexible and satisfying lifestyle for men.
- 2. Actively seek services in your community that are provided by a nontraditional worker.** If at all possible, consider services from a computer technician or carpenter who's a woman or a social worker or nurse who is a man.



- 3. Identify family members who have or had skills that relate to nontraditional occupations.** Share family history and traits. Many family members have or had aptitudes that adapt to today's challenging and skilled workplace: farming/earth science, housekeeping/management, cooking/processing, sales/communication and so on.
- 4. Teach young people to watch TV, movies and commercials and read advertisements with a critical eye.** Discuss what you've seen together. Look for strong, smart capable men and women who are not limited to traditional roles.
- 5. Use the media to start a discussion about body image.** Consider how girls and women, boys and men are portrayed in the media. Are heavier girls shown as unpopular? Are caring, tender males shown as "wimps"? Do they go out on dates? Are they used as comic relief?

### WHAT IS A NONTRADITIONAL OCCUPATION?

The term "nontraditional occupation" is used to describe any occupation in which women or men comprise 25 percent of total employment or less, according to the Women in Apprenticeship and Nontraditional Occupations Act of 1992. The definition also appears in the Carl D. Perkins Act.

Data from the U.S. Department of Labor Bureau of Labor Statistics indicate that women in nontraditional jobs typically earn 20 percent to 30 percent more than women in traditional occupations, which translates to 150 percent more over a lifetime of work. Examples of nontraditional occupations for women include engineer, pilot, firefighter, auto mechanic, computer repair technician, law enforcement officer, carpenter, truck driver and more!

Some nontraditional occupations for males often provide increased job satisfaction. Nursing and teaching are high-demand, high-skill and high-paying occupations that are nontraditional for men.

Are young people with “perfect” figures and physiques only shown as sex symbols? Do they seem smart and skilled?

**6. Give girls more opportunities to be leaders.**

Let them choose the activity, make the rules, settle a dispute. A girl who has learned to lead is better prepared to take charge of her own education, training and career.

**7. Give boys more opportunities to be mediators, artistic, caring and supportive.**

Let them resolve disagreements, include girls in discussions and appreciate their environment. A boy who can negotiate and consider others will be better able to parent and lead.

**8. Encourage young people to experience science, math and technology.**

All young people are ready, willing and eager to explore but often they haven’t had enough exposure or encouragement. For example, even very young girls can put objects in water to see if they float or sink, attempt simple household fix-it activities and understand how machinery works. And boys can do household chores, redesign a home office and care for someone in need or a pet.

**9. Help young people get beyond “yuck.”**

Insist calmly that girls catch an annoying bug, unplug a drain and get their hands dirty putting oil in a car. Boys can help change a diaper or clean a toilet. This is all part of discovering the world around them.

**10. Praise young men and women for their skills and successes, not only for their appearances or popularity.** Say “You did a terrific job,” not “You looked cool or attractive today.”

**11. Support your teen’s exploration of new areas of study and interests.** This, after all, is what education is all about!

**12. Affirm what you know to be areas of skill and ability your teen has consistently demonstrated.** Sometimes students overlook these and need to be reminded.

**13. Talk with your teens about the courses and activities they are enjoying and how well they are doing.** Students discover new things about themselves throughout college or other postsecondary educational experiences. Your willingness to listen and be a sounding board will keep you in the loop.

**14. Don’t deter your son or daughter if he or she is excited about majoring in something like drafting, consumer science, computer-aided design, health care, mathematics, music or art, etc.** These can be excellent choices, particularly if they are a good match for a student’s interests and skills. ■

*Penelope C. Paine and Mimi Lufkin contributed the 14 tips. Paine is a national advocate for girls, an author, a speaker, an educational consultant and a publisher. Lufkin is Executive Director, National Alliance for Partnerships in Equity, Cochranville, Pennsylvania.*

## FIVE WAYS TO GET YOUR CHILD TO TALK

**1**  
**Make an appointment.**  
What days and times can we get together to talk? Where can we go that we’d enjoy? What can we do to learn about careers together? (Career fairs, Take Your Child to Work Day, Job Shadow Day, etc.)

**2**  
**Discuss interests and strengths.**  
What things do you do well? What do you like to do? What’s important to you? What have you done that makes you feel good? What are some things you might like to do differently?

**3**  
**Ask how your child sees the future.**  
What will your life look like in the future? What will you be doing two years/four years/six years from now? What are you doing now to get where you want to go? What do you need to do?

**4**  
**Share your personal career journey.**  
Here’s how I got where I am today. This is why I did it. Here’s what I’d like to do over. This is what I do on my job. This is what I like/dislike about my job. These are my mistakes/successes.

**5**  
**Identify any nontraditional fields your child may want to explore.**  
Your son or daughter may not have tried, or even seriously considered, everything he or she might like to do. Help your child identify and think about nontraditional areas to explore.

# CTE: LEARNING THAT WORKS FOR STUDENTS, AMERICA AND YOUR CHILD

*By Kimberly Green  
Executive Director of the National Association  
of State Directors of Career Technical  
Education Consortium*



▲ *Kim Green*

In the past, students went to high school and then chose between two paths: work or college. Students who moved on to college focused on academics and earned a degree related to the career field that they hoped to enter. Those who took the job route, given they gained technical training in trades such as automotive or information technology, had an opportunity to earn a decent living. However, society and the economy have since changed.

Choosing between two paths no longer works for students who want to succeed in the global economy. Students must prepare for both college and career to compete for high-demand jobs. Fortunately, that forward-thinking approach to education is being implemented in many Career Technical Education (CTE) programs. CTE is not something new, but it is transforming to become a rigorous program that prepares students for some of the fastest-growing jobs in the world – ranging in diverse areas such as health care, environmental technology to architecture.

CTE, in its newest iteration, is learning that works for students who pursue success. Today, CTE prepares students for college and careers by fusing core academic standards with career-focused content and experiences. Through CTE programs, students link what they learn with what they want to do in their careers.

CTE helps students find their passion, bolsters their confidence and empowers them to succeed.

Recently, our association, with the help of state and national leaders, adopted a new brand initiative for CTE. The initiative, CTE: Learning that works for America™, represents a new vision and the elevated standards that we have set for CTE of today.

The vision includes a set of interconnected principles, which, if adopted collectively, will help more students succeed. A few key points of interest:

- High schools and colleges – two- and four-year institutions – must collaborate to create programs of study, aligned to the National Career Clusters™ Framework, which is an educational framework that ensures what students learn in high school will help them progress to college and into the workplace.
- Programs can only be engaging and valuable if they give students a taste of what's waiting for them in the real world. That's why we urge partnerships between educational institutions and employers. If students need to learn what it truly takes to succeed in the workplace, who better to help design educational programs than the employers who want to hire students?

As a parent, you want your student to succeed. CTE can help ensure this success by providing career exploration and preparation, and a solid academic background.

So why not look into the CTE programs offered in your community today? Learn how CTE can work for your student. ■





# WHY EVERYONE'S TALKING ABOUT COLLEGE AND CAREERS



“Over the past three decades, higher education has become a virtual must for American workers,” according to the authors of a recent study, *Help Wanted: Projections of Jobs and Education Requirements Through 2018*. Findings from the study published by the Georgetown University Center on Education and the Workforce support their statement:

- Between 1973 and 2008, the share of jobs in the U.S. economy that required postsecondary education increased from 28 percent to 59 percent ...
- The share of postsecondary jobs will increase from 59 to 63 percent over the next decade.
- High school graduates and dropouts will find themselves largely left behind in the coming decade as employer demand for workers with postsecondary degrees continues to surge.

That’s why it’s important for parents to coach their middle school and high school students to start thinking about a future career and creating a plan for needed postsecondary education. Several things also happen when students have a goal in mind:

- They pursue the appropriate classes and programs needed to gain knowledge and experience in a field of interest.
- Because they’re interested in school, they’ll be motivated to get good grades and graduate, and
- They’ll be able to get the kind of postsecondary education needed to pursue their career choice – whether it’s an apprenticeship, a certificate or an associate degree from a local community college, or a bachelor’s or higher degree from a four-year college or university.

Getting a head start on career and college planning also has important long-term benefits. Students will save education dollars, start earning sooner and gain early experience in their chosen career.

Use the information on the next two pages to begin talking with your child about opportunities high school offers.



## COACHING YOUR CHILD TO CONSIDER THE FUTURE

# A PARENT ACTION PLAN

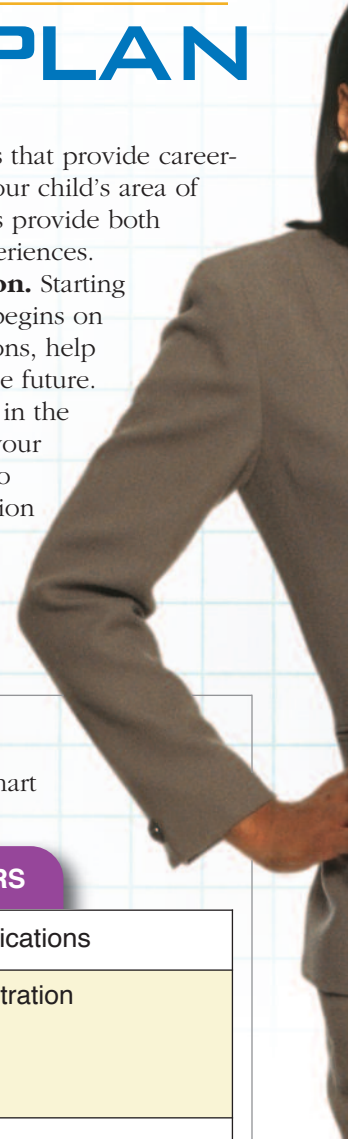
Throughout this publication, you'll find useful information as you coach your child to consider career interests and related educational choices. Check with a counselor at your child's high school about these and other career-related educational opportunities:

**Career paths and clusters.** These occupational and industry fields depend on related sets of knowledge and skills. You and your child will want to know about the paths and clusters you see on the chart below, because many schools plan college and career programs around them.

**High school career programs.** On the next page, you'll see lists of several high school career programs and student organizations. Your child's school may offer similar ones. The programs integrate strong

academic coursework with classes that provide career-related knowledge and skills in your child's area of interest. The student organizations provide both leadership and career-related experiences.

**Career and college exploration.** Starting with the career interest quiz that begins on page 10 and the sample occupations, help your child begin to think about the future. Then review favorite career paths in the "Exploring Careers" section with your child. And encourage your child to think about postsecondary education by reviewing the "Educational Planning" section that begins on page 45.



### CAREER PATHS AND CLUSTERS

Some high schools use a career cluster approach to help students with career planning. Others use a broad career path approach. Still others combine the two approaches. This chart shows how they relate.

#### SIX CAREER PATHS

#### SIXTEEN CAREER CLUSTERS

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





## CAREER ORGANIZATIONS FOR HIGH SCHOOL STUDENTS

Organizations like these provide great experiences for students exploring careers. Find out if any of these organizations are available to your child:

- Business Professionals of America (<http://www.bpa.org>)
- DECA – An association of marketing students (<http://www.deca.org>)
- Family, Career and Community Leaders of America, Inc. (<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>)

## HIGH SCHOOL CAREER PROGRAMS

High schools offer many programs that meet academic requirements and support career paths and clusters. Check ones that interest your child.

- Career-technical education programs.** These include computer and engineering technology, automotive and construction technology and business, health, marketing, culinary arts and others.
- Dual credit.** These classes offer students high school and college credit at the same time, which saves tuition money and time in college.
- Cooperative education.** This school- and work-based program is usually offered to juniors and seniors.
- Youth apprenticeship.** Similar to cooperative education, this program offers school- and work-based learning.
- Career academies.** These schools within schools focus on a particular career theme such as finance or hospitality.
- Advanced placement (AP) programs.** These courses offered by the College Board end with an exam indicating readiness for college. Some high schools pay for the exam.
- International baccalaureate (IB) programs.** As of July 2012, there were 1,369 IB primary, middle school and diploma programs in the U.S.



# CHECK YOUR CHILD'S CAREER INTERESTS

**M**any middle and high school counseling centers offer a variety of career interest inventories. Some are like this one, which helps link personality types and abilities with careers.

These simple self-tests provide valuable background information for teen career planning. Often adults who take the inventory discover a lot about themselves as well.

Take the quick quiz on the next page with your child. Then compare the results.

You'll be better prepared to support and encourage activities and classes that will lead to a satisfying, rewarding career for your child. ■

**1**

## Take an inventory of your interests.

Choose one of the columns you see at the top of the next page. Check the box following any statements that apply to you. Have your child do the same in the other column.

**2**

## Add up your scores.

You and your child will discover how your responses relate to "career personalities." Not everybody falls into just one personality type. You or your child may have the traits and interests of two or even three personality types.

**3**

## Evaluate yourself.

When you and your child have determined the one or two personality types that seem to represent you, turn the page and study the career directions related to your top two personality types. You'll find some specific occupations that may suggest a satisfying career direction.

**4**

## Reflect on what parts of your experience can be meaningful for your son or daughter.

Be prepared to share personal insights that would be helpful, and converse about your child's unique thoughts and feelings.

## FIRST, TAKE AN INVENTORY OF YOUR INTERESTS.

In the first column, check the activities or career fields that interest you, whether you know much about them or not. Your child may wish to use column 2.

	No. 1	No. 2		No. 1	No. 2
1. Save a rainforest or grow organic vegetables	<input type="checkbox"/>	<input type="checkbox"/>	24. Design computer programs and/or games	<input type="checkbox"/>	<input type="checkbox"/>
2. Solve complicated math problems	<input type="checkbox"/>	<input type="checkbox"/>	25. Work outdoors patrolling or maintaining a national park	<input type="checkbox"/>	<input type="checkbox"/>
3. Act in a movie, play or television show	<input type="checkbox"/>	<input type="checkbox"/>	26. Research legal statutes for a lawsuit	<input type="checkbox"/>	<input type="checkbox"/>
4. Learn about people in different cultures and societies	<input type="checkbox"/>	<input type="checkbox"/>	27. Play a musical instrument	<input type="checkbox"/>	<input type="checkbox"/>
5. Research news stories and do interviews for the evening news	<input type="checkbox"/>	<input type="checkbox"/>	28. Work with infants or children	<input type="checkbox"/>	<input type="checkbox"/>
6. Study the economy and predict economic trends	<input type="checkbox"/>	<input type="checkbox"/>	29. Run for political office	<input type="checkbox"/>	<input type="checkbox"/>
7. Read and use "how-to" manuals	<input type="checkbox"/>	<input type="checkbox"/>	30. Work a part-time job to save money	<input type="checkbox"/>	<input type="checkbox"/>
8. Perform science experiments in a laboratory	<input type="checkbox"/>	<input type="checkbox"/>	31. Set up a home theater system or install a car stereo system	<input type="checkbox"/>	<input type="checkbox"/>
9. Manage an art gallery	<input type="checkbox"/>	<input type="checkbox"/>	32. Read science fiction	<input type="checkbox"/>	<input type="checkbox"/>
10. Conduct a religious service	<input type="checkbox"/>	<input type="checkbox"/>	33. Write a short story, play or novel	<input type="checkbox"/>	<input type="checkbox"/>
11. Bargain with vendors at a flea market	<input type="checkbox"/>	<input type="checkbox"/>	34. Host and entertain guests at a party	<input type="checkbox"/>	<input type="checkbox"/>
12. Analyze and create statistical graphs and charts	<input type="checkbox"/>	<input type="checkbox"/>	35. Work in a politician's office	<input type="checkbox"/>	<input type="checkbox"/>
13. Build cabinets or furniture	<input type="checkbox"/>	<input type="checkbox"/>	36. Enter information into a computer spreadsheet	<input type="checkbox"/>	<input type="checkbox"/>
14. Study the environmental impact of pollution or global warming	<input type="checkbox"/>	<input type="checkbox"/>	37. Build a model of a jet aircraft	<input type="checkbox"/>	<input type="checkbox"/>
15. Write a movie or television script	<input type="checkbox"/>	<input type="checkbox"/>	38. Study bacteria using an electron microscope and other high-tech equipment	<input type="checkbox"/>	<input type="checkbox"/>
16. Volunteer to lead a club or scout troop	<input type="checkbox"/>	<input type="checkbox"/>	39. Design a new line of clothes	<input type="checkbox"/>	<input type="checkbox"/>
17. Choose and purchase merchandise to sell in a store	<input type="checkbox"/>	<input type="checkbox"/>	40. Read and discuss a book or poem	<input type="checkbox"/>	<input type="checkbox"/>
18. Work in a corporate office	<input type="checkbox"/>	<input type="checkbox"/>	41. Sit on a television panel to discuss political or social issues	<input type="checkbox"/>	<input type="checkbox"/>
19. Operate heavy machinery	<input type="checkbox"/>	<input type="checkbox"/>	42. Keep accurate accounting and sales records for a business	<input type="checkbox"/>	<input type="checkbox"/>
20. Play chess or games of strategy	<input type="checkbox"/>	<input type="checkbox"/>	43. Repair a car or motorcycle motor	<input type="checkbox"/>	<input type="checkbox"/>
21. Write articles for music, art or entertainment magazines	<input type="checkbox"/>	<input type="checkbox"/>	44. Identify different planets, stars and constellations	<input type="checkbox"/>	<input type="checkbox"/>
22. Organize an event for a charity or community organization	<input type="checkbox"/>	<input type="checkbox"/>	45. Create and fire a ceramic pot or vase	<input type="checkbox"/>	<input type="checkbox"/>
23. Compete with other salespeople in a fast-paced, high-pressure company	<input type="checkbox"/>	<input type="checkbox"/>	46. Work with the elderly	<input type="checkbox"/>	<input type="checkbox"/>
			47. Sell products for a portion of the profit	<input type="checkbox"/>	<input type="checkbox"/>
			48. Create and oversee a budget for a large company or government agency	<input type="checkbox"/>	<input type="checkbox"/>

## SECOND, ADD UP YOUR SCORES.

Below, circle the numbers you checked off. Count the number of circles in each line. Then put that total in the blank space at the end of the line.

Personality Types									Total Circles	
	Person No. 1	Person No. 2								
A. REALISTS	1	7	13	19	25	31	37	43	_____	_____
B. INVESTIGATORS	2	8	14	20	26	32	38	44	_____	_____
C. ARTISTS	3	9	15	21	27	33	39	45	_____	_____
D. HELPERS	4	10	16	22	28	34	40	46	_____	_____
E. ENTERPRISERS	5	11	17	23	29	35	41	47	_____	_____
F. DETAILERS	6	12	18	24	30	36	42	48	_____	_____

## THIRD, EVALUATE YOURSELF.

In what two personality types did you score the highest? Write their names in the blank spaces below.

Person No. 1

Person No. 2

\_\_\_\_\_

\_\_\_\_\_

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

**A. REALIST**

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

**Agriculture, Food & Natural Resources**

Animal care technician  
Landscaping manager  
Forestry worker

**Architecture & Construction**

Builder, carpenter  
Electrician  
Plumbing, heating, air conditioning installer  
Surveying, mapping technician

**Arts, A/V Technology & Communications**

Camera operator, photojournalist  
Performer  
Broadcast engineer  
Printer

**Business Management & Administration**

Accountant  
Business manager, entrepreneur  
Customer support specialist

**Education & Training**

Elementary teacher  
Coach  
Technology teacher

**Finance**

Claims investigator  
Loan officer  
Stockbroker

**Government & Public Administration**

Elected official  
Legislative aide  
Military officer

**Health Science**

Chiropractor  
Dentist, dental hygienist, other  
Nurse, nursing assistant  
Ophthalmologist  
Physical, respiratory, other therapist  
Physician, surgeon, veterinarian

**Hospitality & Tourism**

Chef, head cook  
Recreation worker  
Tour guide

**Human Services**

Hair stylist  
Home care aide  
Social services worker

**Information Technology**

Network systems engineer, technician  
Telecommunications technician

**Law, Public Safety, Corrections & Security**

Crime scene investigator  
Firefighter  
Police officer

**Manufacturing**

Machine operator  
Industrial maintenance technician  
Welder

**Marketing**

Buyer  
Promotion director  
Shipping, receiving clerk

**Science, Technology, Engineering & Mathematics**

Electrical, electronic installer, repairer  
Engineer, engineering technician

**Transportation, Distribution & Logistics**

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

**B. INVESTIGATOR**

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

**Agriculture, Food & Natural Resources**

Food scientist  
Forest ranger  
Wildlife manager

**Architecture & Construction**

Code inspector  
Preservationist

**Arts, A/V Technology & Communications**

Journalist  
Playwright  
Researcher

**Business Management & Administration**

Acquisitions manager  
Business analyst  
Collections clerk  
Management analyst

**Education & Training**

Curriculum developer  
Educational researcher  
School psychologist

**Finance**

Accountant/auditor  
Claims examiner  
Contract administrator  
Financial officer

**Government & Public Administration**

Military intelligence officer  
Policy adviser  
Tax examiner

**Health Science**

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

**Hospitality & Tourism**

Forest ranger  
Hotel security officer  
Night auditor

**Human Services**

Consumer advocate  
Credit counselor  
Patient accounts representative

**Information Technology**

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

**Law, Public Safety, Corrections & Security**

Detective  
Forensics examiner, technician  
Fraud investigator

**Manufacturing**

Instrument, process control technician  
Quality control specialist

**Marketing**

Manager – brand database, forecasting other  
Market researcher

**Science, Technology, Engineering & Mathematics**

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

**Transportation, Distribution & Logistics**

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

**C. ARTIST**

Creative and imaginative, artists often work best in unstructured environments where they use words, pictures, music and dance to create products and communicate ideas. Famous “Artists” include Gregory Hines, Katie Couric and Sophia Coppola.

**Agriculture, Food & Natural Resources**

Florist  
Gardener, landscaper

**Architecture & Construction**

CAD operator, drafter, designer  
Landscape architect  
Painter, paper hanger

**Arts, A/V Technology & Communications**

Copywriter  
Creative director  
Graphic designer  
Illustrator  
Media specialist

**Business Management & Administration**

Advertising manager  
Director – marketing communications media, public relations  
Meeting planner

**Education & Training**

Art teacher  
Early childhood, elementary teacher  
Instructional media specialist

**Finance**

Business/financial writer  
Direct marketing media specialist  
Fundraiser

**Government & Public Administration**

Charitable organization executive  
Lobbyist  
Public relations specialist

**Health Science**

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

**Hospitality & Tourism**

Cake decorator  
Catering director  
Chef  
Restaurant concept developer, designer

**Human Services**

Activities director  
Child care facility director, assistant  
Cosmetologist

**Information Technology**

Animator  
Audiovisual technician  
Authoring, interactive media specialist  
Online editor, publisher  
Producer  
Web designer, site developer  
Webmaster

**Law, Public Safety, Corrections & Security**

Grant writer, coordinator

**Manufacturing**

CAD operator, drafter, designer  
Product developer, designer

**Marketing**

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

**Science, Technology, Engineering & Mathematics**

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

**Transportation, Distribution & Logistics**

Facility architect, designer  
Urban, regional planner

**SOME CAREERS RESPOND TO MANY INTERESTS**

Similar scores in more than one personality category mean your child, like many people, has more than one interest and more than one facet to his or her personality. That’s why several careers may appeal to your child and why you see some job titles are repeated in more than one column. Encourage your child to think about how he or she might combine careers to create a special opportunity.

## D. HELPER

Do you enjoy helping others learn new skills or counseling them on personal problems? Most “Helpers” enjoy working with others, individually and in groups. Famous “Helpers” include Martin Luther King, Jr., Mother Teresa and Clara Barton.

### Agriculture, Food & Natural Resources

Agricultural sales agent  
Animal care technician  
Farm manager  
Food, drug inspector

### Architecture & Construction

Construction foreman, manager  
General maintenance contractor  
Interior designer  
Preservationist

### Arts, A/V Technology & Communications

A/V equipment installer  
Interior decorator  
Manager – advertising, public relations  
Performing arts coach, conductor, director

### Business Management & Administration

Administrative assistant  
Bank teller  
Human resources manager, recruiter, labor specialist  
Real estate associate  
Receptionist

### Education & Training

Child care specialist  
Librarian  
School counselor  
Teacher

### Finance

Customer service representative  
Debt counselor  
Financial adviser  
Investment planner  
Loan officer

### Government & Public Administration

Elected official  
Legislative aide  
Military officer

### Health Science

Admitting clerk  
Athletic trainer  
Home health aide  
Medical assistant  
Nurse  
Nutritionist  
Patient advocate  
Physical, respiratory or other therapist  
Psychiatrist  
Psychologist  
Social worker

### Hospitality & Tourism

Food service worker  
Hotel worker  
Recreation worker  
Park ranger  
Tour guide

### Human Services

Counselor – family, mental health, rehabilitation, substance abuse, other  
Psychologist  
Social worker

### Information Technology

Computer support specialist  
Equipment installer, repairer  
Programmer/software developer

### Law, Public Safety, Corrections & Security

Corrections educator, counselor  
Hazardous materials responder  
Probation officer

### Manufacturing

First-line manager, supervisor  
Quality control specialist

### Marketing

Customer support specialist  
Field representative  
Parts salesperson  
Regional sales manager

### Science, Technology, Engineering & Mathematics

Environmental scientist  
Maintenance, repair technician  
Laboratory technician  
Medical researcher  
Oceanographer

### Transportation, Distribution & Logistics

Cashier, counter clerk  
Customer service representative  
Driver  
Flight attendant  
Manager – health and safety, logistics, warehouse, other  
Reservation, travel, transportation agent

## E. ENTERPRISER

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

### Agriculture, Food & Natural Resources

Agricultural sales agent  
Food broker  
Food, livestock producer

### Architecture & Construction

Architectural firm owner, consultant  
Construction materials supplier  
Contractor general, maintenance, specialty craft

### Arts, A/V Technology & Communications

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

### Business Management & Administration

Business owner, entrepreneur  
Company president, general manager  
E-commerce director  
Marketing manager

### Education & Training

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

### Finance

Banker  
Financial planner  
Financial manager  
Treasurer

### Government & Public Administration

Ambassador  
Elected official  
Military combat operations specialist  
Policy adviser

### Health Science

Hospital, health agency, laboratory executive director, owner, operator  
Medical, veterinary practice owner  
Medical scientist

### Hospitality & Tourism

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

### Human Services

Counseling, psychology practice owner  
Day-care center operator  
Funeral home director  
Nonprofit agency executive director

### Information Technology

E-merchandiser  
Network systems  
Information support and services  
Interactive media  
Programmer/software developer

### Law, Public Safety, Corrections & Security

Law firm partner  
Police patrol officer  
Private detective, security service

### Manufacturing

Labor relations manager  
Manufacturing executive, supervisor  
Medical appliance, optical goods maker

### Marketing

Business development manager  
Buyer  
Marketing information developer  
Merchandising manager  
Product developer

### Science, Technology, Engineering & Mathematics

Engineering firm owner, consultant  
Medical research laboratory operator

### Transportation, Distribution & Logistics

Consultant – airfield operations, logistics, other  
Government executive  
Manager – customer service, industrial, logistics, other

## F. DETAILER

Detailers like to analyze facts and numbers. Detailers tend to be structured and follow through on others’ instructions. Famous “Detailers” include J. Edgar Hoover, Condoleezza Rice and Lillian Gilbreth, the first female engineer.

### Agriculture, Food & Natural Resources

Bacteriologist, biochemist  
Food products processor  
Food, fiber engineer

### Architecture & Construction

Building inspector  
Cost estimator  
Electrical, power transmission installer  
Safety director

### Arts, A/V Technology & Communications

Animator  
A/V systems technician  
Graphics, printing equipment operator  
Illustrator  
Web designer

### Business Management & Administration

Administrative assistant  
Billing supervisor  
Business analyst  
Data processor  
Payroll clerk  
Purchasing agent  
Secretary

### Education & Training

Educational researcher  
Speech-language pathologist, audiologist  
Test measurement specialist

### Finance

Accountant/auditor  
Actuary  
Financial manager  
Insurance appraiser  
Tax accountant

### Government & Public Administration

Census enumerator  
Emergency planner  
Military intelligence officer  
Vital statistics clerk  
Zoning administrator

### Health Science

Biomedical engineer, technician  
Facilities manager  
Laboratory technician  
Medical records manager, coder  
Patent attorney  
Pathologist  
Pharmacist, technician

### Hospitality & Tourism

Banquet, catering manager  
Hotel executive  
Supervisor – house-keeping, laundry, maintenance, reservations, other

### Human Services

Emergency management specialist  
Nutrition counselor

### Information Technology

Computer programmer  
Computer security specialist  
Data processing, documentation specialist  
Network security, systems analyst

### Law, Public Safety, Corrections & Security

Criminal investigator  
Immigration, customs inspector  
Lawyer, paralegal, legal secretary

### Manufacturing

Failure analyst  
Industrial maintenance technician  
Machine tool operator  
Quality engineer

### Marketing

Manager – forecasting, fulfillment, inventory, other  
Logistics analyst  
Marketing researcher  
Statistician  
Strategic planner

### Science, Technology, Engineering & Mathematics

Electrical, electronic installer, repairer, technician  
Engineer – industrial, health and safety, maintenance, other

### Transportation, Distribution & Logistics

Air traffic controller  
Dispatcher – air, rail, road, transit, water  
Inspector – aviation, environmental, freight, other  
Packer  
Reservation, travel, transportation agent





# SALARIES\* • EDUCATION

## Agriculture, Food & Natural Resources

Agricultural, food science technicians	\$ 32,760	A
Food processing workers, including bakers, butchers, food batchmakers	23,950	OJT
Grounds maintenance workers	23,740	OJT, cert.

## Architecture & Construction

Carpenters	39,530	OJT, CTE, AP
Construction mgrs.	83,860	A, exp., B pref.
Electricians	48,250	AP, CTE, lic.
Laborers	28,410	OJT, AP
Plumbers, pipefitters, steamfitters	46,660	AP, lic.

## Arts, AV Technology & Communications

Advertising, promotions, marketing mgrs.	108,260	B, exp.
Graphic designers	43,500	B
Public relations, mgrs., specialists	57,550	B, exp.

## Business Management & Administration

Accountants, auditors	61,690	B, cert.
Administrative services mgrs.	77,890	HS, B, exp.
Bookkeeping, accounting and auditing clerks	34,030	HS, OJT, A
Customer service reps.	30,460	HS, A or B pref.
Human resources mgrs.	99,180	B, exp.

## Education & Training

Teacher assistants	23,220	HS+, OJT, A
Teachers, kindergarten through secondary	51,380 - 53,230	B, lic.
Teachers, special educ.	53,220	B, lic.

## Finance

Economists	89,450	M, D
Financial analysts	74,350	B
Personal financial advisers	64,750	B

## Government & Public Administration

City, regional planning aides	38,800	B or M
Economic development directors	100,000+ avg.**	B, higher
Urban, regional planners	63,040	M

## Health Science

Dental hygienists	68,250	A
Health information technicians	32,350	A
Medical assistants	28,860	HS, OJT
Nurses, registered	64,690	A, B, lic.
Nursing assistants (aides, CNAs, etc.)	24,010	HS, PS cert.
Pharmacists	111,570	Pharm.D., lic.
Pharmacy technicians	28,400	HS, OJT, cert.
Physicians and surgeons	166,400 +, (depends on specialty)	MD/DO, internship, lic.

## Hospitality & Tourism

Chefs, head cooks	40,630	exp., CTE, A
Food service managers	48,130	exp., PS
Lodging managers	46,880	B, A, cert., exp.

## Human Services

Counselors, mental health, others	39,710	M, D, lic. or cert.
Social, human service assistants	28,200	HS, OJT, PS, cert.
Social workers	42,480	B, M pref., lic.

## Information Technology

Computer information systems mgrs.	115,780	B, exp.
Computer support specialists	47,660	CTE, exp., A
Computer systems analysts	77,740	B
Database administrators	73,490	B, exp.

## Law, Public Safety, Corrections & Security

Lawyers	112,760	D, PD, lic.
Paralegals, legal assistants	46,680	A
Police and detectives	55,010	HS, A, B, ST, physical req.
Security guards	24,380	HS, OJT, FT, lic.

## Manufacturing

Industrial engineering technicians	48,210	A
Industrial engineers	76,100	B
Industrial machinery mechanics	44,160	HS, CTE, FT, A

## Marketing

Market research analysts	60,570	B
Retail sales workers	20,990	OJT, HS pref.
Sales reps., wholesale, manufacturing	56,620	HS, FT, OJT, A, B, based on specialty

## Science, Technology, Engineering & Mathematics

Biochemists, biophysicists	79,390	D, PD
Civil engineering technicians	77,560	A
Electrical, electronics engineers	87,180	B
Medical scientists	76,700	D, PD

## Transportation, Distribution & Logistics

Automotive service technicians, mechanics	35,790	HS, CTE, OJT, PS
Delivery truck drivers/driver sales workers	27,050	HS, OJT
Heavy and tractor-trailer truck drivers	37,770	HS, exp., CDL, OJT
Storage and distribution mgrs.	80,860	B, exp.

*ABBREVIATIONS: AP=apprenticeship program; A=two-year college associate degree; B=four-year college degree; cert.=certificate; CDL=commercial driver's license; CT=classroom training; CTE=career and technical education program; D=doctorate degree; educ.=education; exp.=experience; FT=formal training; br.=hour; HS=high school diploma; inc.=included; JD=B+3 years of law school; lic.=license; M=master's degree; MD/DO=medical doctor or doctor of osteopathic medicine (9-16 yrs. postsecondary education, lic., cert. in specialty); mgrs.=managers; OJT=on-the-job training; Pharm.D.=two or three years of college plus four of pharmacy school; pref.=preferred; PD=professional degree; PS=postsecondary education; req.=requirements; reps.=representatives; ST=special training.*

\*Unless noted, incomes are median or in the middle 50 percent range.

\*\* <http://www.salaryexpert.com>

# CAREERS FOR PROFESSIONALS WHO PROVIDE OUR INFORMATION AND ENTERTAINMENT



**W**hen you view an evening newscast, read a feature story on the Internet or in a popular magazine, or review a product ad or brochure, consider the jobs for people who gather and package your information.

Or when you see a TV drama or an action movie, or attend a concert or football game, think about workers behind the scenes who produce your entertainment.

Your daughter or son might like one of these careers.

Writers, editors, graphic designers and technical specialists in broadcasting, Internet, print and telecommunications fields produce our need-to-know information. And jobs can be found in a variety of industries. From agriculture to banking and finance, education and government to health care, manufacturing to retail sales, large employers all need communication professionals.

And, whether it's on stage, on television or in the movies, entertainment today requires dozens of arts and communications specialists.

## Education Needed

Most of these jobs require postsecondary education that will provide knowledge of a chosen field and technical skills as well. And the wide variety of career choices comes with a wide variety of educational options.

A four-year college degree is the primary path to careers in writing, editing, reporting, advertising, marketing and technical communications and related fields, according to the Bureau of Labor Statistics. A four-year degree from a college or art institute is the usual path for most artists as well, although an associate degree can lead to entry-level technical jobs in graphic design.

Performing artists often begin training in childhood. Today, however, many earn college degrees so they can pursue related opportunities in the future. Almost all arts administrators and arts educators have a four-year college degree or higher. With experience and a degree, performers can find jobs with theaters, symphonies, concert venues, galleries, museums, historical sites and universities, colleges and schools.

And all of these fields offer job opportunities for media and communication equipment workers. According to the Bureau of Labor Statistics, sound engineering technicians can best prepare by getting technical school, community college or college training in broadcast technology, sound engineering technology, communications technology, electronics or computer networking. Although not always required, many audio and video equipment technicians also have community college degrees.

If your child is interested in the arts, share your knowledge of careers that can provide a good job that's also fulfilling. Just a few examples include jobs for animators, set and costume designers, stylists, performers, directors, lighting and sound technicians, producers, arts administrators and more. ■

## Is your student creative, imaginative, innovative and original?

People like these often express their talents in the audio and video technologies, advertising, architecture, broadcasting, film and theater arts and production, graphic design, interior design, journalism, public relations, writing and editing, and related technology fields.

For many of us, the term “arts and communications” evokes visions of fine artists at work, theater and ballet, concerts, award-winning films, popular TV shows and maybe reporters at the scene of breaking news. You may be surprised that Arts, A/V Technology & Communications career cluster pathways encompass many more opportunities.



◀ *Julina Togonon*

## JULINA TOGONON: ART GALLERY OWNER AND CURATOR

**J**ulina Togonon has a knack for identifying artists on the verge of success. She can't tell you how she does it – just that it's a combination of experience and intuition that has made her one of the West Coast's most successful female art gallery owners and curators.

But recognizing talent is just the beginning. As owner and director of Togonon Gallery, a gallery that specializes in West Coast and international art, she sees her responsibilities as much broader in scope.

“I see my job as communicating the work of the artist to the world,” she explained. “This includes potential buyers, collectors and museums.”

Accomplishing this goal varies from day to day.

“The gallery is open from 11 a.m. to 5:30 p.m.,” she said. “I usually come in early, and the first thing I do is call people to make appointments or remind them of paintings they liked. Then I deal with the administrative side of the business.”

It's during this “quiet time” that Togonon also works on proposals to get some of her artists into public collections, prepares catalogues, writes press releases and plans what art exhibit openings and shows across the U.S. she wants or needs to attend.

It's a balancing act, she acknowledges. But it's not a new skill for the former management consultant. Prior to co-founding her first gallery, Washington Square

Gallery, where she curated more than 80 shows, she worked as a management consultant implementing strategic planning, marketing and fundraising projects for nonprofit and government agencies.

Although she holds an MBA from San Francisco State University, Togonon believes there is no one way to prepare for a career as an art gallery owner and curator. It takes a vast knowledge of art, project management, human relations, sales and marketing skills and lots of hard work and patience – the latter because it generally takes between six to 10 years for a new gallery to succeed.

She stresses other, less-specific skills such as developing good communication skills, being strategic in how you think and taking advantage of any opportunity to learn.

“Bottom line is – this work is both a business and a passion. You have to be really optimistic and positive,” she said. “Art is difficult to sell ... But the rewards can be tremendous – not just in financial terms. Every day, I feel lucky to have a job that gives me a rich and full life.” ■

*Sandra Moran*

# EXPLORE CAREERS IN ARTS AND COMMUNICATIONS

Do you want to be a performer? Or would you consider using your art, photography, writing, performing arts, language or technology skills to support artistic and business endeavors? These professionals found interesting and fulfilling careers in arts & communications.



## Audio and Video Technology and Film

As Director of Music Recording and Scoring at Skywalker Sound, Leslie Ann Jones uses computers and other equipment to record, synchronize, mix or reproduce music.

## Performing Arts

Oscar-winning make-up artist to the stars, Trefor Proud has a portfolio that includes *Gladiator*, *Star Wars: The Phantom Menace*, *Topsy-Turvy* and *Defiance*. He also manages make-up departments for movies.



## Journalism and Broadcasting

As senior food editor, Deborah Wagman produces food magazines for Meredith Special Interest Media. The parent company also publishes *Better Homes and Gardens*.

## Visual Arts

Animator Bruce Smith created, directed and produced the Disney Channel's *The Proud Family*. He also was supervising animator for Kerchak in the Disney movie *Tarzan* and other movie characters.



## CAREER RESEARCH

American Marketing Association: <http://www.marketingpower.com/Pages/default.aspx>  
 Animation: <http://www.disneyanimation.com>  
 A/V technology: <http://www.infocomm.org>  
 Broadcast engineering: <http://www.ieee.org/index.html>; search for "broadcast."  
 Graphic design: <http://nasad.arts-accredit.org> and <http://www.khake.com/page27.html>  
 Journalism: <http://www.spj.org> and <http://www.hsj.org>  
 Music: <http://www.mtna.org>  
 Performing Arts: <http://www.onetonline.org>;  
 Photography, film careers: [http://www.nppa.org/professional\\_development/students](http://www.nppa.org/professional_development/students) and <http://www.khake.com/page45.html>  
 Public relations: <http://www.prssa.org>

## WISE WORDS

I've continued to recognize the power individuals have to change virtually anything and everything in their lives in an instant. I've learned that the resources we need to turn our dreams into reality are within us, merely waiting for the day when we decide to wake up and claim our birthright. – Anthony Robbins, American self-help author and motivational speaker

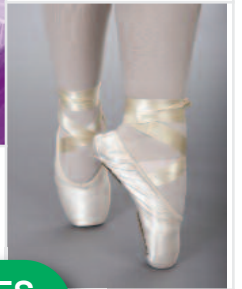


## REFLECTIONS

Competition for jobs is tough in arts and communications. To succeed, want-to-be artists, writers, performers and technical specialists must have a combination of skills and be good at most of them. To find out more about your child's interest in these fields, observe and discuss the following statements:

- I already have high-level knowledge and skills in the field I'd like to follow.
- I really like to express myself – tell stories, perform, play with lights and sound – and get compliments for what I do.
- I'm confident that I'm the best! In fact, I can help others do what I do.
- I'm not afraid to talk with people and get them interested in helping me with my projects.
- I know how to use the newest technology to produce my projects.
- I study and observe and then practice what the pros are doing. I also can create something new with what I learn.
- I can see the big picture – what the project will look like and how it will work when it's done.
- I'm very focused while I'm working. I handle little details well and know when I need more information. I don't want to mess up.
- My technical skills are the best, and I'd rather use them in publishing, broadcasting and entertainment than anywhere else.

Find ways to encourage and support your child in this career field if there's an interest. If not, continue to help your child discover and pursue another pathway.



## CREATIVE OPPORTUNITIES

What kinds of jobs can your sons or daughters pursue that will allow them to be creative and still make a living? Below are the total number of jobs in 2010 for the following occupations and projected growth rates by 2020:

- Actors: 66,500/4 percent
- Advertising, promotions and marketing managers: 216,800/14 percent
- Broadcast and sound engineering technicians: 116,900/10 percent
- Graphic designers: 279,200/13 percent
- Interior designers: 56,500/19 percent
- Multimedia artists and animators: 66,500/8 percent
- Producers and directors: 122,500/11 percent
- Public relations managers and specialists: 320,000/21 percent
- Technical writers: 49,500/17 percent
- Writers and authors: 145,900/6 percent

SOURCE: U.S. Department of Labor Bureau of Labor Statistics at <http://www.bls.gov/ooh>.

### IT'S A FACT!

If they felt college was an option, students as young as age 11 expected to do better in school and planned to put more effort into studying and homework than those who didn't expect to go. – "College Barriers May Lead to Giving Up," UPI, April 24, 2009.



# CAREERS IN ARTS AND COMMUNICATIONS

**Actors** play roles and may sing or dance in film, theater, television, video and other productions.

*Education:* Formal training at an acting school or university, union membership

*Income:* \$17.44 per hour; varies widely due to short-term nature of many jobs

## Advertising, promotions and marketing managers

plan programs to generate interest in a product or service. They work with art directors, sales agents and financial staff members.

*Education:* Bachelor's degree, experience; internship, related career-technical education helpful

*Income:* \$108,260

**Broadcast and sound engineering technicians** set up, operate and maintain the electrical equipment for radio and television broadcasts, concerts, sound recordings and movies. They may work outdoors or in offices and school buildings.

*Education:* Career-technical education certificate; associate or bachelor's degree preferred

*Income:* \$39,870

**Computer support specialists** provide technical assistance, support and advice to individuals and organizations that depend on information technology.

*Education:* Postsecondary classes or associate degree; bachelor's degree required for some positions; related career-technical education helpful

*Income:* \$46,260

**Dancers** perform in theater, television, movie, video and other productions using movements to express ideas and stories; **choreographers** create and teach dance and direct and stage performances.

*Education:* Formal dance training, experience; union membership sometimes required

*Income:* \$13.16 per hour, dancers; \$18.11, choreographers; income varies widely due to short-term nature of many jobs

**Editors** prepare, rewrite and edit copy to improve readability or supervise others; verify facts; correct spelling, punctuation and syntax errors; develop story or content ideas; plan publication contents; allocate space for text, photos and illustrations; and oversee production.

*Education:* Bachelor's degree, preferably in communications, journalism or English; proficiency with computers and communications equipment also is necessary.

*Income:* \$51,470

**Graphic designers** create visual concepts to communicate ideas that inspire, inform or captivate consumers. They help make an organization recognizable by selecting color, images or logos that represent a particular idea or identity to be used in advertising and promotions.

*Education:* Bachelor's degree; related career-technical education helpful

*Income:* \$43,500

**Interior designers** select and specify colors, finishes, fabrics, furniture, flooring and wallcoverings, lighting and other materials to create safe, useful, stylish interiors for offices, homes, airports, shopping malls and restaurants.

*Education:* Bachelor's degree, license; related career-technical education helpful

*Income:* \$46,280

**Multimedia artists and animators** create animation and visual effects for television, movies, video games and other media. Most are self-employed.

*Education:* Bachelor's degree in computer graphics, art or a related field; strong technical skills

*Income:* \$53,510

**Music directors** lead orchestras and other musical groups during performances and recording sessions; **composers** write and arrange original music in a variety of styles.

*Education:* Formal training in music, plus bachelor's or higher degree and experience

*Income:* \$45,970 for salaried music directors; varies widely for others due to short-term nature of many jobs

**Photographers**, including photojournalists and scientific and commercial photographers, photograph products, persons or other subjects for the media, advertising and publications.

*Education:* Bachelor's degree, photojournalists and scientific photographers; related classes, portrait photographers

*Income:* \$29,130, salaried photographers

**Producers and directors** create motion pictures, television shows, live theater and other performing arts productions. They interpret a writer's script to entertain or inform an audience. Producers and directors face strong competition, and about 30 percent are self-employed.

*Education:* Bachelor's degree, experience

*Income:* \$68,440

**Technical writers** use nontechnical language to create operating instructions, assembly instructions, how-to manuals and other online or printed documentation for technical support staff, consumers and others.

*Education:* Bachelor's degree plus experience with or knowledge of a technical subject

*Income:* \$68,280

**Writers and authors** develop content for advertisements, books, magazines, movie and television scripts, songs and online publications. Specialists include news analysts and reporters, advertising copywriters, novelists and biographers, playwrights, textbook writers and scriptwriters.

*Education:* Bachelor's degree, preferably in communications, journalism or English; proficiency with computers and communications equipment

*Income:* \$55,420

*SOURCES:* Occupational Outlook Handbook, <http://www.bls.gov/oob>, and O\*NET OnLine, <http://www.onetonline.org>. Income is median or in the median 50 percent range unless otherwise noted.



# THE BUSINESS WORLD

**W**hether it's a multinational conglomerate or a national, regional or local company, at every level of operation businesses rely on the talents and skills of young leaders-to-be to help them grow. In fact, businesses today provide a variety of interesting career choices:

- General managers and entrepreneurs oversee every aspect of a business. They work with other top executives to develop business strategies.
- Directors and other managers oversee departments such as accounting, advertising, sales and marketing, product development, purchasing and human resources.
- Computer and information systems managers plan and coordinate activities such as installing and upgrading hardware and software, implementing networks and maintaining network security.
- Administrative assistants, sales representatives and customer service personnel help managers meet business goals. So do accounting clerks, computer support specialists, and security and warehouse personnel.
- Some business people specialize in finance. They work as bank officers, credit managers, financial advisers, investment analysts and tax accountants.

Your child will find business professionals like these in industries, not-for-profit agencies and enterprises of all kinds:

- Appliance, automotive, computer, electronic equipment, food, furniture, pharmaceutical and other companies
- Utilities – electricity, gas, telecommunications and cable companies
- Government agencies, school districts and schools
- The media and entertainment world
- Service industries – banking, information technology and others
- Construction and maintenance companies

- Hospitals and medical practices
- Hotels and restaurants

So if your teen is interested in business and wants to pursue business education, there's a wide variety of careers and industries to explore. ■

## TYPICAL OCCUPATIONS

Following are a few business-related careers, along with the total number of jobs in 2010 and projected growth rates by 2020:

- Accountants and auditors: 1,216,900/16 percent
- Administrative services managers: 254,300/15 percent
- Computer support specialists: 607,000/10 - 19 percent
- Computer and information systems managers: 307,900/18 percent
- Cost estimators: 185,400/36 percent
- Customer service representatives: 2,187,300/15 percent
- Financial analysts: 236,000/23 percent
- Financial managers: 527,100/9 percent
- Personal financial advisers: 206,800/32 percent

*SOURCE: U.S. Department of Labor Bureau of Labor Statistics at <http://www.bls.gov/oob>.*

### Does your child like to plan projects, organize them and get others to join the fun?

Leadership and administrative skills like these are needed in business. Communication, math, computer technology, problem-solving and teamwork skills are a plus!

# PATRICIA ELIZONDO:

## SENIOR VICE PRESIDENT

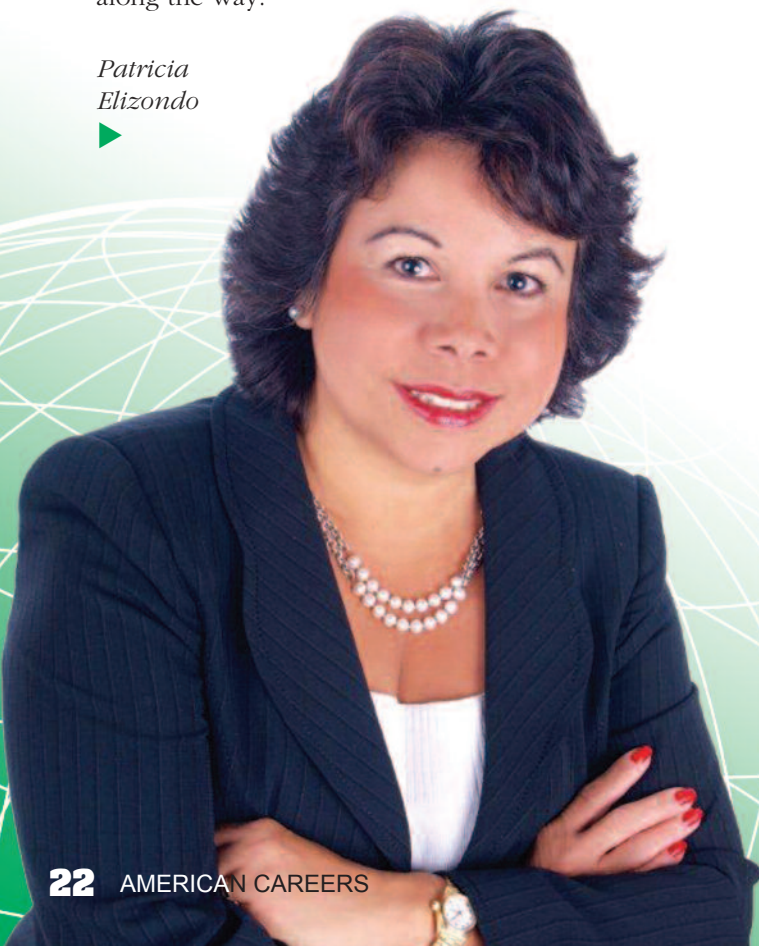
**P**atricia Elizondo believes that she has one of the best jobs in the world. She is Senior Vice President, Global Sales Integration – ACS/AOO at Xerox Corporation. That's the acquisitions operations office responsible for global sales integration of Affiliated Computer Services, one of the companies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

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

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

"My father didn't think anything less than an A was acceptable in math and English," she said. "He felt that math was the foundation for everything you do in life. And if you can't communicate, it's going to hurt you along the way."

Patricia  
Elizondo



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

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

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

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

*Writer Mary Pitchford is editor in chief.*

### HIGH SCHOOL OFFERS SPECIAL OPPORTUNITIES

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

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



# KATHLEEN CAMILLI:

## ECONOMIST

**K**athleen Camilli finds economics an exciting career field. She consults with institutional asset managers to help them manage large pools of capital for high-net-worth individuals, pension funds and major companies. She advises clients on the status of the business cycle and the implications for their investing. And she manages her own consulting firm, Camilli Economics, LLC, building on her decades of professional experience at the Federal Reserve Bank of New York, Credit Suisse Asset Management and other major financial firms.



Forecasting is an art as well as a science, Camilli argues. By defining the business cycle, she helps investors allocate their money among stocks and bonds to keep it working hard for them.

Most economists have multiple academic degrees in economics with extensive coursework in math. Ph.D.s enjoy the best opportunities. Camilli also recommends a second undergraduate major in the liberal arts. She received B.A. degrees in both economics and French and then earned an M.B.A. in finance and

While every day is different for Camilli, each day combines research, analysis and communicating with others. She starts to read the news first thing in the morning and tracks which economic data will be announced that day. Some days she may discuss the numbers' significance with a reporter from *The New York Times* or *The Wall Street Journal*. Other days she may appear on CNN or CNBC. She also works on her weekly market letter, as well as books and articles, and presents her findings to client firms.

Camilli develops her observations by working with a sophisticated economic database to which she subscribes. This program has built-in graphics capabilities that she uses to produce PowerPoint presentations.

The models are mathematical, but economic analysis is complex and nonlinear. Even though other economists subscribe to the same data service, Camilli's observations are unique. That's because while history may repeat itself, it repeats with important variations.

While every day is different for Camilli, each day combines research, analysis and communicating with others

an M.A. in French Studies. She finds her dual majors in econ and French give the intellectual breadth that helps her identify important trends outside the economics "box."

Camilli warns that her discipline is competitive but she looks at the glass as half full: Economics can reward its practitioners with a better understanding of the world while yielding substantial financial rewards. ■

*Diana Schneidman*

### CAREER RESEARCH

Accountants: <http://www.aicpa.org>

Administrative professionals: <http://www.iaap-hq.org>

Financial advisers:

<http://financecareers.about.com/od/financialadvisor/a/finadvisor.htm>

Careers in Computing:

<http://computingcareers.acm.org>,

<http://www.khake.com/page17.html>,

<http://www.bls.gov/k12/computers.htm>

Computer training sites:

<http://www.microsoft.com/learning/en/us/default.aspx> and <http://www.cisco.com/web/learning/index.html>

Student sites: <http://www.deca.org>,

<http://www.bpa.org> and <http://www.fbla-pbl.org>

## CAREERS IN BUSINESS MANAGEMENT AND ADMINISTRATION

### *Business Management & Administration*

**Administrative services managers** plan, direct, and coordinate supportive services of an organization.

*Education:* High school diploma, career-technical education, associate or bachelor's degree, depending on responsibilities, experience

*Income:* \$77,890

**General office clerks** do a broad range of administrative tasks, including answering telephones, typing or word processing and filing.

*Education:* High school diploma, career-technical education

*Income:* \$26,610

**Human resources managers** oversee employee relations, recruitment, compensation, benefits and training for their companies.

*Education:* Bachelor's degree, experience

*Income:* \$99,180, human resources managers; \$89,270, compensation and benefits managers; \$89,170, training and development managers

**Secretaries and administrative assistants** perform routine clerical and organizational tasks. They organize files, draft messages, schedule appointments and support other staff.

*Education:* High school diploma, career-technical education or associate degree; language arts and extensive office software knowledge; specialized training for legal and medical secretaries

*Income:* \$43,520, executive secretaries; \$41,500, legal secretaries; \$30,530, medical secretaries; \$30,830, other secretaries

### *Finance*

**Accountants and auditors** prepare, analyze and verify financial records to provide information to clients and employers. They also ensure that taxes are paid properly and on time.

*Education:* Bachelor's or higher degree; certification preferred

*Income:* \$61,690

**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 and on-the-job training; associate degree in accounting or business preferred

*Income:* \$34,030

**Securities, commodities and financial services sales agents** assist investors in buying or selling stocks, bonds, shares in mutual funds, insurance annuities or other financial products.

*Education:* Bachelor's degree in business-related field; master's degree in business or professional certification helpful for advancement; license required

*Income:* \$40,480 - \$122,270

### *Information Technology*

**Computer support specialists** advise people and organizations on how to use computer software or equipment.

Technical support specialists help information technology (IT) employees within their organization.

*Education:* Some college or associate degree; bachelor's degree preferred

*Income:* \$46,260

**Database administrators** use software to store and organize data, such as financial information and customer shipping records. They make sure that data are available to users and are secure from unauthorized access.

*Education:* Bachelor's degree, experience

*Income:* \$73,490

**Network and computer systems administrators** are responsible for the day-to-day operation of an organization's computer networks. They organize, install and support an organization's computer systems, including local area networks (LANs), wide area networks (WANs), network segments, intranets and other data communication systems.

*Education:* Bachelor's degree; various certifications a plus

*Income:* \$69,160

### *Marketing*

**Advertising, promotions and marketing managers**

plan programs to generate interest in a product or service. They work with art directors, sales agents and financial staff members.

*Education:* Bachelor's degree, experience

*Income:* \$108,260

**Public relations managers and specialists** create and maintain a favorable public image for their employer or client. They write material for media releases, plan and direct public relations programs, and raise funds for their organizations.

*Education:* Bachelor's degree, experience; 25 percent have master's degree

*Income:* \$91,810, public relations and fundraising managers; \$52,090, public relations specialists

**Wholesale and manufacturing sales representatives**

sell goods to businesses, government agencies and other organizations. They contact customers, explain product features, answer any questions that their customers may have and negotiate prices.

*Education:* Varies from high school diploma and company on-the-job or formal training to bachelor's degree in product-related fields, such as scientific and technical products

*Income:* \$73,710, scientific and technical product sales; \$52,440, other product sales

*SOURCES:* Occupational Outlook Handbook, <http://www.bls.gov/oob>, and O\*NET OnLine, <http://www.onetonline.org>. Income is median or in the median 50 percent range unless otherwise noted.

# MEETING THE NATION'S HEALTH NEEDS



Changing lifestyles are contributing to obesity, little opportunity to maintain physical fitness and related diseases in children and adults alike. The growing number of older people have greater-than-average health care needs. And advances in medical research and technology will continue to increase the survival rate of severely ill and injured patients who will then need extensive therapy and care.

To meet the nation's health needs, more than 3 million more health services providers and support personnel will be needed between 2010 and 2020 according to the Bureau of Labor Statistics. That means today's students very likely will find fast-growing jobs in all five of these health career cluster pathways:

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

## Does your child like working with people?

Many health services careers involve promoting health, preventing illness and treating disease. Others involve medical research. If your child is interested in science and math, health services may be the right career choice.

What's more, most jobs in these fields require less than four years of college education, although professionals who provide diagnostic and therapeutic services are among the most-educated workers. So whatever your child's interests, he or she will very likely find a satisfying career in health services.

## TYPICAL OCCUPATIONS

Below are the total number of jobs in 2010 and projected growth rates by 2020 for just a few fast-growing health careers:

- Biological technicians: 80,200/14 percent
- Dental hygienists: 181,800/38 percent
- Home health and personal care aides: 1,878,700/70 percent
- Medical and clinical laboratory technologists and technicians: 330,600/13 percent
- Medical and health services managers: 303,000/22 percent
- Medical assistants: 527,600/31 percent
- Medical equipment repairers: 37,900/31 percent
- Medical records and health information technicians: 179,500/21 percent
- Physicians and surgeons: 691,000/24 percent
- Physical therapists: 198,600/39 percent
- Radiologic technologists: 219,900/28 percent
- Registered nurses: 2,737,400/26 percent

SOURCE: U.S. Department of Labor Bureau of Labor Statistics at <http://www.bls.gov/oob>.

# ROSEMAY MICHEL: PODIATRIST



“I loved the idea of being able to see patients and to treat them medically and surgically.”

– Rosemay Michel, DPM

**R**osemay Michel, DPM, didn't plan on becoming a podiatrist. In fact, she didn't even know what a podiatrist was until she began to research alternatives to medical school.

But, with her impending graduation from the University of Florida drawing near, she decided to give it a try. She figured the worst-case scenario would be that she wouldn't like it. And if that happened, she thought, after two years she would simply transfer to medical school.

So Michel applied and was accepted to the New York College of Podiatric Medicine. And before she knew it, two years came ... and went. And without realizing it, Michel had found her calling.

Over the course of her career as a podiatrist, she has treated foot-related issues ranging from diabetes to athletic injuries. Her patients span childhood to old age. And their problems can be as simple as corns, calluses and ingrown nails and as complicated as bone, muscle and joint disorders. Treatment can range from medications and corrective devices, to physical therapy or surgery.

In this regard, Michel is a textbook case. After podiatry school, she moved to the Veterans Administration hospital in Denver, Colorado, for a two-year residency. Then she returned to New York City for a fellowship in podiatric surgery with a focus on pediatrics. Finally, she accepted a second fellowship at the University of Texas Health Science Center in San Antonio where she focused on diabetic foot and limb salvage.

That fellowship led to a full-time position teaching fellows, residents and students. After eight years in Texas, she decided to make her most recent move to the Fayetteville Veterans Administration (VA) hospital in North Carolina.

“At the VA, we treat a lot of patients with old injuries that occurred during their military tours of duties, as well as patients with advanced foot problems due to

diabetes and others with common foot problems,” she explained. “The foot is very complicated. There are 26 bones and numerous muscles and tendons in the foot, and it plays an important role to support all the pressure of the rest of the body.”

Interacting with and getting to know patients is the best part of the job for Michel – that and performing surgery, which she does once a week.

She describes an average day as beginning at 7:15 a.m. when she takes about 45 minutes to do paperwork and return phone calls and e-mails. By 8 a.m., she begins seeing patients and does that through lunch and into the afternoon. After more paperwork and handling last minute details, she wraps up her day at about 4:30. If she is “on call,” she carries a pager and is the one called to handle any emergencies.

Michel is eager to expose others to the benefits of the field – especially women who constitute a small percentage of the workforce. She recommends talking to and shadowing podiatrists in their practices in their private offices or hospitals.

“I think the way to learn about any profession is to shadow someone who does it,” she said. “Find someone passionate about their job. Do your homework, and help out during the summers.” ■

*Sandra Moran*

## GETTING STARTED

After three to four years of undergraduate education, podiatrists-to-be must complete a four-year podiatric college program and pass national and state exams to become licensed. Other requirements include three years of postgraduate residency training and continuing education for license renewal. Certification in a specialty also requires written and oral examinations, according to the Bureau of Labor Statistics (<http://www.bls.gov/ooh>).

# CRAIG COLEMAN:

## SPEECH LANGUAGE PATHOLOGIST

According to the National Stuttering Association, about 1 percent of the world's population – about 3 million people in the United States – stutters.

But, if Craig Coleman has his way, stuttering will become a thing of the past.

Coleman is a speech-language pathologist. He also serves as Co-Director and Stuttering Program Coordinator of the Stuttering Center of Western Pennsylvania at Children's Hospital of Pittsburgh.

Although it's not clear what causes stuttering, many professionals believe it's a neurological condition that interferes with the production of speech. The most common type of stuttering usually develops during childhood between the ages of 2 and 5.

And that's where Coleman and his team come into the picture.

Developing individualized plans of care tailored to each child's needs, Coleman teaches his patients and their families how to deal with stuttering, utilize strategies to reduce the amount of stuttering and become better communicators.

*“Communication is a fundamental part of who we are as individuals. It frames our relationships, education, careers and other aspects of life. Speech pathology helps people communicate more effectively. We serve individuals with speech and language disorders. We help give people a voice.”*

*– Craig Coleman,*

*Speech-Language Pathologist*

A Pittsburgh native, Coleman earned bachelor's and master's degrees from the University of Pittsburgh in speech-language pathology. Speech-language pathology wasn't his original career path, however.

“I started as a pre-med major and didn't really know what area I wanted to get into,” he said. “One day during my sophomore year in college, I was waiting for my advisor, who was running late. I picked up a flyer on speech pathology, and it looked very interesting. I decided to take a class in that area and the rest is history.”

Coleman describes his job as overseeing the stuttering program and evaluating and treating children between the ages of 2 and 18 who stutter. As part of his job, Coleman daily works in concert with occupational



therapists, physicians, developmental pediatricians, physical therapists and dietitians.

He recognizes that as a man in what is traditionally a woman's career, he stands out. But he also believes that men make great speech-language pathologists, and he recommends it as a career with endless possibilities.

“Helping the patients get better definitely inspires and motivates me,” he said. “If you like working with people and helping them become more effective communicators, this is definitely the profession for you.” ■

*Sandra Moran*



▲ *Craig Coleman*

### CAREER OPPORTUNITIES

According to the Bureau of Labor Statistics, speech-language pathologists, as a whole, work with people who cannot produce speech sounds or cannot produce them clearly; those with speech rhythm and fluency problems, such as stuttering; those with voice disorders, such as inappropriate pitch or harsh voice; and those with problems understanding and producing language. Speech-language pathologists also work with individuals who have swallowing disorders, reading disorders, and developmental and neurological disorders, and in many other areas.

## CHECK OUT YOUR CHILD'S INTEREST IN A HEALTH CAREER

Ask any health care worker, and you'll discover that working with patients often takes a great deal of patience. You may have to deal with a person in pain who resents completing forms at the front desk before being treated. Or you may have to work with someone who's recovering from an injury or serious illness.

In addition to good face-to-face communication skills, most health workers also have to deal with a lot of detailed paperwork. And they must have both theoretical and practical knowledge of science, math and technology.

Have your child reflect on each of the following statements before checking yes. They're qualities needed by health care workers. If your child has many of these qualities, provide opportunities to explore a health services career.

- I enjoy science and math projects and get good grades in these subjects.
- I like to find out why things happen and solve problems.
- I'm a good listener and work to understand what people are telling me. I ask good questions and take good notes.
- I'm sensitive and able to deal with patients' physical and psychological needs.
- I belong to clubs and teams, work well with others and have taken charge of school events.
- I have a lot of stamina, so I could lift and turn patients, handle equipment and work on my feet for sometimes 12-hour shifts.
- An office job appeals to me. I wouldn't mind inputting information into computer records most of the day.
- I'm detail-oriented and organized. I could make sure prescription amounts are correct, deal with medical charts, double-check medical codes, repair equipment, analyze tests or do the detail work required in my field.
- I like to learn, and I know that continuing education is required to update skills.
- Health jobs are often stressful, but I can handle it.



## HEALTH RESEARCH

The following websites provide information about several health careers. To learn about a variety of others, go to <http://explorehealthcareers.org/en/home> and <http://www.ama-assn.org/ama/pub/education-careers/careers-health-care/directory.page>.

Chiropractors: <http://www.acatoday.org> (Click on "Students.")

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

EMTs: <http://www.naemt.org>

Health care managers: <http://www.ache.org>

Health information careers: <http://ahima.org/careersinhim/default.aspx>

Medical assistants: <http://www.aama-ntl.org>

Medical technologists: <http://www.americanmedtech.org/default.aspx>

Podiatrists: <http://www.apma.org>

Physicians: <http://www.ama-assn.org>

Registered nurses: <http://www.discovernursing.com>

Respiratory care practitioners: <http://www.aarc.org>

Speech-language pathologists: <http://www.asha.org/default.htm>

Students: <http://www.hosa.org>, <http://www.skillsusa.org>



# CAREERS IN HEALTH SERVICES

**Dental hygienists** provide preventive dental care and teach patients how to practice good oral hygiene.

*Education:* Associate degree or higher; license

*Income:* \$68,250

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**Dispensing opticians** fit eyeglasses and contact lenses based on prescriptions from ophthalmologists and optometrists.

*Education:* High school diploma and long-term on-the-job training; community college or career-technical certification or associate degree in some states. License required in 23 states

*Income:* \$32,940

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**Home health and personal care aides** help with bathing or dressing, housekeeping, shopping, meal preparation and other tasks. Clients include people who are disabled, chronically ill or cognitively impaired, or others who may need assistance to live in their own homes.

*Education:* Varies; career-technical education; on-the-job training; formal training and standardized test required to work for certified home health or hospice agencies reimbursed by Medicare or Medicaid.

*Income:* \$20,560, home health aides; \$19,640, personal care aides

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**Medical and clinical laboratory technologists and technicians** collect samples and perform the tests to analyze body fluids, tissue and other substances.

*Education:* Technologists, bachelor's degree; technicians, associate degree or certificate; license needed in some states

*Income:* \$56,130, medical and clinical laboratory technologists; \$36,280, technicians

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**Medical and health services managers** plan, direct and supervise clinical departments or entire health care facilities or systems.

*Education:* Master's degree in health administration or related degree preferred; for clinical departments, bachelor's or higher degree in administration plus experience in clinical specialty

*Income:* \$84,270

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**Medical assistants** perform clerical tasks and clinical duties to help keep medical offices running smoothly.

*Education:* High school diploma and on-the-job training is the minimum requirement. Many employers prefer a 1-year community college or career-technical school certificate or a 2-year associate degree.

*Income:* \$28,860

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**Medical records and health information technicians** organize and manage health data to ensure quality, accuracy, accessibility and security. They use various classification systems to code and categorize patient information for reimbursement purposes, for databases and registries, and to maintain patients' medical and treatment histories.

*Education:* Postsecondary certificate, associate degree, professional certification.

*Income:* \$32,350

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**Occupational therapists** help patients improve their ability to perform tasks in living and working environments. They work with individuals who suffer from a mentally, physically, developmentally or emotionally disabling condition.

*Education:* Master's degree or higher from a program accredited by the Accreditation Council for Occupational Therapy Education; license

*Income:* \$72,320

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**Pharmacists** fill prescriptions, counsel patients about medications and help them choose over-the-counter drugs and medical equipment.

*Education:* Doctor of Pharmacy degree; license

*Income:* \$111,570

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**Pharmacy technicians** help licensed pharmacists prepare prescription medications, provide customer service and perform administrative duties within a pharmacy setting.

*Education:* High school diploma, on-the-job training; community college or career-technical certification required in some states; exam and criminal background check also required in some states

*Income:* \$28,400

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**Physicians and surgeons** diagnose and treat injuries and illnesses in patients. Physicians examine patients, take medical histories, prescribe medications and order, perform and interpret diagnostic tests. Surgeons operate on patients to treat injuries, such as broken bones; diseases, such as cancerous tumors; and deformities, such as cleft palates.

*Education:* Doctoral or professional degree, internship/residency, license

*Income:* \$166,400+, depending on specialty

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**Radiologic technologists** use X-ray, computed tomography (CT) and magnetic resonance imaging (MRI) equipment to produce diagnostic images. Based on specialty, job titles include CT technician, mammographer, MRI technician, nuclear medicine technologist and others.

*Education:* Associate degree from an accredited program; license or certification in most states

*Income:* \$54,340

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**Registered nurses** provide and coordinate patient care, educate patients and the public about various health conditions, and provide advice and emotional support to patients and their family members.

*Education:* Bachelor's or associate degree, or nursing diploma, from an approved program; license

*Income:* \$64,690

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**Respiratory therapists** evaluate, treat and care for patients with breathing or other cardiopulmonary disorders.

*Education:* Associate or bachelor's degree; certification, license

*Income:* \$54,280

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*SOURCES:* Occupational Outlook Handbook, <http://www.bls.gov/ooh>, and O\*NET OnLine, <http://www.onetonline.org>. Income is median or in the median 50 percent range unless otherwise noted.



## MAKING A REAL DIFFERENCE

**S**ome people are drawn to careers where they can make a real difference in the lives of others. If your child is one of them, he or she will find a wide variety and scope of opportunities to serve.

Think about the professionals who work to educate and protect us, provide personal services and strive to help make a difference in our lives. They're the people who choose one of hundreds of occupations in career clusters that include:

- Education & Training
- Government & Public Administration
- Hospitality & Tourism
- Human Services
- Law, Public Safety, Corrections & Security

Not sure if a human services career is a good choice for your child? Ask yourself these questions:

- Does your child like to be around children? Teaching or working as a school counselor could be a career choice. Or your child may want to consider careers in areas such as psychology or social work. Jobs are available for adoption workers, career counselors, child development specialists, family therapists, marriage counselors, mental health counselors and more.
- Is your child concerned with fair play and justice? If so, he or she might make a good lawyer. Attorneys practice all types of law. More traditional specialties include criminal, family, business, property and tax law. Others include entertainment, sports, aviation

and environmental law. Or your child may want another kind of job in the legal field as a legal secretary, court reporter or paralegal.

- Would your child be interested in protecting others as a firefighter or a law enforcement officer? Firefighters not only respond to fires. Frequently they are the first emergency personnel on the scene of an accident. Police officers and detectives deal with accidents, crime victims and criminals.
- Does the idea of personal service appeal to your child? State and local governments employ public service professionals in nearly every field. Creative and entrepreneurial jobs also are available for people who want to help – jobs for hair stylists or recreation, food, hospitality and tourism workers.

In all, careers in human services can offer your child personal satisfaction that comes with improving the lives of others. ■

### Is your child friendly, outgoing, understanding and cooperative?

Students who like to help others will enjoy careers in education, child care, leisure and recreation services, social services, personal services, food and hospitality, law and law enforcement, government, the military and related jobs.



# LYNN WEDDLE: DETECTIVE

**J**oe Smith was a landscaper. Everyone in his neighborhood knew he worked long hours – including the people who broke in one day while he was at work. He returned home later that night to find a broken window, a ransacked house and a variety of items missing including the equipment in his entertainment center, his jewelry and a book of blank checks.

The morning of the burglary, a man named Steve Austin entered a drive-through lane at Smith's bank. He tried to cash a \$150 check drawn on Smith's account. Austin had endorsed the check on the back and presented his driver's license to confirm that he was Steve Austin.

The teller copied Austin's driver's license information under the endorsement. But, when she brought up the account information on her computer, she noticed that Joe Smith's signature on the check looked completely different than the signature on file. She immediately called Smith, who said he had never heard of Steve Austin and didn't authorize a check to be written to him. (Keep in mind, Smith didn't yet know about the break-in.)

The teller then informed Austin, who was still waiting in the car, that the check was fraudulent. Before returning Austin's license, she quickly photocopied it – just in case. Austin took his license and quickly sped off.

Were this an actual case, Detective Lynn Weddle would be called to investigate. Weddle is a fraud and financial crimes detective for the Topeka Police Department in Topeka, Kansas.

"As a financial crimes detective, I specialize in those crimes that are committed by deception," she explained. "That includes a wide variety of thefts such as forgery, embezzlement, credit card fraud, identity theft, short-change artists and various scams that you read about online."

Some of her cases take years to solve. Others, like the one above, take only a couple of months. And, although the above scenario is fabricated, it's very similar to the real-life cases that Weddle, who has been with the police department for 30 years, investigates every day. She is one of a growing number of women working in the traditionally male-dominated field of law enforcement. When she began her career, she was one of three women on the 200-person Topeka police force. Today, there are 26 women on the 300-person force.

Detectives are law enforcement investigators who gather facts and collect evidence for criminal cases.



▲ Lynn Weddle

This includes conducting interviews, examining records, observing the activities of suspects, participating in raids or arrests and working cases until an arrest and conviction occurs or until a case is dropped.

"It can be very tedious work," Weddle acknowledged, but noted it could also be *very* rewarding. "The most rewarding part is when you contact a victim to let them know 'we got em', because the victim in some aspect gets a certain amount of closure." ■

Sandra Moran

## JOB PROJECTIONS

The list below includes several occupations in the human services field, the total number of workers in that occupation in 2010 and the projected growth rate by 2020:

- Cooks: 2,050,800/8 percent
- Firefighters: 310,400/9 percent
- EMTs and paramedics: 226,500/33 percent
- Human resources specialists: 442,200/21 percent
- Lodging managers: 51,400/8 percent
- Meeting, convention and event planners: 71,600/44 percent
- Mental health counselors and marriage and family therapists: 156,300/37 percent
- Paralegals and legal assistants: 256,000/18 percent
- Personal financial advisers: 206,800/32 percent
- Police and detectives: 794,300/7 percent
- Psychologists: 174,000/22 percent
- Social and human service assistants: 384,200/28 percent
- Social workers: 650,500/25 percent
- Teachers, kindergarten and elementary: 1,655,800/13 percent; middle school: 641,700/17 percent; high school: 1,037,600/7 percent

SOURCE: U.S. Department of Labor Bureau of Labor Statistics at <http://www.bls.gov/oob>.



## CHRIS ARTMAN: COURT REPORTER

▲ *Chris Artman*

Imagine the following scene:

It's a crowded courtroom. The defense and prosecution have been battling back and forth all day. Witnesses are questioned and cross-examined. Both the defense and the prosecution have protested their objections to particular lines of questioning. At times, people have talked over each other in an unintelligible tangle of words.

And through it all, the stalwart court reporter sits, calmly documenting everything that's being said. Everything. Verbatim.

"It's extremely stressful," admits Chris Artman, a former official court reporter who worked in Atlanta, Georgia, for the U.S. Bankruptcy Court before making the switch to freelance court reporting. As a freelancer, Artman works outside the courtroom providing verbatim documentation at depositions, arbitration hearings and other formal proceedings that require an official legal transcript.

Not all court reporters work in a legal capacity, however. Some provide real-time transcripts for public events, religious services, Web casts and real-time closed captioning of live programs for people who have hearing impairments.

There are several methods of court reporting, the most common of which is stenographic – in which a stenotype machine is used to type in combinations of letters that represent sounds and words. The resulting symbols are later translated into text. There also is electronic reporting, where the audio is recorded and later transcribed, and voice writing, where the reporter speaks into a soundproof mask containing a microphone.

Educational requirements for each method differ. The most rigorous is stenographic reporting, which is what Artman does.

"It was probably the most difficult program I could imagine," Artman said of his court reporter training at

Brown College – as was the four-part testing necessary to become certified. But for Artman, the rewards are well worth it.

Not only are his hours fairly flexible, but the variety of topics on which he reports and his salary make it the perfect job for him. A seasoned court reporter can make a six-figure income.

When Artman works, he travels to the location where the deposition is being taken. His steno machine is hooked up to his laptop, which digitally records the proceedings. As the participants speak, he "writes" what he hears verbatim into the steno machine. Generally, he writes between 200 and 240 words a minute with 98 percent accuracy. However, some days, when the people are speaking fast, that figure jumps to 300 words a minute. Over the course of the day, this averages out to a 400- to 500-page document. But that's only part of the job. The real work begins when he returns home.

"I'm a full-timer, which means I probably go out about 15 to 25 hours a week," he explained. "But for every hour out, you can figure two to four hours worth of work at home."

In his home office, Artman edits the transcript. He looks at every single word and then compares the transcript to the audio to make sure it's verbatim. Next, he checks the spelling of the document. Then, he prints off a hard copy and physically reads the hard copy for punctuation errors and to ensure accuracy. After correcting any mistakes, he reads the transcription again.

Errors hurt your credibility, Artman said. That's why it's important for any stenographer to have exceptional listening skills, the ability to pay attention and a strong grasp of punctuation, grammar and the English language. ■

*Sandra Moran*

# PATRICIA CISNEROS: COACH

Patricia Cisneros was in a car with friends in 1977 and fell asleep in the back seat. The next thing that the Indiana University freshman remembered is waking in a hospital bed paralyzed from the hips down.

To many, this situation could be considered a tragedy. But for Cisneros, who allowed herself to be sad for about six months, it was anything but that. It was a turning point that would allow her to achieve new heights and help others learn and grow.

A high school runner and basketball player, Cisneros was an athlete. Knowing that, her physical therapist introduced her to wheelchair basketball as part of her rehabilitation. The opportunity set Cisneros on a path that would send her to the 2000, 2004 and 2008 Paralympics Games in Sydney, Athens and Beijing. It also prepared her to be the first women's wheelchair basketball coach at the University of Illinois.

"When I was younger, I had so many great teachers that made an impact on my education and on my life," she said. "So when I started school for my undergraduate degree, my major was elementary education. And then I got hurt. But despite having the disability, nothing changed. I knew that I wanted to be a teacher."

Cisneros earned a bachelor's degree at Valparaiso University in elementary education with an endorsement in reading. She also earned a master's degree from the University of Illinois in education



▲ Patricia Cisneros

with an emphasis in bilingual education and English as a second language. The entire time, she continued to play competitive wheelchair basketball and train for the Paralympics.

In 2007, Cisneros left her job teaching fourth grade in Tempe, Arizona, and decided to tackle the lack of female coaches in women's wheelchair basketball.

"I told myself, 'I'm going to get into coaching.' Then the University of Illinois job opened up ... and to my surprise I got it," she said.

Cisneros considers her job not just that of a coach, but also as a mentor and an advocate for women's disability sports. ■

*Sandra Moran*

## ON THE JOB WITH COACH CISNEROS

In addition to coaching, administrative work and planning events, Patricia Cisneros also recruits and evaluates players who apply to the program.

During the season, her days begin at 5:15 a.m. She holds practice from 6:30 to 8:30 a.m., with an additional hour twice a week for individual skills practice. By 10 a.m., she's in the office where she takes phone calls, responds to e-mails and participates in meetings.

At lunch, she gets in her own workout and grabs a quick bite to eat before an afternoon of meetings, working with researchers who are studying and advising her team, planning practices with the coaching staff, discussing player progress with trainers, and being available to her student athletes. If the team isn't playing or out of town, she is able to get out of the office by 4 or 4:30 p.m.

It's a busy schedule, but she's quick to say there's nothing in her life or her career that she would change.

## CAREER RESEARCH

Firefighters: <http://www.iaff.org>

Law enforcement officers: <http://www.bls.gov/oooh/Protective-Service/Police-and-detectives.htm>

Lawyers: [http://www.americanbar.org/portals/law\\_students.html](http://www.americanbar.org/portals/law_students.html)

Lodging association: <http://www.ahlei.org/>

Middle school association: <http://www.nmsa.org>

Paralegals: <http://www.paralegals.org>

Psychologists: <http://www.apa.org>

Restaurateurs: <http://www.restaurant.org> and

<http://www.nraef.org>

School counselors:

<http://www.schoolcounselor.org>

Social workers: <http://www.naswdc.org>

Students: <http://www.fcclainc.org>, <http://www.futureeducators.org>, <http://www.skillsusa.org>

Teachers: <http://www.nea.org>

# CAREERS IN HUMAN SERVICES

## Education & Training

**Librarians** use the latest information technology to perform research, classify materials and help students and library patrons seek information.

*Education:* Master's degree in library science; certification or license required in most states

*Income:* \$54,500

**Teachers** from kindergarten through high school help students learn academic subjects, solve problems and develop critical-thinking skills.

*Education:* Bachelor's degree, master's in some states; license; background check in most states

*Income:* \$51,380, kindergarten through elementary; \$53,230, high school

**School counselors** work with students to promote academic, career, personal and social development.

*Education:* Master's degree; state credential; background check in most states

*Income:* \$53,380

## Government & Public Administration

Depending on assignment, **general office clerks** may answer questions about department services, handle requests and enter data and maintain records on computer systems.

*Education:* High school diploma and office-related career-technical education

*Income:* \$26,610

**Tax examiners, collectors and revenue agents** review tax returns, conduct audits, identify taxes payable and collect overdue tax dollars.

*Education:* Bachelor's degree

*Income:* \$49,360

**Urban/regional planners** promote the best use of a community's land and resources for residential, commercial and recreational purposes.

*Education:* Master's degree

*Income:* \$63,040

## Hospitality & Tourism

**Chefs and head cooks** oversee daily food preparation at restaurants or other places where food is served. They direct kitchen staff and handle any food-related concerns.

*Education:* Career-technical education, professional culinary institutes, two- or four-year college degree programs in hospitality or culinary arts or military training

*Income:* \$40,630

**Lodging managers** coordinate the activities and staff of various departments of hotels, arranging for room reservations, meeting space and food services.

*Education:* Bachelor's degree, large, full-service hotels; associate degree or certificate in hotel management, smaller hotels

*Income:* \$46,880

## Human Services

**Barbers, hairdressers and cosmetologists** provide hair styling and beauty services.

*Education:* Graduation from a state-licensed barber or cosmetology school; license

*Income:* \$22,500

**Personal financial advisers** help clients with financial plans, assessing their assets, liabilities, cash flow, insurance coverage, tax status and financial objectives. Those who buy or sell stocks, bonds or insurance, or provide specific investment advice, need licenses based on products they sell.

*Education:* Bachelor's degree or higher; certification a plus

*Income:* \$64,750

**Social and human service assistants** help social workers, health care workers and other professionals provide services to clients.

*Education:* High school diploma, on-the-job training; certificate, associate or bachelor's degree sometimes required; driver's license, background check sometimes required

*Income:* \$28,200

## Law, Public Safety, Corrections & Security

**Firefighters** protect the public by responding to fires and other emergencies.

*Education:* High school diploma, physical requirements, exam, drug screening, background check; postsecondary education helpful; special training or apprenticeship; emergency medical technician certification often required

*Income:* \$45,250

**Lawyers** advise clients regarding legal rights and obligations and represent them in court. Specialties include bankruptcy, probate, international and environmental law.

*Education:* Bachelor's and juris doctor (JD) degrees; exam; license

*Income:* \$112,760

**Paralegals and legal assistants** support lawyers by maintaining and organizing files, conducting legal research and drafting documents.

*Education:* Associate degree in paralegal studies or bachelor's degree in another field and a certificate in legal studies

*Income:* \$46,680

**Police and detectives** protect lives and property and gather facts and collect evidence of possible crimes.

*Education:* Varies from high school diploma through college degree; related career-technical education helpful; rigorous physical and personal qualifications; background check

*Income:* \$55,010

*SOURCES:* Occupational Outlook Handbook, <http://www.bls.gov/ooh>, and O\*NET OnLine, <http://www.onetonline.org>. Income is median or in the median 50 percent range unless otherwise noted.

# ENGINEER AN EXCITING CAREER

**S**ome children are especially curious about how things work. They feel compelled to take things apart, investigate the inner workings and then put them back together. In school, students like these not only enjoy classes in science, technology, engineering and mathematics (STEM), they excel at them. That's because these classes give them an opportunity to do hands-on learning projects that respond to their interests.

If that sounds like your child, you may want to help your hands-on problem solver explore a career in a field related to industrial and engineering technology. The following list features several occupations, the total number of workers in 2010 and the projected growth rate by 2020:

In the information technology field, opportunities like these are continuing to grow, according to the Bureau of Labor Statistics (<http://www.bls.gov/ooh>):

- Computer hardware engineers: 98,810/9 percent
- Computer programmers: 363,100/12 percent
- Computer support specialists: 607,100/18 percent
- Software developers: 913,100/30 percent

In architecture and construction, jobs abound for people who build and maintain our homes, office towers and highways:

- Architects: 113,700/24 percent
- Construction managers: 523,100/17 percent
- Carpenters: 1,001,700/20 percent
- Electricians: 577,000/23 percent
- Heating, air conditioning and refrigeration mechanics and installers: 267,800/34 percent
- Plumbers, pipefitters and steamfitters: 419,900/26 percent

The fields of truck and air transportation will need many of these workers:

- Airline and commercial pilots: 103,500/11 percent
- Automotive service technicians and mechanics: 723,400/17 percent
- Diesel service technicians and mechanics: 242,200/15%
- Heavy vehicle and mobile equipment service technicians: 179,200/16 percent
- Logisticians: 108,900/26 percent
- Truck drivers, heavy and tractor-trailer: 1,604,800/21 percent
- Truck drivers, delivery and driver/sales workers: 1,262,600/13 percent

Other STEM specialists will be needed to keep us healthy, design our products, the machinery to make these products and the factories where they're made:

- Biological technicians: 80,200/14 percent
- Civil engineers: 262,800/19 percent
- Electrical and electronic engineering technicians: 25,800/5 percent
- Environmental scientists and specialists: 89,400/19 percent
- Industrial engineering technicians: 62,500/4 percent
- Industrial machinery mechanics and maintenance workers: 357,000/19 percent

Does your child enjoy math and science? With your encouragement, someday your daughter or son may connect a computer network, design or construct a bridge, improve business systems, fix an engine, invent a machine to solve a problem, meet energy needs or protect our health and safety. ■

## Is your child curious about how things work? Is he or she mechanically or scientifically inclined?

The builders of tomorrow will work in computing, construction, engineering, manufacturing, transportation and related science and technology fields. Occupations in these fields depend on people who use knowledge and skills in math and science both to discover new processes and solutions and to design, develop, install or maintain resulting systems.

# NICHOLE DOUB: CONSERVATOR

**S**ome careers provide adventures in the out of doors. Others offer opportunities to travel around the world. Still others provide a quiet office atmosphere. Nichole Doub, who is head conservator at the Maryland Archaeological Conservation Laboratory, has experienced it all on her career journey and has met many interesting people as well.

Doub has a master's degree in Archaeological Conservation from University College London, where she met a variety of people interested in preservation of historical, artistic or archeological work. Some were bankers, some held typical management positions, one was a ballet dancer and many came from an art historical perspective, she said.

In contrast, Doub's entry into the field seems fairly conventional. She began with a bachelor's degree in classical archaeology from the University of North Carolina at Chapel Hill. As a student, Doub worked with an archeologist for several years before choosing conservation as a career goal.

A relatively new field, conservation started after World War II. That's when the British Museum hired scientists to develop ways to treat, restore and preserve objects placed underground to protect them from the Blitz. But the earth's high moisture content and extreme heat had caused corrosion and mold to form on the artifacts, Doub explained.

To perform needed work, Doub says conservators require a firm understanding of chemistry plus mechanical skills, artistic abilities and the dexterity required to handle precious objects. And, because she came from a classical background, she studied Latin and Ancient Greek.

"It was a good basis at the beginning of my career when I worked on sites out in the field in Italy, Greece and Turkey," she said. "I think travel has always been my favorite thing. However, I haven't been able to do as much in my position in Maryland."

Today, Doub serves in an administrative role that required a new set of skills gained through administrative training and from managers who guided her along way.

"Budget management is a very large part of what I do and being able to interact with clients from a variety of different backgrounds," said Doub. The conservation laboratory, for example, works with the Army, Navy, National Park Service, academic institutions, cultural research management firms and other agencies to develop budget proposals for projects.



*Paint had started to flake off and crack badly on two hand-painted tin spice boxes from the Robert Long House, Baltimore's oldest surviving urban residence, circa 1765. Using a heated spatula, Nichole Doub re-lays the flakes to prevent further loss of decorations that include pretty birds.*

The challenge?

"You don't know what's going to come out of the ground on a particular day. At the same time, you have to prepare the resources, tools and personnel to be able to handle whatever project might come up on a daily basis ... You need problem-solving skills of the highest order."

Although some days she feels trapped behind a desk having to stare at a computer screen, the job is a lot of fun, she said.

"Last week I was out on a shipwreck site on a river," said Doub, who also is a diver. "The week before that, I worked on a cannon in a historic park. Some days I'll be down in a hole flooding buckets and lifting out very interesting pewter plates. You just never know what's going to happen on a day-to-day basis, which is why it's such a dynamic profession." ■

*Mary Pitchford, Editor in Chief*

## LOOKING FOR A JOB?

Nichole Doub has great advice for new graduates in any profession. "You will emerge with the exact same degree as your peers. So it's the practical experience you take on – the internships, the summer placements, the hands-on hours in the lab and in the field – that will distinguish you and make you more of an attractive applicant for a position."

# OLASOPE ARCHER:

## NETWORK ENGINEERING MANAGER

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

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

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

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



▶  
Olasope  
Archer

### IT'S A FACT

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

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

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

In addition to her computer science background, Archer understood that knowing how to manage people is important.

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

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

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

Mary Pitchford

### NEED-TO-KNOW INFO

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

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

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



# AMANDA STEIN: PROCESS ENGINEER

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

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

Today, Stein works at Ducommun LaBarge Technologies as a process engineer.

Ducommun LaBarge specializes in the production of highly complex, high-rate-of-change electronic and electromechanical products and systems. Stein's job focuses on ensuring that the processes and procedures needed to produce a variety of printed circuit board assemblies meet or exceed each customer's requirements.

"For instance, an essential part of my job is to monitor the progress of each batch of circuit boards to determine if there is a more efficient way to create them. Our industry is constantly changing, so every new job offers both challenges and opportunities. It's my job to stand back, look at the big picture and ask if there's a better way. If there is, I put together the right tools, equipment and personnel to create a procedure that saves time, money or both."

Jobs in science and technology fields pay extremely well. To soar to career heights in those fields, high school math and science classes are critical. Stein found calculus skills later helped in understanding some advanced engineering concepts.

Stein has a bachelor's in statistics with a minor in mathematics and a master's in industrial engineering.

## JOB DATA

As employers look for ways to reduce costs and raise productivity, they turn to industrial engineers to develop more efficient processes and reduce costs, delays and waste, according to the *Occupational Outlook Handbook* (<http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineers.htm>). Jobs in the field will grow 6 percent, adding 13,100 new workers between 2010-2020. The median annual pay is \$76,100. However, earnings vary significantly by specialty, industry and education.



▲ *Amanda Stein*

And she has some advice to pass along to students. Don't give up if college math classes seem too difficult, she said. Most colleges and universities offer free tutoring in math centers.

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

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

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

*Writer Joan Rhine has degrees in business and petroleum technology.*



# CAREERS IN INDUSTRIAL AND ENGINEERING TECHNOLOGY

## Architecture & Construction

**Architects** design buildings, rooms, complexes and other structures that are attractive, safe and meet people's needs.

*Education:* Five-year bachelor of architecture degree from a program accredited by the National Architectural Accrediting Board; after graduation, an additional three-year training program prior to license exam; license

*Income:* \$72,550

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**Civil engineers** design and supervise the construction of roads, buildings, airports, tunnels, dams, bridges and water supply and sewage systems.

*Education:* Bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology (ABET); four years of work experience; state exam; license

*Income:* \$77,560

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**Construction trades and mechanical and installation workers** erect and finish buildings and other structures.

Specialists include carpenters, brickmasons, heating, air-conditioning and refrigeration (HVACR) mechanics, etc.

*Education:* Formal training at a career-technical or trade school, apprenticeship or employer-provided program.

*Income:* Varies with specialty. For example: \$45,410, brick-masons; \$39,530, carpenters; \$42,530, HVACR mechanics

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**Construction managers** plan, direct, coordinate and create budgets for all types of construction projects including roads, bridges, wastewater treatment plants, schools, hospitals and residential, commercial and industrial structures.

*Education:* Associate degree plus experience; bachelor's degree in related field preferred

*Income:* \$83,860

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## Information Technology

**Computer programmers** write code to create software programs. They turn the program designs created by software developers and engineers into instructions that a computer can follow.

*Education:* Bachelor's degree

*Income:* \$71,380

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**Computer support specialists** advise organizations and people who use computer software or equipment. Technical specialists support information technology (IT) employees. Help-desk technicians assist non-IT users with problems.

*Education:* Postsecondary classes or associate degree; bachelor's degree preferred

*Income:* \$46,260

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**Network and computer systems administrators** are responsible for the day-to-day operation of an organization's computer networks. They organize, install and support computer systems, including local area networks (LANs), wide area networks (WANs), network segments, intranets and other data communication systems.

*Education:* Bachelor's degree

*Income:* \$69,160

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## Manufacturing

**Assemblers and fabricators** put together finished products and their pieces using tools, machines and their hands.

Products include appliances, airplanes, automobiles, toys, electronic devices, computers and others.

*Education:* High school diploma; on-the-job training; special training or an associate degree if job requires more skills for electrical, electronic, aircraft and motor vehicle assembly

*Income:* Varies by industry, region, skill or educational level; \$28,360

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**Machinists and tool and die makers** review project blueprints or specifications to produce precision parts, mark the workpiece to show where cuts should be made, plan the sequence of cutting and finishing, and select tools and materials, such as lathes, milling machines and grinders.

*Education:* High school diploma or equivalent, technical school or community college, on-the-job training

*Income:* \$39,910

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## Science, Technology, Engineering & Mathematics

**Engineers** apply principles of science and mathematics to develop solutions to technical problems. Specialties include biomedical, civil, electrical, mechanical, etc.

*Education:* Bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology (ABET); four years of work experience; state exam; license

*Income:* Varies with specialty. For example, \$77,560, civil engineers; \$87,180, electrical and electronic engineers

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**Biological technicians** help biological and medical scientists conduct laboratory tests and experiments.

*Education:* Bachelor's degree

*Income:* \$39,020

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## Transportation, Distribution & Logistics

**Automotive service technicians and mechanics** inspect, maintain and repair automobiles and light trucks that run on gasoline, electricity or alternative fuels such as ethanol. They work with computerized shop equipment, electronic components and traditional hand tools.

*Education:* High school diploma, on-the-job training; postsecondary training preferred; ASE certification

*Income:* \$35,790

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**Heavy and tractor-trailer truck drivers** deliver goods over intercity routes, sometimes spanning several states.

*Education:* High school diploma or equivalent, experience, on-the-job training, commercial driver's license (CDL)

*Income:* \$37,770

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**Transportation vehicle, equipment and systems inspectors** monitor equipment, vehicles or systems to ensure compliance with regulations and safety standards.

*Education:* High school diploma, some college, associate degree

*Income:* \$62,230

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*SOURCES:* Occupational Outlook Handbook, <http://www.bls.gov/oob>, and O\*NET OnLine, <http://www.onetonline.org>. Income is median or in the median 50 percent range unless otherwise noted.

# NATURAL CAREERS

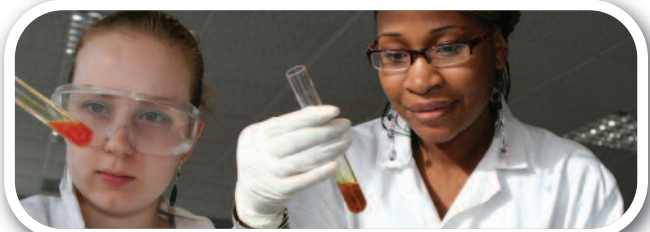
Whatever impacts our natural habitat and the production, processing and transportation of our foods affects both our environment and our personal well-being. That's why people are becoming more concerned about conservation and sustainable agriculture and why more jobs in these fields are becoming greener.

In fact, many middle school and high school science programs address environmental issues. So your child may have an interest in fields where a background in science, technology, engineering and mathematics (STEM) is required.

The need for higher education is growing as well. Many jobs in natural resources require an associate or a bachelor's degree. In fact, farmers, ranchers and agricultural managers are increasingly getting college degrees to learn how to run a business and take advantage of new agricultural technologies.

Following are typical jobs in the interconnected fields of natural resources and agriculture, along with data from the *Occupational Outlook Handbook* (<http://www.bls.gov/ooh>) on the numbers of workers needed and growth rates from 2010-2020. So students who enjoy STEM-related school subjects can look forward to these and other green-related jobs – jobs that will sustain our environment and our agriculture for future generations.

- Agricultural and food scientists: 33,500/10 percent
- Biological technicians: 80,200/14 percent
- Environmental compliance inspectors: 217,000/10-19%
- Environmental engineering technicians: 18,400/24 percent
- Environmental engineers: 51,400/22 percent
- Environmental scientists and specialists: 89,400/19 percent
- Farmers, ranchers and other agricultural managers: 1,202,500/-8 percent
- Geoscientists: 33,800/21 percent
- Landscape architects: 21,600/16 percent
- Natural sciences managers: 49,300/8 percent
- Soil and plant scientists: 11,860/10 percent
- Surveying and mapping technicians: 56,900/16 percent
- Veterinarians: 19,700/33 percent
- Veterinary technologists and technicians: 80,200/52 percent
- Water and wastewater treatment plant and system operators: 110,700/12 percent



## Is your child physically active and interested in plants, animals, math and science?

Children with these interests and abilities – who also are eager to observe, investigate and solve problems – will enjoy careers in natural resources and agriculture. Areas of work involve agricultural sciences, earth sciences, environmental sciences, fisheries, forestry, horticulture and wildlife.



*Glenda O'Connor, fisheries microbiologist and wildlife advocate, dissects a fish to determine its cause of death.*

## GLEND A O'CONNOR: FISHERIES MICROBIOLOGIST

**E**ach spring and fall, Chinook salmon from the Pacific Ocean travel thousands of miles against the current in an exhausting trip to the Oregon freshwater streams of their birth. Once they reach their destination, they lay and fertilize thousands of eggs. And then they die.

Fisheries microbiologist Glenda O'Connor knows it's just part of the life cycle, but she's dedicated to making sure that their short lives, five years at best, are as healthy as possible.

O'Connor, who works for the Oregon Department of Fish and Wildlife, also is a passionate wildlife advocate. It's a role she took on while at her first permanent fishery biologist job working for the Nez Perce Tribe in Enterprise, Oregon. As one of the first women to be employed in this career, O'Connor spent several months at a time in the field working in two- to five-person teams monitoring contraptions known as "screw traps."

*"People need to be a lot more considerate of the animals with which we share this world."*

*– Glenda O'Connor*

A screw trap is a baffled funnel that is mounted between two floating pontoons. The river current causes the funnel to turn, channeling the fish into the attached "livebox" trap, where they are counted, tagged and released. It's just one of the methods used to monitor the health and survival of Oregon's fish population.

In addition to working in the field, O'Connor also works in the office with district biologists, hatchery specialists and fisheries research professionals. In the lab, she performs necropsies (autopsies) on dead fish to determine if the cause of death had anything to do with viruses, bacteria or other infectious agents.

Demand for environmental scientists will be spurred largely by public policy, which will require companies and organizations to comply with complex environmental laws and regulations – particularly those regarding groundwater decontamination, clean air and flood control. Demand also will rise as awareness increases about the need to monitor the quality of the environment, to interpret the impact of human actions on ecosystems and to develop strategies for restoring ecosystems.

"For me, this career choice has caused me to develop a sharply defined bioethical viewpoint for myself," O'Connor said. ■

# DEBRA SCHMIDT:

## ANIMAL NUTRITIONIST

**A**cross America and throughout the world, wild animal parks and zoos present an expanse of garden settings where animals from all corners of the Earth make their homes. These forest, grassland, marsh and desert environments welcome visitors who come to observe and learn about apes, bears, crocodiles, hippos, lions, monkeys, pandas, toucans, zebras and more – many of whom are endangered.

As a child, Dr. Debra Schmidt always wanted to work at a zoo. Today she's an animal nutritionist at the St. Louis Zoo following several years of related experience and education.

To gather experience, Schmidt worked for Ralston Purina, now Nestlé Purina PetCare Company, which introduced her to the science of nutrition. She also gained experience at the St. Louis Zoo while working on the dissertation for her doctoral degree. After that, she worked at the Lincoln Park Zoo in Chicago and the San Diego Zoo and Wild Animal Park before returning to the St. Louis Zoo in 2009.

"To be an animal nutritionist requires a master's or doctoral degree," Schmidt said. Originally from St. Louis, Schmidt graduated from the University of Missouri with a bachelor's degree in animal science. Later she earned a master's degree from Louisiana State University in reproductive physiology and a Ph.D. in animal nutrition from the University of Missouri.

But education needed for a job like hers starts even earlier. If your child wants to follow in her tracks, he or she needs to emphasize courses in math, science, English and computing during high school. Schmidt explains why:

We use math when we formulate diets to determine if the animal's diet is balanced for nutrients. We had to hand-calculate this information in the past, but now computers help make it faster.

The sciences are important – chemistry, biochemistry, nutrition, anatomy, physiology – to understand the roles nutrients, such as vitamins and minerals, play in metabolism.

English is used to write reports for animal health records and publishing research results.

Schmidt also advises students to gain experience with animals by volunteering at a dog kennel, farm, children's zoo or veterinarian's office. "Try to gain experience with a wide variety of animals, including horses and cows, not just companion animals," she added.

"Students who go into animal sciences usually envision a veterinary career when they're at the baccalaureate level. Then they realize that there are all kinds of other careers to pursue to work with animals," she explained.

Currently there are few zoo nutritionists nationally, but zoo nutrition is a growing field, according to Schmidt. These careers are possibly going to be more and more in demand to reflect potential future accreditation standards of the Association of Zoos and Aquariums, she added.

Mentors are important to one's career as well. According to Schmidt, "My graduate adviser, Dr. Monty Kerley, professor of Animal Sciences at the University of Missouri, helped me along the way ... and still does. It's worthwhile at every level to have a great mentor." ■

*Mary Pitchford, Editor in Chief*



## CAREER REFLECTIONS

Often people picture plant and animal production when they first think of careers in natural resources and agriculture. But the field provides hundreds of opportunities in these career cluster pathways:

- Food products and processing systems
- Plant systems
- Animal systems
- Power, structural and technical systems
- Natural resources systems
- Environmental service systems and
- Agribusiness systems

And there are hundreds of related jobs for food processing workers, biochemists, nutritionists, engineers, electronic systems technicians, computer specialists, wildlife managers, geologists, pollution prevention managers, commodity brokers, farm managers, agricultural product marketers and more.

Can your child say “yes” to any of the following statements? If so, check the related box. A majority of checkmarks may indicate a career interest in natural resources and agriculture.

- I enjoy growing and harvesting a summer garden.
- I would prefer a summer job caring for grass, trees and shrubs rather than a fast-food job.
- The science fair is a favorite school activity.
- I'm a fairly patient, persistent problem solver and organizer.
- Working in the outdoors would be fun for me. I might like to track wildlife or take soil samples.
- I like doing experiments in the science lab at school, operating scientific equipment and using a computer to record scientific findings.
- I'm good at math and want to learn how to use it to analyze research results.
- I can explain my ideas in writing.
- I think I could speak about my projects at a meeting.
- Some job tasks might be unpleasant, such as working in summer heat or wearing protective clothing, but I think I could handle them.
- I'm interested in health care, and I like animals. Maybe I would enjoy a veterinary career.

To access more information about careers in agriculture, food and natural resources, go to <http://www.onetonline.org/find/career>.

## CAREER RESEARCH

Agriculture careers: <http://www.Florida-Agriculture.com> and <http://www.agriculture.purdue.edu/USDA/careers/index.html>

Department of Agriculture: <http://www.usda.gov>

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

Environmental and natural resources careers: [http://libguides.lib.umt.edu/enviro\\_natresources\\_jobs](http://libguides.lib.umt.edu/enviro_natresources_jobs)

Environmental Protection Agency careers and internships: <http://www.epa.gov/careers>

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

Fish and Wildlife Service: <http://www.fws.gov>

Forest Service: <http://www.fs.fed.us>

Geological Survey: <http://www.usgs.gov>

Green careers: <http://www.careeronestop.org/GreenCareers/GreenCareers.aspx> and <http://www.onetonline.org/find/green>

Green Jobs Guidebook: <http://www.edf.org/climate/california-green-jobs-guidebook>

National FFA Organization: <http://www.ffa.org/programs/Collegiate/Pages/Careers.aspx>

National Park Service: <http://www.nps.gov>

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

Plant pathology careers: <http://www.apsnet.org/careers/careersinplantpathology/Pages/default.aspx>

# CAREERS IN NATURAL RESOURCES AND AGRICULTURE

**Agricultural and food scientists** study farm crops and animals and develop ways to improve crop yield, control pests and weeds, and conserve soil and water. They research methods to convert raw agricultural commodities into attractive and healthy food products and to use agricultural products for fuels.

*Education:* Bachelor's degree in agricultural science for private industry jobs; master's for advancement; doctoral degree for research jobs at universities

*Income:* \$58,450

**Biological technicians** set up, maintain, and clean laboratory instruments and equipment; gather and prepare samples of substances for laboratory analysis; conduct tests and experiments; document their work, including procedures, observations, and results; analyze experimental data and interpret results; and write reports summarizing their findings.

*Education:* Bachelor's degree

*Income:* \$39,020

**Environmental engineers** use principles of biology and chemistry to solve environmental problems. Work involves water and air pollution control, recycling, waste disposal and public health issues.

*Education:* Bachelor's degree from a program accredited by the Accreditation Board for Engineering and Technology (ABET); four years of work experience; exam; license

*Income:* \$78,740

**Environmental science and protection technicians** perform laboratory and field tests to monitor the environment and investigate sources of pollution and contamination, including those affecting health. Most work for state or local government or for private consulting firms under the supervision of environmental scientists and specialists, engineers, geoscientists and hydrologists.

*Education:* Associate degree or two years of comparable postsecondary training

*Income:* \$41,380

**Environmental scientists and specialists** use knowledge of the natural sciences to identify problems and find solutions that minimize hazards to the health of the environment and the population.

*Education:* Bachelor's degree in environmental science or another natural science for entry-level jobs; master's for advancement; doctoral degree for research jobs at universities

*Income:* \$61,700

**Farmers, ranchers and agricultural managers** own, lease and/or operate farms, ranches, nurseries, greenhouses, timber tracts and other agricultural businesses.

*Education:* Work experience and high school diploma (related career-technical education helpful); bachelor's degree in agriculture increasingly important

*Income:* \$60,750

**Floral designers** arrange natural and artificial flowers and accessories for birthday, wedding and other social events; for gift-giving; and for business, home, hospitality, office and retail decorating.

*Education:* High school diploma, on-the-job training; related career-technical education helpful

*Income:* \$23,610

**Landscape architects** design gardens, parks, playgrounds, residential areas, college campuses, shopping centers, golf courses, parkways and industrial parks that are functional, beautiful and compatible with the natural environment.

*Education:* Bachelor's or master's degree from an accredited school; one to four years of work experience; license in all 50 states.

*Income:* \$62,090

**Purchasing managers, buyers and purchasing agents** track price trends and market conditions and purchase grains, cotton, lumber and other agricultural commodities used to process foods and other products.

*Education:* Varies; high school diploma, on-the-job training and experience for entry-level jobs; bachelor's or master's degree in engineering, business, economics or an applied sciences for purchasing managers.

*Income:* \$58,360

**Veterinarians** diagnose and treat diseases and dysfunctions of animals including pets, livestock and animals in zoos, racetracks and laboratories. Some use their skills to protect humans against diseases carried by animals and conduct clinical research on human and animal health problems.

*Education:* Doctor of Veterinary Medicine degree from an accredited program; exam; license

*Income:* \$82,040

**Veterinary technologists and technicians** perform medical tests under the supervision of a licensed veterinarian to treat or to help veterinarians diagnose the illnesses and injuries of animals.

*Education:* Bachelor's degree, veterinary technologists; associate degree, veterinary technicians; exam and certificate, license or registration may be required, depending on state

*Income:* \$29,710

**Water and wastewater treatment plant and system operators** treat water and remove harmful pollutants from domestic and industrial liquid waste so that water is safe to drink and to return to the environment.

*Education:* High school diploma, mechanical aptitude and competency in mathematics and science; on-the-job training; related formal classroom or self-paced study program; certificate or associate degree in water quality, management or wastewater treatment technology preferred; license

*Income:* \$40,770

*SOURCES:* Occupational Outlook Handbook, <http://www.bls.gov/oob>, and O\*NET OnLine, <http://www.onetonline.org>. Income is median or in the median 50 percent range unless otherwise noted.



# YOUR CHILD'S FUTURE STARTS TODAY

**M**ost teens live day to day. That's a major reason why parents need to share the following facts about education and future employment:

**Career and college planning begins in middle school.** Students usually draft a high school plan in eighth grade, so there are many things to consider. How will your child's interests translate into a career? What kind of education is needed? The answers will help your child develop a high school program of study and postsecondary plan related to career interests – saving college dollars!

**Learning and earning go hand in hand.** As you can see by the chart below, workers who have a high school diploma earn \$638 per week; an associate degree, \$768 a week; and a bachelor's degree, \$1,053 a week. What kind of money does your child expect to earn to meet lifestyle needs?

**More education means more job security.** The unemployment rate ranges from 14.1 percent for high school dropouts to 4.9 percent for bachelor's degree holders, as the chart shows.

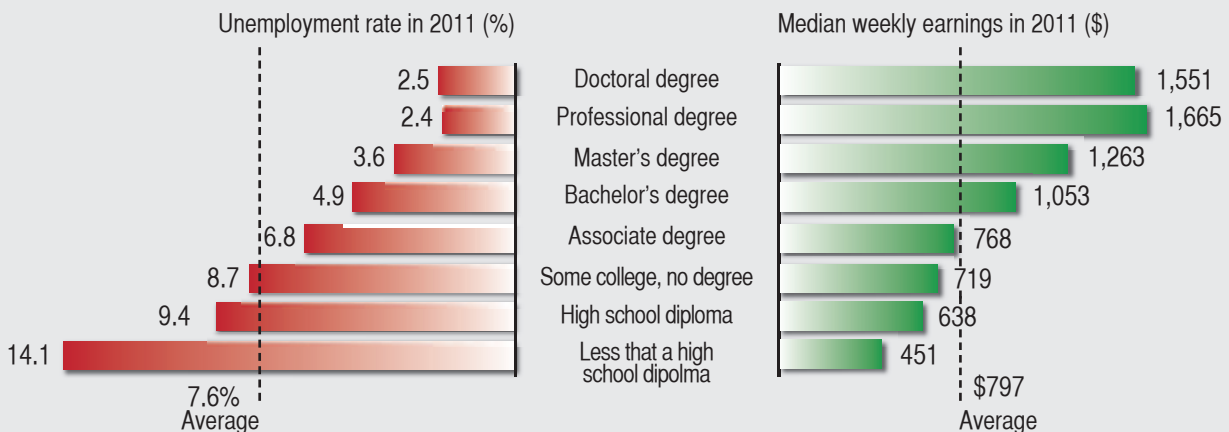
**There's more than one way to get needed education.** Educational choices described on the next page – from high school programs of study through college degrees – will lead your child to think seriously about how to achieve the education needed for a satisfying career.

Working together day by day, you can give your child a head start on a successful future. The next few pages will help you and your child a head start on planning for postsecondary education and a career. ■

### Stressing About College Choice?

View this video with your child, and you'll feel better about college options: <http://www.youtube.com/watch?v=-Z3whjuLCA8>.

## EDUCATION PAYS



**Source:** Bureau of Labor Statistics, Current Population Survey.

**Note:** Data are 2011 annual averages for persons age 25 and over. Earnings are for full-time wage and salary workers ([http://www.bls.gov/emp/ep\\_chart\\_001.htm](http://www.bls.gov/emp/ep_chart_001.htm)).



## EDUCATIONAL OPPORTUNITIES

**W**hy consider high school programs of study and postsecondary education when your child is in middle school or has just started high school? Consider this. Career goals and educational choices go hand in hand.

That's why it's a good idea for you and your child to talk with a school counselor. A counselor can provide information about career assessments, graduation requirements, school organizations, scholarships and educational opportunities like these:

**High school programs of study.** In her article on page 6, Kimberly Green said, "CTE (career-technical education) prepares students for college and careers by fusing core academic standards with career-focused content and experiences." High schools offer a variety of these programs of study in many of the 16 career clusters that you see on pages 8, 12, 13 and 15.

**On-the-job training programs.** These employer-provided formal and informal programs are conducted by company trainers, managers or experienced employees at no cost to the employee.

**Apprenticeships.** These are formal, one- to six-year programs usually registered with the U.S. Department of Labor. They provide classroom instruction and on-the-job training leading to licenses, certifications and degrees. Access more information at <http://www.doleta.gov/oa> and <http://www.doleta.gov/programs/factsht/pdf/apprenticeship.pdf>.

**Short-term and one- or two-year certificates.** In government data, these certificates or another kind of recognition are referred to as a "postsecondary vocational award." Students earn awards like this for completing a program related to a trade or other occupation such as automotive technology and licensed practical nursing. These programs are offered at some high schools and at career-technical schools and community colleges.

**Associate degrees.** These degrees lead to entry-level employment or further education. Usually they are granted after a two-year course of study at a community college, college, university or other degree-granting school.

**Bachelor's degrees.** These academic degrees typically are granted after a four- or five-year course of study at a college or university.

**Master's or professional degrees.** A master's degree program is an advanced two-year academic program focusing on a particular subject or field. Entry into the program usually requires a bachelor's degree. Law and medicine are examples of professional degrees. Graduate and professional degree programs usually require an entrance examination such as the Graduate Records Examination (GRE), the Medical College Admission Test (MCAT) and the Law School Admission Test (LSAT).

**Doctoral degrees.** A doctoral degree is the highest academic or professional degree in a program of study. It usually requires both a bachelor's and a master's degree and two to four years of research in a specific field.

To learn more about job and degree requirements, review the information in this publication, search the *Occupational Outlook Handbook* (<http://www.bls.gov/ooh>) and access company, professional organization and employment websites.

Also explore websites of postsecondary schools. Consider programs they offer and related costs. Financial aid, scholarships, part-time work and a good grade point average can add up to needed education to achieve future goals. ■

**WANT TO GO TO COLLEGE?**

Go to <http://studentaid.ed.gov> to learn more.



# CONSIDERING POSTSECONDARY EDUCATION?

## PLANNING EARLY IS IMPORTANT

### EIGHTH GRADE

Consider career directions and career-related high school programs of study.  
Draft a high school plan that includes rigorous courses that meet state requirements.

### NINTH GRADE

Review high school and career-related plan.  
Encourage participation in career-related organizations and other activities.  
Attend college and career fairs.  
Work with your child to create a portfolio that includes report cards, honors, awards and volunteer and work activities.  
Consider education after high school and how to pay for it.

### TENTH GRADE

Review high school and career-related plan.  
Support involvement in activities.  
Have your child take practice college entrance tests, such as the PSAT.  
Attend college and career fairs.  
Explore postsecondary education options and costs, and begin to make financial plans.  
Help your child find a career-related summer job or enrichment program.  
Remind your child to update his or her portfolio.

### ELEVENTH GRADE

Review high school plan, and check to see that graduation requirements are being met.  
Have your child schedule college entrance tests, such as the SAT and ACT.  
Attend college and career fairs, and help your child narrow choices.  
Schedule visits with admissions personnel at schools or training facilities.  
Help your child find a career-related summer job or enrichment program.  
Help your child practice completing postsecondary school applications, which usually can be found online.  
Remind your child to update his or her portfolio.

### TWELFTH GRADE

Check that graduation requirements are being met.  
Encourage involvement in activities.  
Compare and contrast education and financial options.  
Have your child apply to selected postsecondary programs, and check to see that your child has included needed transcripts, fees, recommendations and requests for financial aid.  
Help your child complete the Free Application for Student Financial Aid (<http://www.fafsa.ed.gov>) and other financial forms.  
Review acceptance letters from schools and any scholarship and financial aid offers with your child.  
Have your child notify the selected institution in writing with deposit attached, ask the school counselor to forward final transcripts and notify other programs that another choice has been made.  
Complete financial arrangements.



# FINDING FUNDING



Not many people can pay the full cost of post-secondary education. But there are ways your child can achieve a future educational goal:

- Visit a high school counselor or the financial aid director at a postsecondary school to learn about sources of scholarships and loans.
- Find good information about educational options, financial aid advice and a repayment calculator at <http://www.studentaid.ed.gov> and <http://collegecost.ed.gov>.
- Complete an application for federal aid at <http://www.fafsa.ed.gov>.
- Find information about state scholarships at by typing the name of your state and the word “scholarships” in a search engine.
- Search company and labor union websites for earn-and-learn programs and scholarships.
- If possible, attend a local school that provides a suitable educational program and live at home.
- Work part-time while attending school.

made by for-profit schools that may make money from high-interest loans. Also, you don't have to pay money to get money. For more information about scams, go to:

- <http://www.ftc.gov/scholarshipscams>
- <http://www.ed.gov/about/offices/list/oig/misused/sscams.html>
- <http://www.finaid.org/scholarships/scams.phtml> and
- <https://bigfuture.collegeboard.org/pay-for-college/scholarship-and-grants/how-to-spot-scholarship-scams>

You and your child will find a lot of information as you search for financial aid. However, college funding scams abound, so be wary. Look carefully at offers

Working together, you and your child will find many ways to create a funding strategy that will lead to postsecondary education and a satisfying career. ■

## BUDGET CHALLENGE

Some careers pay more than others. Will your child's career choice pay enough to contribute to household needs and repay educational loans?

Following are the 2009 average annual expenses for a household with 2.5 people and 1.3 mid-career earners. Before-tax income was \$62,857.



### Average Household Expenses

Item	Amount
Food at home	\$ 3,624
Food away from home	2,505
Housing	16,557
Apparel and services	1,700
Transportation	7,677
Health care	3,157
Entertainment	2,504
Personal insurance, pensions	5,373
Other expenditures	5,012
<b>Total annual expenditures</b>	<b>\$48,109</b>

Source: <http://www.bls.gov/news.release/cesan.nr0.htm>

### Start Saving Early

If you have young children, consider prepaid college savings plans. Many Internet sites, including <http://www.finaid.org/savings> and <http://www.savingforcollege.com>, provide answers to frequently asked questions, including questions about plan pluses and minuses.

# Watch Your Language!

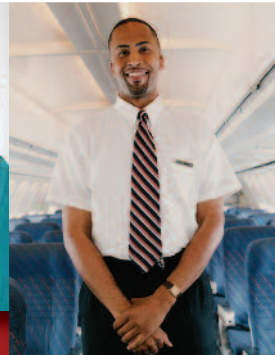
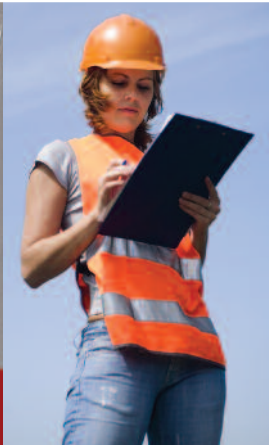
When adults refer to workers as “he” or “she,” this can reinforce the traditional perception of who does what in the world of work. So remember to use gender-free language whenever possible.

Avoid placing either gender in a special category such as “female welder” or “male nurse.” It’s “mail carrier,” not mailman, and “flight attendant,” not “stewardess.”

Also use plural or gender-neutral nouns rather than “he” or “she.” The pharmacist isn’t always a “he” nor the secretary a “she.”

## CAREERS HAVE NO GENDER!

When females exhibit an aptitude for:		And males exhibit an aptitude for:	
Fixing Analyzing Exploring	Building Enduring Leading	Caring Decorating Teaching	Organizing Cultivating Communicating
These skills may indicate that a male or female student may be happier, more fulfilled and more successful in a nontraditional occupation.			



# Parents Can Help!

Students shy away from classes and activities when they think they do not know even the basic concept or requirements to succeed. Not knowing the terminology and names of systems, tools, instruments, etc., can deter students from considering different types of nontraditional classes. If English is a second language for a student, this concern becomes even more critical.

Parents can help at home by sharing and discussing a recipe, gardening, caring for a baby, training a pet, fixing or maintaining a car or a bicycle, making travel and hotel reservations, or programming the DVD or the new LED television. Becoming familiar with a variety of topics helps build a knowledge base that, in turn, builds confidence and opens up a world of work possibilities that might inspire.



## Encourage SPIRIT ...

Today's world of work has many demands. The Secretary's Commission on Achieving Necessary Skills (SCANS skills\*) identifies basic workplace requirements for all students. A career-technical course will provide a foundation for these skills. Here's how to remember the skills with SPIRIT:

- S** Systems. Understand how businesses and organizations function and produce.
- P** Plus the basics. Possess good reading, writing and arithmetic skills
- I** Interpersonal skills. Be able to get along and work with others.
- R** Resources. Identify, organize and plan all types of resources.
- I** Information. Acquire and use information.
- T** Technology. Work with a variety of technologies.

**SPIRIT = workplace skills**

\*For more information about SCANS, go to <http://www.academicinnovations.com/report.html>.

*SPIRIT created by Bingham and Paine, Academic Innovations.*

National Alliance for Partnerships in Equity  
<http://www.napequity.org>

## Math The Critical Filter

In the early grades, girls consistently match or surpass boys' achievements in science and mathematics as measured by scholastic aptitude tests, achievement tests and classroom grades. However, by eighth grade, societal expectations start to undermine female students' ability to persevere, and twice as many male students as female students show interest in science, engineering and mathematics careers.

Encourage female students by noticing women in the media and community who have excelled in their occupations and are using these skills to make improvements in our lives.

Compliment young women on their achievements and not only their appearance.

Ask daughters to help in analytical activities such as managing money or solving a problem.