

Introduction

The *Pennsylvania Career Guide* has helped students and job seekers explore their career options for nearly 25 years. For the first time, the 2014-15 publication will be comprised of a series of three publications targeted to specific audiences – Intermediate School students, High School students and Adult Job Seekers. This customization allows the guides to better serve each audience by addressing their specific needs.

You are holding the very first Pennsylvania Career Guide: Middle School Edition. This guide is designed to introduce middle and intermediate school students to the wide variety of careers that await them in the future. Information in the publication will help students answer the age-old question: “What do you want to be when you grow up?”

To start, a quick interest assessment will examine the student’s interests and hobbies and match them to jobs that best fit their personalities. Students can learn more about those jobs in the Occupational Data Bank, which contains employment, wage, and job outlook information on more than 100 occupations in Pennsylvania.

There are also several articles that explore a variety of career options while giving students a realistic picture of the job market and dispelling some career myths. Jobs in the Natural Gas, Transportation and Manufacturing sectors are also highlighted to help students discover in-demand occupations that they may have not previously considered.

Activities are provided in the final section that allow the student to navigate through the articles and data provided in the guide. Overall, this publication provides the first steps toward helping young students make informed career decisions.

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Getting To Know Yourself

What do you want to be when you grow up?

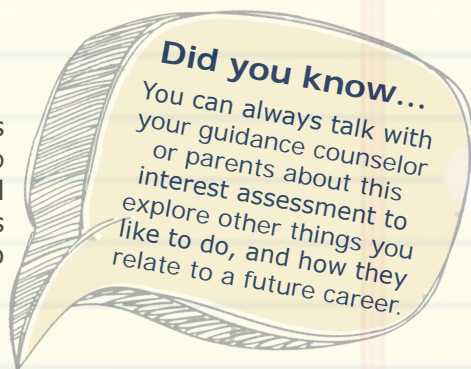
Planning for your future can be difficult. Where do you even begin? Well, the first step can always be to evaluate your own likes and dislikes, and find out what types of jobs fit your personality.

That's why we've provided a self-assessment tool to help you determine which careers are a good fit for you. The goal is to find a rewarding job that uses your unique set of skills, talents and abilities. People who choose careers that match their interests are more likely to achieve job satisfaction and success. However, self-assessments are just one part of the entire career puzzle. You should consider your results in combination with information from career counselors and other sources.

Let's get started.

Step 1:

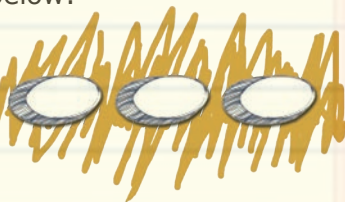
In each group, select the items that describe you. Then count up your choices in each column and fill in the total. Be as honest as you can. Remember: There are no wrong answers!



Step 2:

Using your totals, identify the three letters that have the highest scores. Record them in the spaces below:

My Interest Code



Step 3:

Descriptions for each of the six interest codes are found on page 8. Take a minute to read the descriptions for the areas that match your interest codes from Step 2.

ARE YOU:	- R -	- I -	- A -	- S -	- E -	- C -
CAN YOU:	<input type="checkbox"/> Practical	<input type="checkbox"/> Scientific	<input type="checkbox"/> Imaginative	<input type="checkbox"/> Helpful	<input type="checkbox"/> Sociable	<input type="checkbox"/> Orderly
	<input type="checkbox"/> Mechanically inclined	<input type="checkbox"/> Precise	<input type="checkbox"/> Intuitive	<input type="checkbox"/> Idealistic	<input type="checkbox"/> Ambitious	<input type="checkbox"/> Accurate
	<input type="checkbox"/> Shy or modest	<input type="checkbox"/> Observant	<input type="checkbox"/> Romantic	<input type="checkbox"/> Generous	<input type="checkbox"/> Witty	<input type="checkbox"/> Conscientious
	<input type="checkbox"/> Reliable	<input type="checkbox"/> Curious	<input type="checkbox"/> Creative	<input type="checkbox"/> Cooperative	<input type="checkbox"/> Argumentative	<input type="checkbox"/> Efficient
	<input type="checkbox"/> A nature lover	<input type="checkbox"/> Analytical	<input type="checkbox"/> Independent	<input type="checkbox"/> Friendly or cheerful	<input type="checkbox"/> Persuasive	<input type="checkbox"/> Methodical
	<input type="checkbox"/> Athletic	<input type="checkbox"/> Self-motivated	<input type="checkbox"/> Sensitive or emotional	<input type="checkbox"/> Responsible	<input type="checkbox"/> Self-confident	<input type="checkbox"/> Careful
	<input type="checkbox"/> Work on cars	<input type="checkbox"/> Solve math problems	<input type="checkbox"/> Play a musical instrument	<input type="checkbox"/> Teach others	<input type="checkbox"/> Convince others to see things your way	<input type="checkbox"/> Keep accurate records
	<input type="checkbox"/> Solve mechanical problems	<input type="checkbox"/> Conduct research	<input type="checkbox"/> Act or perform	<input type="checkbox"/> Mediate disputes	<input type="checkbox"/> Lead a group	<input type="checkbox"/> Write a business report
	<input type="checkbox"/> Start a campfire	<input type="checkbox"/> Analyze data	<input type="checkbox"/> Write stories or poems	<input type="checkbox"/> Lead a group discussion	<input type="checkbox"/> Sell things or promote ideas	<input type="checkbox"/> Make charts and graphs
	<input type="checkbox"/> Read a blueprint	<input type="checkbox"/> Think abstractly	<input type="checkbox"/> Dance	<input type="checkbox"/> Work with others	<input type="checkbox"/> Entertain guests	<input type="checkbox"/> Operate office machines
<input type="checkbox"/> Fix electronic equipment	<input type="checkbox"/> Perform laboratory work	<input type="checkbox"/> Sketch, draw or paint	<input type="checkbox"/> Plan or supervise an activity	<input type="checkbox"/> Manage people or products	<input type="checkbox"/> Work well within a system	
<input type="checkbox"/> Play a sport	<input type="checkbox"/> Do complex calculations	<input type="checkbox"/> Work independently	<input type="checkbox"/> Offer others guidance	<input type="checkbox"/> Give talks or speeches	<input type="checkbox"/> Use a computer	
DO YOU LIKE TO:	<input type="checkbox"/> Hunt or fish	<input type="checkbox"/> Use computers	<input type="checkbox"/> Decorate	<input type="checkbox"/> Do volunteer work	<input type="checkbox"/> Belong to clubs	<input type="checkbox"/> Play board games
	<input type="checkbox"/> Build or repair things	<input type="checkbox"/> Read scientific magazines	<input type="checkbox"/> Take photographs	<input type="checkbox"/> Organize parties	<input type="checkbox"/> Start or lead a social organization	<input type="checkbox"/> Collect items
	<input type="checkbox"/> Operate tools and machinery	<input type="checkbox"/> Use a telescope	<input type="checkbox"/> Attend concerts or plays	<input type="checkbox"/> Play team sports	<input type="checkbox"/> Meet important people	<input type="checkbox"/> Work on home improvement projects
	<input type="checkbox"/> Be physically active	<input type="checkbox"/> Experiment or observe events	<input type="checkbox"/> Collect artwork	<input type="checkbox"/> Babysit or work with children	<input type="checkbox"/> Make decisions affecting others	<input type="checkbox"/> Build models
	<input type="checkbox"/> Work outdoors	<input type="checkbox"/> Play chess	<input type="checkbox"/> Read fiction, plays and poetry	<input type="checkbox"/> Be the center of attention	<input type="checkbox"/> Win awards	<input type="checkbox"/> Work with numbers
	<input type="checkbox"/> Use your hands	<input type="checkbox"/> Work independently	<input type="checkbox"/> Work on crafts	<input type="checkbox"/> Attend meetings	<input type="checkbox"/> Run a political campaign	<input type="checkbox"/> Be responsible for details
	Total for "R" =	Total for "I" =	Total for "A" =	Total for "S" =	Total for "E" =	Total for "C" =



R = Realistic

Skilled at working with tools, mechanical or electrical drawings, machines or plants and animals. Generally avoids social activities like teaching, healing and informing others. Sees self as practical, mechanical and realistic.

Possible occupations include:

- Welders (pg. 29)
- Electricians (pg. 27)
- Truck Drivers (pg. 29)
- Mechanical Engineers (pg. 30)

I = Investigative

Good at understanding and solving science and math problems. Generally avoids leading, selling or persuading people. Sees self as precise, scientific and intellectual.

Possible occupations include:

- Pharmacy Technicians (pg. 28)
- Financial Analysts (pg. 30)
- Clinical & School Psychologists (pg. 30)
- Medical Scientists (pg. 30)

A = Artistic

Strong in areas such as creative writing, drama, crafts, music or art. Generally avoids highly ordered or repetitive activities. Sees self as expressive, original and independent.

Possible occupations include:

- Architects (pg. 30)
- Graphic Designers (pg. 30)
- Hairstylists (pg. 30)
- Self-Enrichment Teachers (pg. 29)

S = Social

Good at teaching, counseling, nursing or giving information. Generally avoids using machines, tools or animals to achieve a goal. Sees self as helpful, friendly and trustworthy.

Possible occupations include:

- Child Care Workers (pg. 27)
- Registered Nurses (pg. 29)
- Residential Advisors (pg. 30)
- Elementary School Teachers (pg. 30)

E = Enterprising

Good at leading people and selling things or ideas. Generally avoids activities that require careful observation and scientific, analytical thinking. Sees self as energetic, ambitious and sociable.


Possible occupations include:

- Telemarketers (pg. 29)
- Real Estate Agents (pg. 29)
- Gaming Dealers (pg. 27)
- Public Relations Specialists (pg. 30)

C = Conventional

Good at working with written records and numbers in a systematic, orderly way. Generally avoids ambiguous, unstructured activities. Sees self as orderly and good at following a set plan.

Possible occupations include:

- Billing Clerks (pg. 27)
 - Library Assistants (pg. 28)
 - Legal Secretaries (pg. 28)
 - Cost Estimators (pg. 30)
- 




So You Want to Be a Star?





Many young people dream of fame in the entertainment or sports world. Yet the number of people aspiring to these glamorous jobs far outnumbers the actual openings. In the case of sports, experts estimate that only one out of every 1,000 high school senior athletes will make it to the pros. And even if you do get drafted, there's no guarantee you will become rich and famous.

If you excel at sports, don't give up on your dream – but be realistic at the same time. There are still many occupations that allow you to work in professional sports and stay close to the game you love. Here are just a few examples of sports-related careers you may want to consider and prepare for:

- **Broadcaster/Journalist** – Whether they are broadcasting the game live, recording a highlight reel for television or discussing trade deadlines in the newspaper or online, sports reporters and broadcasters are the eyes and ears of the people.
- **Photojournalist** – Uses a still or video camera to catch the action.
- **Coach/Umpire** – Requires a broad knowledge of the sport to teach and motivate players, or to observe and regulate the players' actions.
- **Facilities Manager** – Oversees the day-to-day operations of an arena or sporting venue.
- **Physical Therapist** – Develops exercise programs to help in the recovery from injuries and to prevent future injuries. A license is required to practice this occupation.
- **Sports Statistician** – Collects and analyzes sports data for individual games, seasons and careers. Sports announcers rely on statisticians for information.
- **Sports Turf Specialist** – Tends to grass in stadiums, golf courses and tennis courts.



This career guide includes information about many careers in Pennsylvania – both sports-related and non-sports related. Take a look at our Occupational Data Bank on pages 26 through 31 for more information about many of the occupations that are in demand throughout Pennsylvania



High School Student Athletes

 **Men's Basketball** 538,676 Students

 **Women's Basketball** 433,120 Students


 **Football** 1,086,627 Students

 **Baseball** 474,791 Students

 **Men's Ice Hockey** 35,198 Students

 **Men's Soccer** 411,982 Students

Odds High School Seniors to the Pros

 **1 in 3,300**

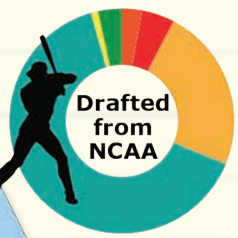
 **1 in 2,700**

 **1 in 1,250**

 **1 in 200**

 **1 in 1,400**

 **1 in 1,100**




-  Men's Basketball 46
-  Women's Basketball 32
-  Football 254
-  Baseball 678
-  Men's Ice Hockey 7
-  Men's Soccer 101

High School Senior Athletes

 **Men's Basketball** 153,907 Students

 **Women's Basketball** 123,749 Students

 **Football** 310,465 Students

 **Baseball** 135,491 Students

 **Men's Ice Hockey** 10,057 Students

 **Men's Soccer** 117,423 Students

How Entertainment Portrays Careers

What you do and how you think is influenced by print, television, radio and even social media. This phenomenon is the central philosophy behind advertising, and is the reason commercials, ads, and pop-ups exist. It should be no surprise then that the entertainment media also affects the sorts of careers you may find interesting and worthwhile.

It is perfectly normal for the careers you see depicted on television to have caused you to consider pursuing them. However, you don't always see the details surrounding the career, just the parts of the job that are entertaining to watch on television. Shows like *NCIS*, *Law & Order*, and *Grey's Anatomy* portray their characters with action, suspense, and drama. All of these things you may find enjoyable, but all may be lacking if you decide to follow the career yourself. Lawyers spend countless hours reading and doing research prior to the few hours a month they may stand in a courtroom. Police officers have to fill out paperwork and document events and evidence, something typically passed over for a more dramatic car chase on TV. These are not bad jobs, but the nature of work is portrayed inaccurately, and we wouldn't want you to pursue your future career with unrealistic expectations.

"Reality television" perpetuates these issues as well. Channels like A&E with shows *Duck Dynasty* and *Storage Wars*, or Food Network with all of their cooking shows, give a false sense that all you have to do is cook or make duck calls or bid on storage units and you can become rich and successful overnight. They don't show the amount of work people have to go to **sell** all the junk they acquired in the storage lockers. They also gloss over the years chefs put into learning their craft and honing their skill prior to going on TV.

On the next page is a list of careers that you might have seen on TV or in a movie. They are all good careers with promising outcomes for those who work hard at them. All of these occupations have a few things in common: only the highlights or most glamorized parts of the jobs are shown on TV and movies, and the amount of new people hired in these jobs tends to be small, making them very difficult and competitive to break into.

If you are interested in any of these careers, find out as much as you can about them. Use O*Net (www.onetonline.org) to learn about working conditions, training requirements and similar occupations. Also, please look closely at the Occupational Data Bank on pages 26 through 31. Increasing your exposure to additional occupations may lead you in a new direction when planning for your future.

Average Incomes



Annual Openings & Education Requirements

	104 - Related work experience required
	99 - Postsecondary degree plus work experience
	251 - Doctoral degree required
	46 - Doctoral degree required
	7 - Long-term on-the-job experience
	198 - Bachelor's degree required
	N/A - Bachelor's degree plus work experience

Have A Career In Mind, Try It Out First

Find something you enjoy doing, then find a way to get paid for doing it.

That was the simple, yet profound, advice a mentor once offered his young student. Too often, however, students decide on a high-paying or high-prestige job first, then try to make themselves “like” the job or the education they need to do it. Or they choose an occupation based on what sounds good, what is popular, or what someone else wants them to pursue, rather than a career that’s actually something they’d enjoy doing.

The key is to learn more about various occupations and determine which ones you would enjoy. But if you’re still in school how do you do that? Luckily, there are several ways to learn about fields you might find interesting.

Community Agencies

If there is a YMCA, YWCA, community center, township center or similar agency in your community, check to see what type of classes they offer. This is a way for you gain exposure to a wide range of experiences, one of which could inspire you enough to consider a career in the field.

Volunteer Work

While it doesn’t provide a paycheck, volunteering is another way to learn about a field before deciding to pursue it as a career. Many employers welcome enthusiastic volunteers who offer their time in exchange for work experience. Charities and community organizations are a great way to gain experience, learn new skills and build your résumé, all while helping your local community.

Job Shadowing

Job shadowing allows you to directly observe someone at work. You can observe first-hand the day-to-day activities you would be performing in a particular job and learn what skills you would need to obtain it. Job shadowing also gives you a chance to ask any questions you might have about the job and how to prepare for it.

School Clubs

Many schools have clubs that focus on specific careers and cater to students interested in those fields. Student clubs often host guest speakers, arrange workplace tours and sponsor trips to conferences

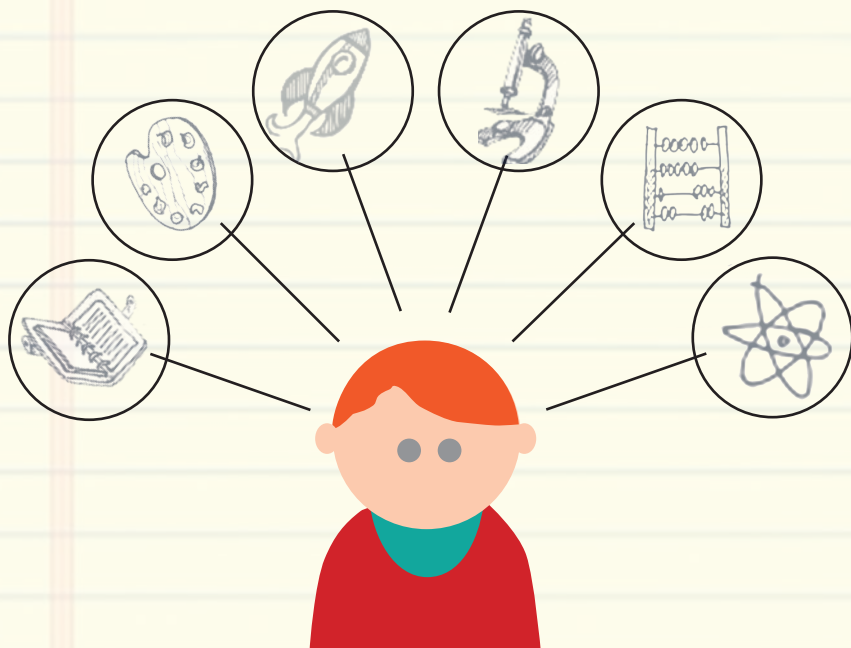
and competitions – all of which are excellent opportunities for asking questions about a specific field, résumé building and networking. If your high school doesn't have the club you are looking for, talk to a teacher or guidance counselor about starting one.

Part-time Employment

A part-time job offers many advantages beyond earning some extra money. It's also a way to gain valuable experience in a particular field – experience that will allow you to judge whether you'd like to make the job your career. As a bonus, performing well at your job will earn you good references and transferable skills for future employment. In Pennsylvania, your job choices will be limited until you reach age 16 and in some cases, age 18.

***"One important key to success is self-confidence.
An important key to self-confidence is preparation."***

– Arthur Ashe



Spotlight on Natural Gas Occupations

Natural gas...

- Supplies about 24 percent of all energy used in the U.S.
- Heats more homes in the U.S. than electricity
- Flows through about 2.2 million miles of underground pipelines
- Travels through pipelines at 15 miles per hour
- Has no odor in its natural state (utility companies add a chemical odorant to help make gas leaks more noticeable)

Why should I consider a natural gas occupation?

Natural gas is the most rapidly growing industry in Pennsylvania. More than 24,000 employees are currently working in occupations related to natural gas and 1,300 job openings are expected every year. The majority of these jobs are located in the Marcellus Shale region (northern and western parts of Pennsylvania). Advances in extraction technology have made the recovery of shale gas deposits buried 9,000 feet below ground both possible and economically viable. As a result, Pennsylvania has seen an increase in good-paying jobs and can expect decades of residual workforce and economic benefits.

What can I expect in natural gas careers?

The drilling of a single well requires about 400 people working in nearly 150 different occupations. Most entry-level positions require little more than a high school diploma. New employees gain knowledge and learn job skills by working alongside more experienced workers through a significant period of on-the-job training. Once training has been completed, these occupations typically pay well, making natural gas careers an attractive option for students whose plans do not include postsecondary education or college.

Since oil and gas drilling rigs usually operate 24 hours a day/7 days a week, employees may work daytime, evening or overnight hours, and in some cases, rotating shifts. While an 8-hour shift is the standard, it's not uncommon for employees to work as many as 12 hours in a shift. Part-time work is rare and overtime is abundant. Many natural gas employees work in remote locations outdoors and around heavy machinery.

In this field, employers are looking for mechanically-inclined candidates with strong knowledge in mathematics, public safety & security and production & processing. Many natural gas occupations can be labor-intensive, so candidates should be in very good physical condition. Candidates that possess higher-level skills in equipment maintenance, critical thinking, operation & control, quality control & analysis and troubleshooting are more desirable to prospective employers.

What are some of the occupations and what do they normally do?

Derrick Operators, Oil & Gas

Rig derrick equipment and operate pumps to circulate mud through drill hole.

Rotary Drill Operators, Oil & Gas

Set up or operate a variety of drills to remove underground oil and gas, or remove core samples for testing during oil and gas exploration.

Service Unit Operators, Oil, Gas & Mining

Operate equipment to increase oil flow from producing wells or to remove stuck pipe, casing, tools or other obstructions from drilling wells. May also perform similar services in mining exploration operations.

Explosives Workers & Blasters

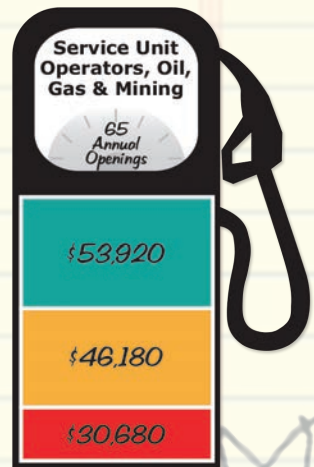
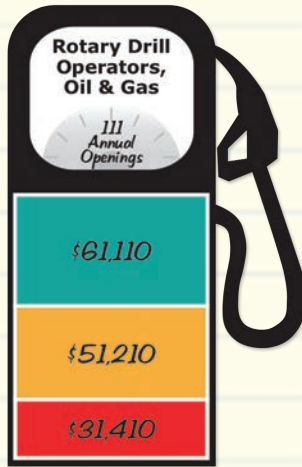
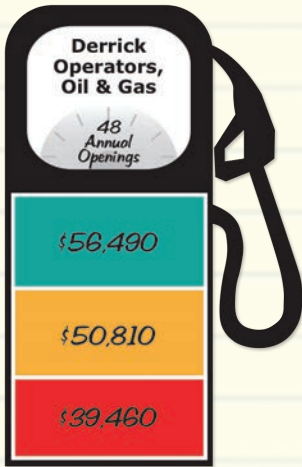
Place and detonate explosives to demolish structures or to loosen, remove or displace earth, rock or other materials. May perform specialized handling, storage and accounting procedures.

Roustabouts, Oil & Gas

Assemble or repair oil field equipment using hand and power tools.

Welders, Cutters, Solderers & Brazers

Use hand-welding, flame-cutting, hand soldering or brazing equipment to weld or join metal components or to fill holes, indentations or seams of fabricated metal products.



Natural Gas Occupations



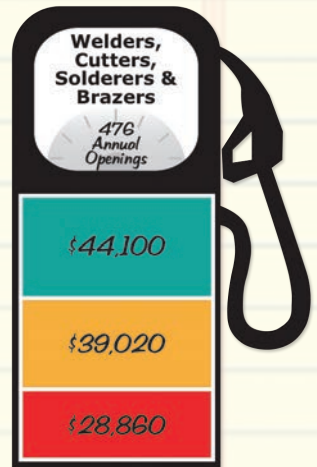
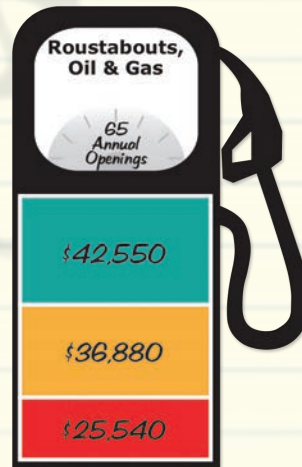
Experienced Level Wage



Average Annual Wage



Entry Level Wage



Spotlight on Manufacturing

Career Spotlight: Manufacturing Your Future

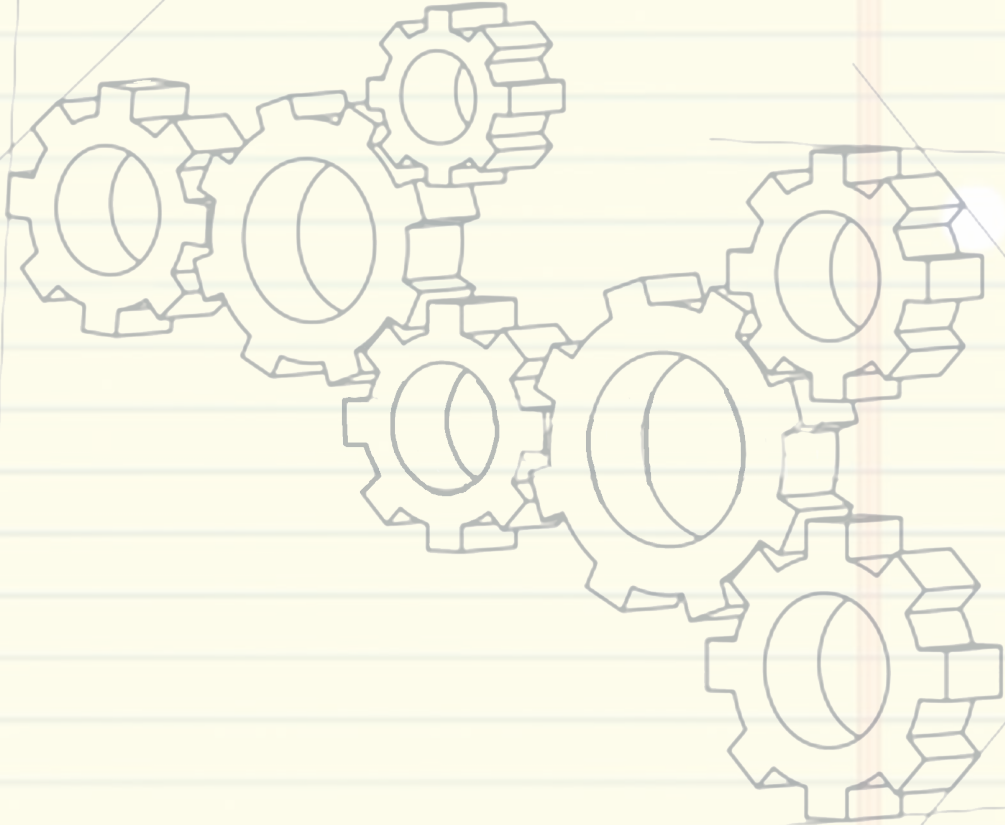
Today's careers in manufacturing are clean, filled with high technology, automation and robots. Manufacturing offers excellent process-improvement strategies to lead the country out of its economic downturn, employing a highly skilled, highly motivated workforce. The industry is filled with high-demand and rewarding occupations. Whether your interests lie in improving the layout and efficiency of a company through industrial engineering, or in designing custom tools that enable a company to produce its product as a tool and die maker, the manufacturing sector has something for you.

According to the "Blue Green Alliance Clean Energy Assembly Line Report 2009," more than 42,000 existing manufacturers could experience growth based on increased demand for component parts needed to produce clean energy, with Pennsylvania ranking among the top six states with the potential to create such jobs. Manufacturing industries in Pennsylvania are also very important to the natural gas sector. Machinery and replacement parts are necessary to maintain rigs, and an industry already prevalent in the state (plastics) can grow stronger as a number of chemicals required to make them are by-products of the Marcellus Shale drilling.

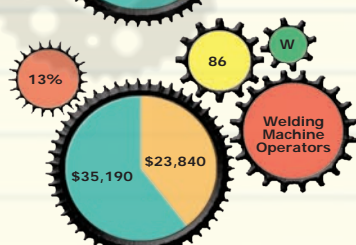
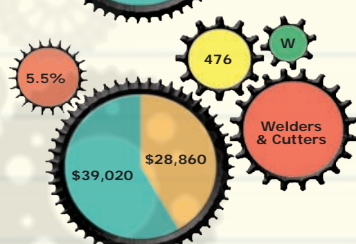
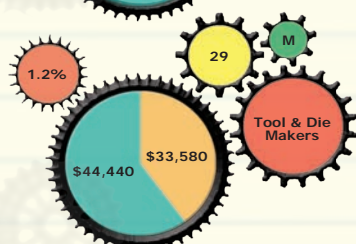
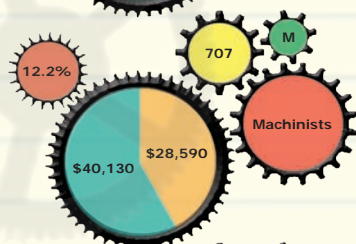
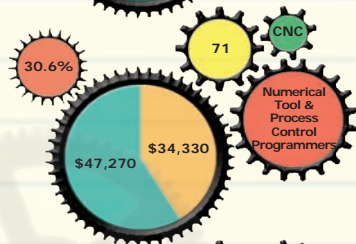
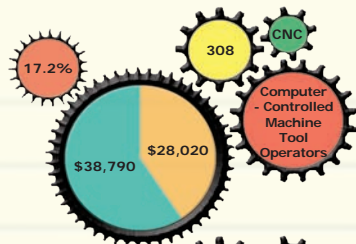
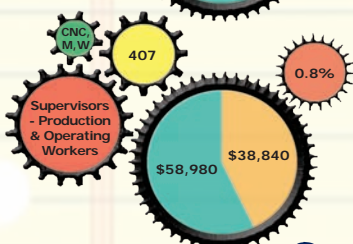
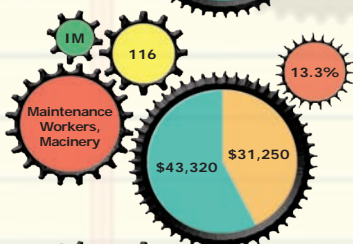
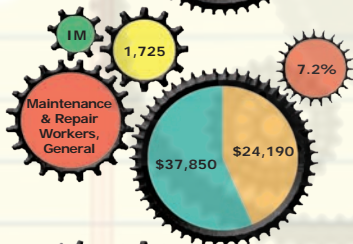
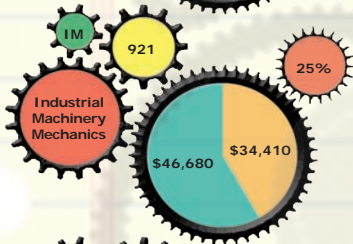
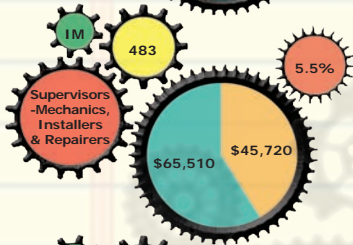
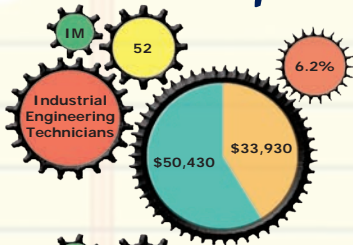
Faced with an aging workforce, and not enough skilled and adaptable workers to replace them as they retire in the coming years, manufacturing companies are eager to hire and train highly motivated individuals in key occupations: industrial maintenance (IM), CNC operations (CNC), machining (M) and welding (W). Industrial maintenance focuses on the careers that install, repair and perform maintenance on industrial machinery. CNC operators manufacture products by using computer-controlled machines and robots. Machining occupations require individuals to operate or program machine tools to produce a variety of products. Welding workers weld, braze and solder to manufacture products. The graphic on page 21 highlights 12 specific occupations across the four occupational groups.

Nearly 170,000 people work in these demand occupations throughout Pennsylvania. Projections indicate that there will be more than 4,500 openings each year across these occupations.

These 12 in-demand jobs require some postsecondary education and training, ranging from a year of on-the-job training to an associate degree. For many of these occupations, training is acquired through an apprenticeship, which often transfers to college credit. Industry-recognized credentials, such as those offered by the National Institute for Metalworking Skills (NIMS), are growing in popularity and often provide a benchmark by which an employer can qualify an individual with prior experience, and by which a postsecondary institution can justify the awarding of advanced-placement credit. With the right education and training, you can start on a career path that offers good pay, opportunities for growth and skills that are in high demand. Additionally, the knowledge you gain may lead to college credit, opening new doors for your manufacturing career.



Select Manufacturing Occupations



- Job Group(s)
- Occupation
- Average Entry Level Wage
- Percent Growth 2010-2020
- Annual Statewide Openings
- Average Annual Wage

Spotlight on Transportation



Pennsylvania is the transportation corridor of the Northeast. Our ports, rail systems and highways make us highly competitive in the warehousing and shipment of goods. As these services become increasingly mechanized, a qualified workforce is vital to development efforts. More than one out of every three occupations in the transportation cluster is that of a truck driver, including both heavy-and light-truck drivers.

As the natural gas industry grows in Pennsylvania, the transportation cluster will also benefit. Heavy equipment and supplies such as cement, sand, water and wastewater are required for pipeline drilling and construction. Since natural gas drilling sites are often in undeveloped areas, the equipment and supplies must be transported to drilling sites by way of trucks and rail cars. This increased emphasis on transportation not only affects drivers and locomotive engineers, but also related occupations such as packers, laborers, mechanics, stock clerks and dispatchers.

The educational requirement for entry-level transportation occupations is usually a high school diploma. Upon hire, workers gain job knowledge through a considerable amount of on-the-job training. Transportation occupations that focus on driving vehicles weighing more than 26,000 pounds and/or transport large quantities of hazardous materials require a Commercial Driver's License (CDL). In many cases, the hiring company offers training to assist new employees in obtaining their CDL.

Employers look for mechanically-inclined candidates with strong knowledge in transportation, public safety & security and production & processing. Many occupations in the transportation industry include loading/unloading freight, so candidates should be in good physical condition. Occupations that focus on driving require candidates to meet vision and hearing requirements, and possess good hand-eye coordination. Drivers must maintain a clean driving record, and CDL drivers are subject to random drug & alcohol testing while on the job, as per federal regulations.

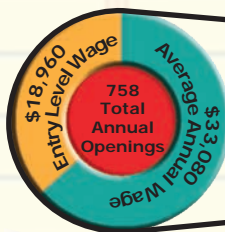
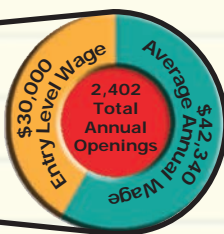


Transportation Occupations

Truck Drivers, Heavy & Tractor-Trailer

WK EXP
Education
Attainment

Drive a tractor-trailer combination or a truck with a capacity of at least 26,000 lbs. Gross Vehicle Weight (GVW). May unload truck. Requires a CDL.



Drive a vehicle, such as a truck or van, with a capacity of less than 26,000 lbs. Gross Vehicle Weight (GVW), primarily to deliver or pick-up merchandise or to deliver packages. May load and unload vehicle.

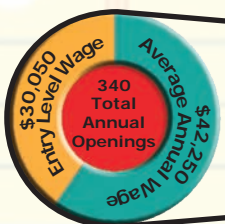
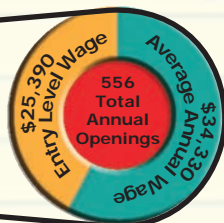
ST OJT
Education
Attainment

Truck Drivers, Light

Industrial Truck & Tractor Operators

ST OJT
Education
Attainment

Operate industrial equipment to move materials around a warehouse, storage yard, factory, construction site or similar location.



Diagnose, adjust, repair or overhaul buses and trucks, or maintain and repair any type of diesel engines.

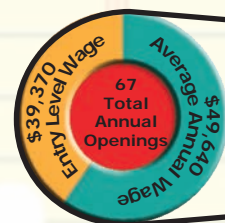
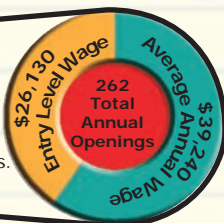
LT OJT
Education
Attainment

Bus & Truck Mechanics & Diesel Engine Specialists

Dispatchers

MT OJT
Education
Attainment

Schedule and dispatch workers, work crews, equipment or service vehicles for conveyance of materials, freight or passengers, or for normal installation, service or emergency repairs rendered outside the place of business.



Drive electric, diesel-electric, steam or gas-turbine-electric locomotives to transport passengers or freight. Interpret train orders, electronic or manual signals and railroad rules and regulations.

WK EXP
Education
Attainment

Locomotive Engineers

Getting There

What is career and technical education?

Career and technical education, or CTE, provides high school students with skills and education needed for successful employment graduation. Nearly half of the jobs in today's labor market require some form of advanced technical training. CTE programs and two-year college programs can help you with that training.

CTE programs offer a sequence of courses, as well as work-based experiences, such as internships or apprenticeships. These work-based experiences are offered during your senior year in high school, as long as you meet your local requirements.

Through these work-based experiences, CTE students have the opportunity to earn recognized industry credentials while still in high school. These credentials, in turn, can help students find jobs and be successful within their field of study. Research shows that students who enroll in a CTE program have a higher likelihood of finding a paid job and of attending a postsecondary CTE school in the early years after high school.

How do I learn more about career and technical education?

The first step would be to talk to your school counselor, teacher, or parents about whether this type of education fits in with your career plans. If possible, visit a nearby CTE school and see firsthand what it offers.

Pennsylvania Skills Certificate

If you pursue career and technical education in high school, you will graduate with a diploma and education in a specific career. However, earning your Pennsylvania Skills Certificate signals to potential employers that you have the skills to get the job done. To earn your certificate, you must complete a test that demonstrates your knowledge and technical abilities in your career program. Your teacher or counselor can provide you with more information.

Benefits of CTE Programs of Study:

- Saving money on college tuition
- Saving time by shortening college attendance
- Getting on the right career pathway
- Entering the job market ready
- Getting an education

Will I be able to find a job with my CTE skills that pays well?

Absolutely! Many occupations that require career and technical education pay living wages, and are expected to grow over the next ten years. Electricians, plumbers, pipe fitters, machinists, tool & die makers, maintenance mechanics and sheet metal workers are just a few of the CTE jobs that pay well and will continue to be in demand in Pennsylvania.

**To learn more about the different careers in Pennsylvania visit the PA Career Zone.
www.pacareerzone.com**

Using the Occupational Data Bank

As you consider your future occupation, many questions will arise. Does the job fit my interests and abilities? What does the job pay? How much competition will there be for openings? What kind of training will I need?

Our Occupational Data Bank (ODB) answers many of these questions. Information is provided for more than 130 occupations, which employ a large portion of Pennsylvania's workforce. To access similar data for other occupations or a specific area, please contact the Center for Workforce Information & Analysis (CWIA) at 877-4WF-DATA or by email at workforceinfo@pa.gov.

The ODB provides a closer look at occupations requiring a diverse range of education and experience. If you are unable to locate a specific occupation or would like more comprehensive information, check out the O*Net website at www.onetonline.org.

Occupation Title	Interest Code	Openings per Year	Entry-Level Wage	Average Wage
Career Path Icon W: Requiring Short, Moderate, or Long-Term On-the-Job Training				
Administrative Assistants	CES	331	\$37,140	\$52,420
Advertising Sales Agents	ECS	200	\$25,820	\$55,150
Amusement & Recreation Attendants	RCE	878	\$16,790	\$19,780
Automotive Body Repairers	R	192	\$28,210	\$40,430
Automotive Mechanics	R	1,178	\$23,210	\$37,260
Bakers	R	268	\$18,190	\$25,980
Bill & Account Collectors	CE	553	\$24,140	\$35,070
Billing Clerks	C	827	\$25,640	\$33,910
Bookkeeping & Accounting Clerks	C	1,276	\$24,130	\$36,380
Brick- & Blockmasons	R	126	\$34,290	\$49,520
Bus & Truck Mechanics	R	340	\$30,050	\$42,250
Butchers	R	228	\$22,640	\$32,090
Carpenters	R	1,498	\$28,870	\$44,370
Cashiers	CER	6,747	\$16,890	\$19,570
Child Care Workers	S	2,303	\$16,810	\$20,470
Claims Adjusters	EC	352	\$41,550	\$61,830
CNC Machine Operators	R	308	\$28,020	\$38,790
Coaches & Scouts	ERS	355	\$16,930	\$33,300
Construction Laborers	R	1,547	\$22,420	\$35,130
Cooks & Food Preparation Workers	R	1,225	\$16,790	\$21,410
Correctional Officers	RS	500	\$36,680	\$48,430
Counter & Rental Clerks	CER	536	\$17,770	\$29,130
Customer Service Representatives	CES	3,709	\$22,490	\$34,070
Dispatchers	CR	262	\$26,130	\$39,240
Electr. Equipment Assemblers	R	121	\$21,240	\$31,990
Electrical Power-Line Installers	R	190	\$50,640	\$67,200
Electricians	R	683	\$34,750	\$53,990
Equipment Cleaners	R	398	\$16,860	\$23,350
Extruding Machine Setters	R	100	\$26,820	\$36,680
Farmworkers	R	1,068	\$16,760	\$24,680
File Clerks	C	144	\$19,450	\$27,800
Fitness Trainers	SRE	271	\$17,400	\$28,710
Food & Beverage Servers	SRE	724	\$16,800	\$20,430
Gaming Dealers	EC	135	\$16,650	\$27,210
General Laborers	R	4,437	\$19,340	\$28,990

Occupation Title	Interest Code	Openings per Year	Entry-Level Wage	Average Wage
Career Path Icon W: Requiring Short, Moderate, or Long-Term On-the-Job Training				
General Office Clerks	CRE	3,274	\$19,650	\$30,610
Highway Maintenance Workers	R	206	\$24,690	\$37,170
Home Health Aides	SRC	3,184	\$16,770	\$20,750
Hotel Desk Clerks	CES	460	\$16,880	\$21,350
Human Resources Clerks	CES	194	\$25,770	\$36,770
HVAC Mechanics	R	542	\$30,570	\$45,650
Industrial Machinery Mechanics	R	556	\$25,390	\$34,330
Industrial Truck & Tractor Operators	R	864	\$24,560	\$33,590
Inspectors & Testers	RC	640	\$26,260	\$39,690
Insurance Claims Clerks	CES	373	\$29,400	\$39,920
Insurance Sales Agents	ESC	577	\$32,450	\$71,320
Janitors & Cleaners	R	2,541	\$17,970	\$26,280
Landscapers & Groundskeepers	R	1,479	\$19,390	\$27,900
Legal Secretaries	CE	132	\$31,140	\$43,890
Library Assistants	CR	236	\$16,950	\$24,060
Loan Officers	ESC	203	\$39,570	\$70,980
Machinists	R	707	\$28,590	\$40,130
Maids & Housekeepers	R	1,652	\$16,790	\$21,240
Maintenance Helpers	R	182	\$18,800	\$26,390
Medical Assistants	SCR	819	\$23,360	\$29,990
Medical Secretaries	CE	792	\$24,170	\$31,490
Mobile Heavy Equipment Mechanics	R	166	\$36,780	\$48,360
Non-farm Animal Caretakers	RS	183	\$16,780	\$20,680
Non-Retail Sales Supervisors	ECS	181	\$54,150	\$104,270
Nursing Aides	SRE	2,160	\$22,020	\$27,850
Operating Engineers	R	784	\$32,620	\$47,220
Order Clerks	CES	287	\$18,990	\$29,250
Packaging Machine Operators	R	440	\$21,980	\$33,150
Packers & Packagers	R	1,220	\$17,850	\$25,420
Painters	R	259	\$28,080	\$40,970
Parts Salespersons	ERC	N/A	\$21,210	\$32,210
Payroll & Timekeeping Clerks	CER	271	\$28,490	\$38,360
Personal Care Aides	SRE	2,120	\$16,990	\$21,580
Pharmacy Technicians	CRI	317	\$21,240	\$29,320
Plumbers & Pipefitters	R	481	\$35,330	\$53,460

Occupation Title	Interest Code	Openings per Year	Entry-Level Wage	Average Wage
Career Path Icon W: Requiring Short, Moderate, or Long-Term On-the-Job Training				
Police Officers	RES	957	\$39,580	\$60,130
Postal Mail Carriers	CR	458	\$39,080	\$50,580
Procurement Clerks	C	106	\$28,450	\$39,410
Production Helpers	R	577	\$20,110	\$27,740
Purchasing Agents	EC	336	\$41,700	63,330
Real Estate Agents	ERI	192	\$32,220	\$57,750
Receptionists	CES	1,584	\$19,300	\$26,590
Refuse Collectors	R	205	\$18,630	\$32,100
Registered Nurses	SIR	4,800	\$49,650	\$66,010
Retail Salespersons	ES	7,036	\$16,910	\$25,950
Sales Representatives	ERS	1,949	\$34,210	\$63,690
Sales Route Drivers	ERS	422	\$16,780	\$26,990
School Bus Drivers	RSC	643	\$18,760	\$28,560
Secretaries	CES	2,256	\$22,400	\$32,720
Security Guards	SEC	1,167	\$18,220	\$25,400
Self-Enrichment Teachers	SA	282	\$21,310	\$39,420
Shipping & Receiving Clerks	CR	785	\$23,190	\$32,890
Social & Human Service Assistants	SC	915	\$20,660	\$28,150
Stock Clerks	CRE	2,344	\$16,920	\$24,270
Substance Abuse Counselors	S	366	\$27,290	\$39,450
Taxi Drivers & Chauffeurs	R	283	\$17,350	\$23,520
Teacher Assistants	SC	1,134	\$17,900	\$30,740
Team Assemblers	RC	843	\$21,020	\$30,740
Telecommunications Line Installers & Repairers	R	169	\$34,060	\$54,920
Telemarketers	ECS	204	\$17,340	\$26,920
Truck Drivers, Heavy	R	2,402	\$30,000	\$42,340
Truck Drivers, Light	R	758	\$18,960	\$33,080
Ushers & Lobby Attendants	SCE	257	\$16,780	\$21,560
Welders	R	476	\$28,860	\$39,020

Occupation Title	Interest Code	Openings per Year	Entry-Level Wage	Average Wage
Career Path Icon T: Requiring Postsecondary Training through a Technical School or Associate Degree				
Dental Assistants	SRE	357	\$24,350	\$33,420
Dental Hygienists	SCR	350	\$46,560	\$60,940
Emergency Medical Technicians	SRI	683	\$22,330	\$32,150
Hairstylists	EAS	1,310	\$17,700	\$25,910
HVAC Mechanics	R	455	\$31,300	\$45,270
Licensed Practical Nurses	SRI	1,615	\$33,010	\$42,880
Medical Laboratory Technicians	RIC	303	\$28,060	\$38,650
Paralegals	ECS	314	\$35,550	\$54,530
Preschool Teachers	SA	586	\$19,680	\$27,800
Residential Advisors	S	346	\$19,550	\$26,130

Occupation Title	Interest Code	Openings per Year	Entry-Level Wage	Average Wage
Career Path Icon C: Jobs Requiring at least Four Years of Education in College				
Accountants & Auditors	CE	2,294	\$43,180	\$70,380
Architects	ARI	124	\$50,610	\$83,840
Civil Engineers	RIC	589	\$55,090	\$81,600
Clinical & School Psychologists	ISA	251	\$43,040	\$73,670
Cost Estimators	CE	536	\$41,420	\$61,120
Education Administrators	SEI	202	\$72,830	\$98,150
Elementary School Teachers	S	1,474	\$40,990	\$60,000
Financial Analysts	ICE	418	\$46,540	\$76,120
Graphic Designers	AER	329	\$29,540	\$46,360
Industrial Engineers	EIR	438	\$57,200	\$81,520
Lawyers	E	844	\$64,480	\$134,250
Logisticians	EC	188	\$47,770	\$71,260
Management Analysts	CEI	691	\$52,980	\$88,390
Mechanical Engineers	RI	478	\$56,050	\$83,010
Medical Scientists	IRS	150	\$55,630	\$95,920
Mental Health Counselors	S	610	\$29,720	\$43,110
Middle School Teachers	S	570	\$43,320	\$58,950
Occupational Therapists	SRI	190	\$53,000	\$72,180
Pharmacists	IC	423	\$84,570	\$107,420
Physicians & Surgeons	IES	574	\$106,020	\$194,690

Occupation Title	Interest Code	Openings per Year	Entry-Level Wage	Average Wage
Career Path Icon C: Jobs Requiring at least Four Years of Education in College				
Postsecondary Teachers	SI	88	\$45,010	\$73,320
Public Relations Specialists	EAS	344	\$33,620	\$661,760
Recreation Workers	SAR	290	\$17,070	\$25,970
Rehabilitation Counselors	S	254	\$24,290	\$38,360
Secondary School Teachers	S	1,329	\$44,650	\$61,470
Securities Sales Representatives	ECS	391	\$36,280	\$95,550
Social Workers	S	25	\$43,700	\$62,160
Special Education Teachers	SA	158	\$43,120	\$61,070
Vocational & School Counselors	S	296	\$34,090	\$54,040

Media Activity

List three of your favorite television shows:

1. _____
2. _____
3. _____

From these TV series, list 3 characters and the job or occupation they are supposed to have:

1. _____
2. _____
3. _____

Of these, pick the one career that interests you the most, and write a paragraph about why you think you would like the job.

If this career is not listed in this booklet (pages 26 to 31) use www.onetonline.org to determine the following information:

Average wage: _____

Education required: _____

Number of job openings: _____

Description of work environment: _____

Short job description: _____

Compare the above information with the paragraph you wrote based off of your perception of the career. What aspects of the job are portrayed accurately on tv, and which appear inaccurate? How well does the TV character portray a typical worker in that job? Are you still interested in the career? Why or why not?

A Career Interview Activity

What do you do for a living?

Overview: Select one occupation from the databank within this booklet. (Pages 26 to 31). Research the occupation with the interview questions below in mind. After the research is complete, record the answers.

Research Source: O*Net OnLine - <http://www.onetonline.org/>

The Interview

1. What are some of the main tasks your job entails?
2. Where are the conditions of your typical workplace?
3. What equipment or tools are necessary to perform your job duties?
4. Who do you most interact with while performing your job?
5. What skills and training are necessary to your job?
6. What do you like most about your job?
7. What do you like least about your job?

Notes

Notes

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