

# Job outlook by education: Measuring demand for high school and college graduates

Students and jobseekers need information when deciding how to choose and train for a career. To aid in those decisions, the U.S. Bureau of Labor Statistics (BLS) develops employment projections every 2 years that estimate job growth or decline in hundreds of occupations. For the past several years, BLS analysts have used these projections to study the overall future demand for workers by education level.

The two articles that follow introduce a new method of evaluating opportunities by education. The first article considers the job outlook for people who do not have a bachelor's degree. The second article describes the job outlook for people who have, or plan to pursue, a bachelor's or graduate degree. Both articles highlight occupations that are expected to be in demand, and both include information on the earnings and education that workers in some of those occupations attain.

But the articles include only a sample of the occupations for which BLS develops projections. For a more complete picture of job outlook, see BLS publications such as the 2004-05 editions of the *Occupational Outlook Handbook* and *Occupational Projections and Training Data*. Information about these and other resources are provided in the final sections of each article.

# Job outlook for people who don't have a bachelor's degree

by Roger Moncarz and Olivia Crosby

**Y**ou have skills. You have knowledge. And you can have a good career—regardless of whether you have a bachelor's degree. According to U.S. Bureau of Labor Statistics (BLS) projections, millions of job openings will be available between 2002 and 2012 for people who don't have a bachelor's degree. And many of these job openings will be in high-paying occupations.

A bachelor's degree brings many benefits, but it is not the only route to a job. In fact, most jobs are filled by workers who do not have a degree, and BLS does not expect that to change. Between 2002 and 2012, job openings for workers who are entering an occupation for the first time and who don't have a bachelor's degree are expected to total roughly 42 million. That's more than 3 times the number of job openings expected for workers who have a bachelor's degree.

Many of these jobs will require some training after high school. That could mean enrolling in vocational classes at a technical school, taking a few college courses, training on the job in an apprenticeship program, or getting an associate degree.

But which occupations should you train for? Which are expected to offer the best prospects? Read on to learn about the occupations that are projected to have the most openings for people who do not have a bachelor's degree and about high-demand occupations that pay well. Next, learn more about career fields—including construction,

healthcare, education, and computer work—that are expected to provide good opportunities for new workers. Accompanying tables identify projected openings and 2002 earnings for occupations in each of these career fields.

As the information beginning on page 11 explains, the data in this article are estimates. They are based on the education levels of current workers and on projections of future job growth. Additionally, the results assume that future workers will have education levels similar to those of current workers. The data provided throughout the article, along with the resources listed at the end, can help you decide how to pursue a career that interests you.

## Openings and where they will be

Between 2002 and 2012, BLS expects about 56 million job openings to be filled. Of this total, about 42 million openings are projected to be filled by workers who do not have a bachelor's degree and who are entering an occupation for the first time. About 27 million of these openings are expected to be held by workers who have a high school diploma or less education. Another 15 million openings are expected for workers who have some college education or an associate degree but do not have a bachelor's degree.

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Job openings are expected in every type of occupation. But some occupations and career fields will have more job openings and better earnings than others.

### Occupations with potential

Two main factors determine whether an occupation will have many job openings for workers entering an occupation. One factor is how many workers leave the occupation permanently. Large occupations—that is, occupations in which many jobs exist nationwide—have more workers and, therefore, also usually have more workers who leave the occupation and create openings. Occupations with few training requirements or low earnings also often have more workers who leave. And occupations with many older workers usually provide more openings

because of retirements.

Another factor affecting job openings is job growth. Some occupations gain new positions faster than others, providing more openings for workers who seek to enter the occupation.

The occupations that are expected to need the most new workers between 2002 and 2012 employ workers with widely varying levels of education. Many openings are expected in occupations that people can enter right after high school. But openings in other occupations, especially higher paying ones, often attract people who have additional training or education. People without training also enter these occupations, but they often start out earning less while they train on the job.

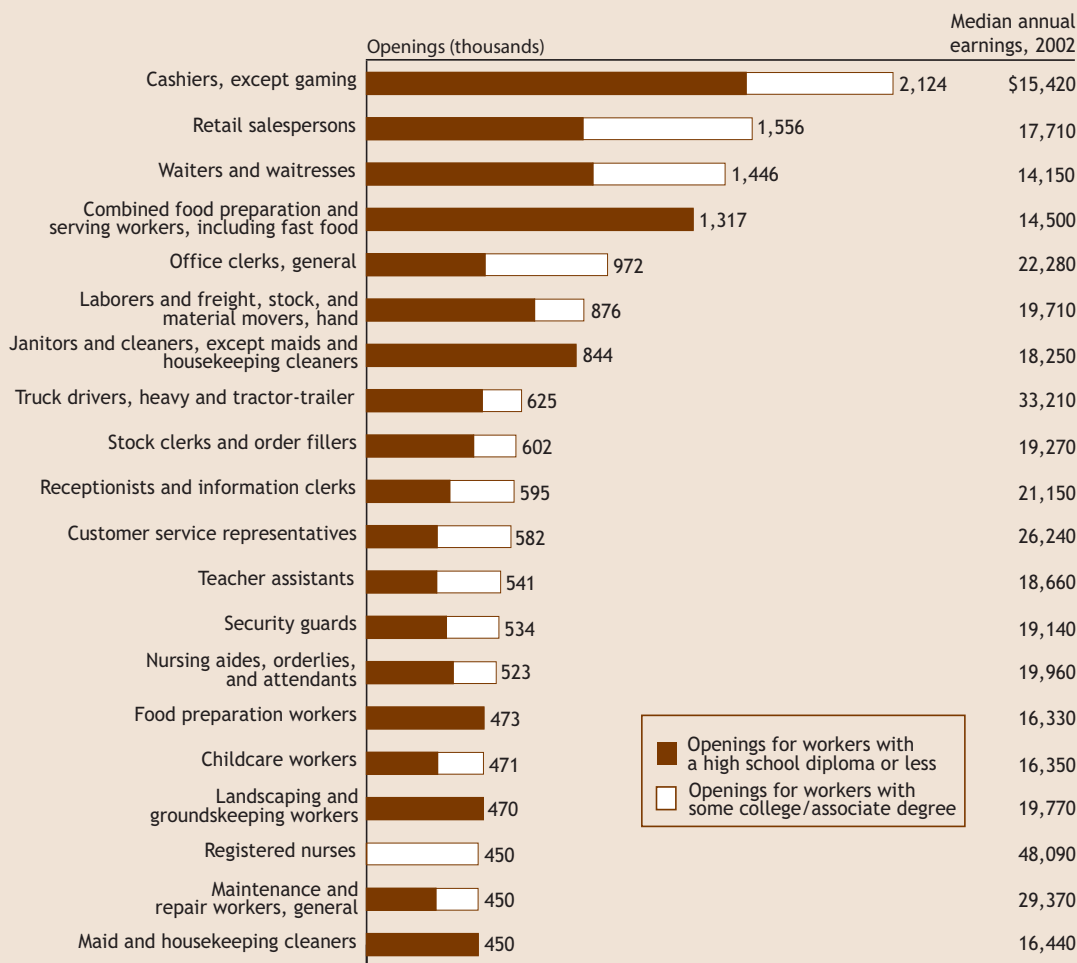
**Occupations with the most openings.** Chart 1 shows

the occupations that are projected to have the most job openings between 2002 and 2012 for people who have less education than a bachelor's degree. Most of these occupations involve working with the public.

You can enter most of the occupations shown in the chart if you have a high school diploma or less education. Workers often qualify for jobs after less than 1 month of on-the-job training. But four of the occupations—truck drivers, customer service representatives, general maintenance and repair workers, and registered nurses—usually require more training. These are also the highest paying occupations on the chart.

Truck drivers usually need 1 month

**Chart 1**  
Occupations with the most job openings for workers who don't have a bachelor's degree and who are entering the occupation for the first time, projected 2002-12



to 1 year of training on the job; some attend vocational schools to learn the basics of commercial driving. Customer service representatives, who also often receive 1 month to 1 year of training, usually start their jobs by observing experienced workers. Most general maintenance and repair workers learn on the job or in vocational classes in high school or later. Registered nurses, unlike the other occupations in the chart, almost always have some college training. About two-fifths of registered nurses over age 25 have an associate degree or have taken some college courses, and nearly all of the rest have a bachelor's degree.

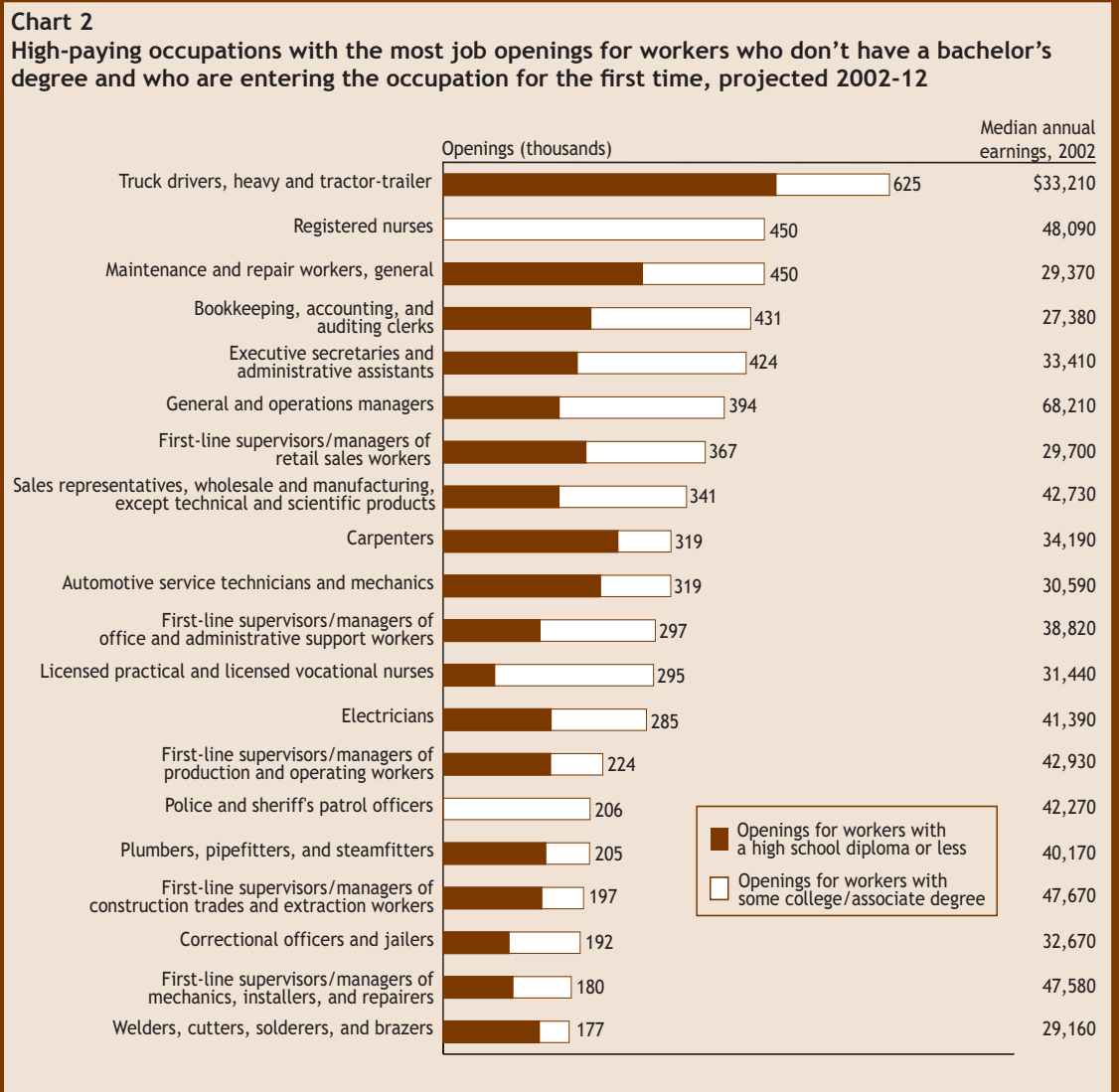
Chart 1 also gives the occupations' 2002 median earnings. (Median earnings show that half of the workers in the occupation earned more than that amount, and half earned less.) All but three of the occupations had median earnings below \$27,380—the median for workers in 2002.

But median earnings don't show the wide variation in pay that exists in some occupations. For example, earnings for some customer service representatives, such as those who provide help for complex computer problems, are significantly higher than the median. But these same workers are usually highly skilled and have several months of on-the-job training; some also have a bachelor's degree.

**Occupations with high earnings and lots of openings.** According to BLS data, about 350 of the occupations expected to provide

openings for high school graduates also had higher-than-average median earnings in 2002. Chart 2 shows the high-paying occupations that are expected to have the most job openings for workers who don't have a bachelor's degree. Workers in all of these occupations have technical skills or supervisory responsibilities. And all of the occupations usually employ workers who complete moderate or long-term on-the-job training, college courses, or vocational classes.

Nearly half of the occupations in the chart relate to construction or manufacturing. Some of these occupations require physical strength; but many, such as electricians, do not. Completing a formal apprenticeship can increase your chances of getting a job in these occupations. Studying algebra and taking vocational classes in



high school can also help you qualify.

Another way to a high-paying career is to work toward becoming a supervisor. Many high school graduates transfer to managerial occupations as they gain experience. According to some studies, having formal training or taking college courses can increase the chances of becoming a supervisor.

**Competing with college workers.** Some of the occupations shown in the charts are expected to provide jobs to workers who have a bachelor's degree, as well as to workers who do not have one. When an occupation has workers who have different levels of education, the workers with more education are often better able to compete for jobs. This is particularly true if the occupa-

tion requires complicated math, science, writing, or other academic skills.

If you do not have a bachelor's degree and are competing with people who do, you can increase your competitiveness in a number of ways. These include gaining work or volunteer experience, taking high school or college classes that relate to an occupation, and completing a certification.

Additionally, consider contacting your State's labor market information office to learn about work, volunteer, education, and training opportunities. You can also find out which training programs have high placement rates and which occupations are most in demand in your area.

**Table 1**  
**Selected office and administrative support occupations**

Occupations	Net openings for workers without bachelor's degree, projected 2002-12	Median annual earnings, 2002	Most significant source of education or training	Percent of workers aged 25 to 44 with...		
				High school diploma or less	Some college/ associate degree	Bachelor's or graduate degree
Office clerks, general	972,000	\$22,280	Short-term on-the-job training	41%	42%	17%
Stock clerks and order fillers	602,000	19,270	Short-term on-the-job training	65	26	9
Receptionists and information clerks	595,000	21,150	Short-term on-the-job training	50	39	12
Customer service representatives	582,000	26,240	Moderate-term on-the-job training	38	40	21
Bookkeeping, accounting, and auditing clerks	431,000	27,380	Moderate-term on-the-job training	40	44	16
Executive secretaries and administrative assistants <sup>1</sup>	424,000	33,410	Moderate-term on-the-job training	37	47	16
Tellers	311,000	20,400	Short-term on-the-job training	44	43	13
First-line supervisors/managers of office and administrative support workers	297,000	38,820	Work experience in a related occupation	33	40	27
Postal service mail carriers <sup>2</sup>	105,000	39,530	Short-term on-the-job training	52	40	8
Legal secretaries <sup>1</sup>	100,000	35,020	Vocational certificate	37	47	16

<sup>1</sup> BLS does not have reliable education data for different types of secretaries; all secretaries were categorized as a group.

<sup>2</sup> BLS does not have reliable education data for this occupation specifically; data for related occupations were used.

**Table 2**  
**Selected healthcare occupations**

Occupations	Net openings for workers without bachelor's degrees, projected 2002-12	Median annual earnings, 2002	Most significant source of education or training	Percent of workers aged 25 to 44 with...		
				High school diploma or less	Some college/ associate degree	Bachelor's or graduate degree
Nursing aides, orderlies, and attendants <sup>1</sup>	523,000	\$19,960	Short-term on-the-job training	63%	31%	6%
Registered nurses	450,000	48,090	Associate degree	2	40	58
Home health aides <sup>1</sup>	355,000	18,090	Short-term on-the-job training	63	31	6
Licensed practical and licensed vocational nurses	295,000	31,440	Vocational certificate	23	72	5
Medical assistants	282,000	23,940	Moderate-term on-the-job training	37	50	14
Dental assistants	187,000	27,240	Moderate-term on-the-job training	34	57	8
Emergency medical technicians and paramedics <sup>2</sup>	80,000	24,030	Vocational certificate	24	63	13
Radiologic technologists and technicians	53,000	38,970	Associate degree	11	66	24
Dental hygienists	50,000	55,320	Associate degree	5	63	32
Respiratory therapists	41,000	40,220	Associate degree	5	68	28

<sup>1</sup>Education data for this occupation come from the larger occupational group of which it is a part.

<sup>2</sup>BLS does not have reliable education data for this occupation; data for related occupations were used.

## Career fields with promise

Opportunities abound in almost every career field. The information that follows gives an overview of the expected job openings and common educational requirements for occupations in six widely varying fields. Career fields with the most expected openings are discussed first.

The accompanying tables show occupations that are expected to have many openings over the 2002-12 decade. The tables also show 2002 earnings, along with the percentage of current workers aged 25 to 44 who have a high school diploma or less, some college courses or an associate degree, or a bachelor's or graduate degree. College courses or degrees may or may not relate to the occupation.

Also listed is the specific type of training, such as on-the-job training, a vocational certificate, or an associate degree, that BLS analysts deemed most significant in the occupation.

**Office and administrative support.** People who like business and teamwork should expect to find many opportunities in office and administrative support occupations. Between 2002 and 2012, these occupations are projected to provide several million openings for work-

ers who do not have a bachelor's degree. Many of these openings, such as those for stock clerks, usually require little training after high school. (See table 1.) Summer jobs or high school classes in English, typing, and computer-related subjects can pave the way.

Other occupations, such as dispatchers and eligibility interviewers, often require months of on-the-job training. Many office workers also take some college courses to hone their skills, earn certifications, and increase their opportunity for advancement.

**Healthcare.** For workers who have an interest in science and in helping people, healthcare occupations are expected to provide some of the most plentiful and highest paying career opportunities. Overall, healthcare occupations are projected to provide nearly 3 million job openings between 2002 and 2012 for workers who don't have a bachelor's degree. Many of these openings are expected to result from fast growth. Table 2 lists 10 of the healthcare occupations with high earnings in 2002 or a large number of expected openings over the 2002-12 decade.

As the table shows, training varies widely within most of these occupations. For example, the most signifi-

**Table 3**  
**Selected construction occupations**

Occupations	Net openings for workers without bachelor's degrees, projected 2002-12	Median annual earnings, 2002	Most significant source of education or training	Percent of workers aged 25 to 44 with...		
				High school diploma or less	Some college/ associate degree	Bachelor's or graduate degree
Carpenters	319,000	\$34,190	Long-term on-the-job training	73%	22%	5%
Electricians	285,000	41,390	Long-term on-the-job training	50	44	6
Plumbers, pipefitters, and steamfitters	205,000	40,170	Long-term on-the-job training	67	29	4
First-line supervisors/managers of construction trades and extraction workers*	197,000	47,670	Work experience in a related occupation	63	27	10
Operating engineers and other construction equipment operators	127,000	35,240	Moderate-term on-the-job training	79	19	2
Painters, construction and maintenance	120,000	29,070	Moderate-term on-the-job training	77	17	6
Sheet metal workers	90,000	34,560	Moderate-term on-the-job training	69	30	2
Cement masons and concrete finishers	84,000	30,660	Moderate-term on-the-job training	85	13	2
Roofers	70,000	30,180	Moderate-term on-the-job training	85	12	3
Drywall and ceiling tile installers	58,000	33,710	Moderate-term on-the-job training	84	14	2

\* BLS does not have reliable education data for this occupation specifically; data for related occupations were used.

cant source of preparation for nursing aides and home health aides is less than 1 month of on-the-job training. But a large number of aides have taken college courses—either to qualify for certifications or to prepare for other, higher paying healthcare occupations. Some aides may have college coursework unrelated to their job.

Having a job in one occupation while training for another is a common advancement strategy for healthcare workers. Emergency medical technicians and paramedics, for example, need certification and some formal training before they start work. With additional training and experience, workers can progress to higher levels of certification and new job duties. To receive the highest level of certification, most paramedics must earn an associate degree.

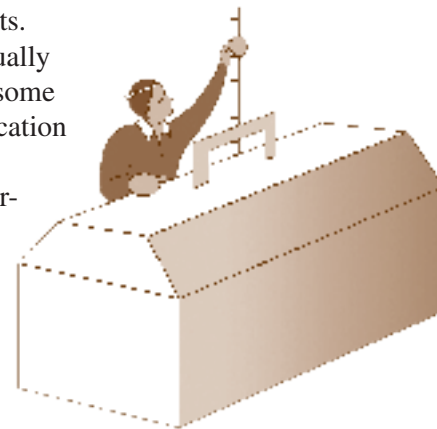
In part because the skills they need are becoming more complex, healthcare workers are getting more training. Often, this extra education pays off. Although many dental assistants train on the job, for example, about 25 percent of these workers aged 25 and over have an associate degree. And median earnings of dental assistants who have an associate degree are about 23 percent higher than the earnings of those who have a high school diploma or less.

For some healthcare occupations, BLS analysts were able to draw conclusions about the level of competition that future jobseekers might face. Analysts gathered anecdotal evidence and other data, including information on the number of people who have recently completed training programs. Analysts concluded that over the 2002-12 decade, there could be excellent opportunities in the following healthcare occupations:

- Dental assistants
- Dental hygienists
- Clinical laboratory technologists and technicians
- Medical records and health information technicians
- Nursing, psychiatric, and home health aides
- Registered nurses
- Respiratory therapists.

These occupations usually employ people who have some on-the-job training or education after high school.

**Construction.** An interest in building things can lead to a career with prospects. More than 2 million job openings are



projected for workers entering construction occupations between 2002 and 2012. And most of these occupations pay more than the average for all occupations.

There are many types of construction occupations. Some require outdoor work, others don't; some involve a high level of mathematics, others require math skills that are more basic. Many workers in construction occupations start as apprentices, taking vocational classes and getting paid for on-the-job training. Some workers receive college credit for the vocational classes they take.

Table 3 shows the 10 construction occupations expected to have the most job openings over the 2002-12 decade. In 2002, all of these occupations had median earnings that were above the average for all occupations.

For three of the occupations in the table—carpenters; plumbers, pipefitters, and steamfitters; and roofers—BLS analysts had enough information to conclude that the job openings could outnumber jobseekers in some years and in some places. Prospects are considered excellent.

BLS analysts also concluded that two other construc-

tion occupations—insulation workers and brickmasons, blockmasons, and stonemasons—are expected to provide good opportunities.

**Police and other protective service.** Workers who keep the public safe from crime, natural disasters, and fire are projected to be in high demand. Between 2002 and 2012, protective service occupations are expected to provide about 1.4 million job openings for workers who don't have a bachelor's degree. As table 4 shows, most of these openings are projected to be in three occupations: Security guards, police and sheriff's patrol officers, and correctional officers and jailers.

Security guards can usually qualify for their jobs if they have a high school diploma or less. Once employed, security guards often receive some on-the-job training. Armed guards need training and licensure. Guards working in specialized fields, such as nuclear power plant security, receive extensive formal training after being hired and usually earn more than other guards. Correctional officers also train on the job, but they usually train

**Table 4**  
**Selected protective service occupations**

Occupations	Net openings for workers without bachelor's degrees, projected 2002-12	Median annual earnings, 2002	Most significant source of education or training	Percent of workers aged 25 to 44 with...		
				High school diploma or less	Some college/ associate degree	Bachelor's or graduate degree
Security guards	534,000	\$19,140	Short-term on-the-job training	52%	35%	13%
Police and sheriff's patrol officers	206,000	42,270	Long-term on-the-job training	19	53	28
Correctional officers and jailers	192,000	32,670	Moderate-term on-the-job training	43	47	10
Fire fighters	140,000	36,230	Long-term on-the-job training	26	58	16
First-line supervisors/managers of police and detectives	36,000	61,010	Work experience in a related occupation	17	54	28
Crossing guards*	36,000	18,680	Short-term on-the-job training	76	23	1
First-line supervisors/managers of fire fighting and prevention workers*	26,000	55,450	Work experience in a related occupation	18	57	25
First-line supervisors/managers of protective service workers, except police, fire and corrections	21,000	34,320	Work experience in a related occupation	31	46	23
Detectives and criminal investigators	18,000	51,410	Work experience in a related occupation	9	35	56
Private detectives and investigators	10,000	29,300	Work experience in a related occupation	18	36	46

\* BLS does not have reliable education data for this occupation specifically; data for related occupations were used.



**Table 5**  
**Selected education and childcare occupations**

Occupations	Net openings for workers without bachelor's degree, projected 2002-12	Median annual earnings, 2002	Most significant source of education or training	Percent of workers aged 25 to 44 with...		
				High school diploma or less	Some college/ associate degree	Bachelor's or graduate degree
Teacher assistants	541,000	\$18,660	Short-term on-the-job training	44%	40%	16%
Childcare workers	471,000	16,350	Short-term on-the-job training	53	34	13
Preschool teachers, except special education	107,000	19,270	Vocational certificate	22	31	47
Self-enrichment education teachers	37,000	29,320	Work experience in a related occupation	14	30	55
Library technicians*	37,000	24,090	Short-term on-the-job training	23	35	42

\* Because fewer than 10,000 workers were aged 25-44, workers above age 44 were also counted when identifying educational distribution.

longer and are paid more than security guards. In some States, correctional officers receive months of training and instruction, often while attending academies.

Police and sheriff's patrol officers train on the job in police academies, and many take classes in criminal justice after high school and before entering the academy. Bachelor's degrees are becoming more common among police and can make it easier to advance, but skills and character are often more important than education. Employers' requirements depend on geographic location and job type.

**Education and childcare.** Career opportunities in schools and daycare centers will continue to be plentiful. More than 1.2 million openings are expected in this field between 2002 and 2012 for workers who don't have a bachelor's degree. Within these occupations, workers have wide ranges of training and education. (See table 5.) Teacher assistants, who are expected to have the most job openings among occupations in this group, are often required to have an associate degree or to pass an exam. But many others train on the job, especially if their work involves supervising children rather than helping with instruction.

Preschool teachers and childcare workers often have an associate degree, too. But the degree is not always required for workers in these two occupations; instead, workers earn an associate or bachelor's degree to learn skills and increase their advancement opportunities. A common strategy is to take courses that lead to certifications and later apply the courses toward either a 2- or 4-year degree, or both.

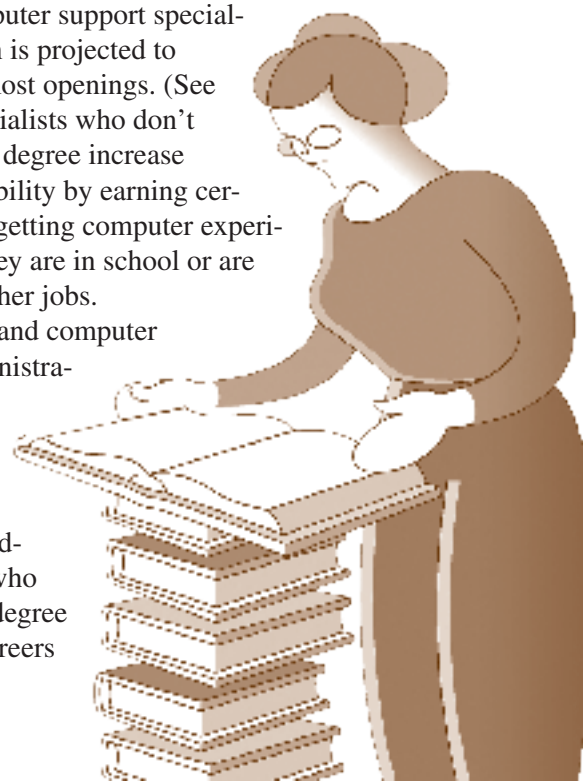
Self-enrichment education teachers, the highest paid occupation in the table, often teach a hobby or skill, such as art, dance, or cooking, in which they have expertise.

**Computer.** Explosive growth in information technology is expected to create many openings for people who like working with computers. Openings in computer-related occupations for workers who don't have a bachelor's degree are expected to total about 444,000 between 2002 and 2012. Industry certifications or computer experience are particularly important in this field, in part because many college graduates also compete for these jobs.

According to industry experts, people who don't have a bachelor's degree may find it easiest to enter the following computer occupations: Computer support specialists, network and computer systems administrators, and certain types of network systems and data communications analysts.

The computer support specialist occupation is projected to provide the most openings. (See table 6.) Specialists who don't have a 4-year degree increase their marketability by earning certifications or getting computer experience while they are in school or are working in other jobs.

Network and computer systems administrators include workers at every educational level. Many administrators who don't have a degree begin their careers



as computer support specialists, switching to more highly paid administrator jobs after they gain computer experience.

Web masters, computer security professionals, and Local Area Network (LAN) support staff are also expected to be in high demand. All of these workers are part of the occupation of network systems and data communications analysts. Many of these workers have a bachelor's degree, but others substitute coursework, experience, or certifications.

Workers in each of these computer occupations had above-average earnings in 2002. But workers who have a bachelor's degree are included in those earnings figures; earnings might be lower for workers who have less education.

### How these numbers were developed

Measuring job outlook by education is complicated, and there are many ways to do it. This analysis used expected job openings as a way to measure outlook because the number of job openings helps to determine how easy it will be for workers to enter an occupation. The analysis used survey data as an objective way to separate openings by education level.

Like any analysis based on projections and estimates, however, this one has limitations. Understanding these limitations allows people to better use the results.

### Methods used

To determine job prospects, BLS analysts started by projecting the total number of job openings available between 2002 and 2012 for workers entering an occupation for the first time. Next, analysts estimated how many of those openings would be filled by workers who do not have a bachelor's degree and how many openings would be in high-paying occupations.

**Job openings.** Job openings come from two sources: The need to fill newly created positions and the need to replace workers who leave an occupation permanently.

To estimate the number of openings that will come from newly created positions, analysts projected how much each occupation would grow or decline between 2002 and 2012. There are many reasons that the number of jobs in an occupation might change. Sometimes, the demand for a certain type of good or service increases—for example, when an aging population creates the need for more healthcare services and, as a result, more healthcare technicians. The way a good or service is provided also can create the need for more jobs in an occupation, such as when library technicians gain jobs faster than librarians do because employment of technicians is considered to be more cost effective.

Many occupations that employ people who do not have a bachelor's degree are projected to gain jobs rapidly. In fact, for 6 of the 10 fastest growing occupations,

**Table 6**  
**Selected computer-related occupations**

Occupations	Net openings for workers without bachelor's degrees, projected 2002-12	Median annual earnings, 2002	Most significant source of education or training	Percent of workers aged 24 to 44 with...		
				High school diploma or less	Some college/ associate degree	Bachelor's or graduate degree
Computer support specialists	109,000	\$39,100	Associate degree	16%	43%	42%
Computer systems analysts	72,000	62,890	Bachelor's degree	10	27	62
Network and computer systems administrators	53,000	54,810	Bachelor's degree	11	39	50
Computer programmers	46,000	60,290	Bachelor's degree	8	22	70
Network systems and data communications analysts	45,000	58,420	Bachelor's degree	11	31	58
Computer and information systems managers	37,000	85,240	Bachelor's plus experience	7	22	70
Computer operators	31,000	29,650	Moderate-term on-the-job training	39	41	20
Database administrators	15,000	55,480	Bachelor's degree	10	23	67

a bachelor's degree is not the most significant source of training. The occupation projected to be the fastest growing of all occupations over the 2002-12 decade, medical assistant, often employs people who train on the job.

The need to replace workers who leave an occupation permanently is expected to provide even more openings than job growth will. To estimate how many workers will need to be replaced during the 2002-12 decade, analysts studied both past trends in each occupation and the ages of current workers. In some occupations, workers usually stay for many years. In other occupations, people tend to leave more quickly. These considerations affect replacement needs.

**Openings by education.** After analysts projected the total number of job openings in each occupation, they estimated how many of those openings would be filled by workers who fall into one of three different education levels: A high school diploma or less, some college or an associate degree, or a bachelor's or graduate degree.

Analysts determined which levels of education were significant in each occupation by looking at the education levels of current workers as reported in 2000, 2001, and 2002 Current Population Survey data. If at least 20 percent of workers had a particular level of education, that level was deemed significant. Expected job openings were divided among each of the significant education levels, according to how common that education level was for workers in the occupation.

For example, chemical technicians include workers who have each of the three levels of education: About 32 percent of technicians have a high school diploma or less, about 40 percent have completed some college or an associate degree, and about 29 percent have a bachelor's or graduate degree. Therefore, the expected openings for chemical technicians were divided among these categories using the corresponding percentages. The openings for workers who had less than a bachelor's degree were added to the total.

In addition to describing the three educational attainment categories, this article discusses specific education and training requirements for some occupations. These discussions are based on occupational analyses conducted for the *Occupational Outlook Handbook*.

**Openings by earnings.** The earnings data in this article are from the BLS Occupational Employment Statistics survey. The survey reflects the 2002 earnings of all workers, without regard to education level or experience.

Also, the survey does not include self-employed workers. In this analysis, occupations were considered high-paying if their median earnings were above the median for all workers in 2002.

### Limitations of the data

To measure total job openings and openings by education level, BLS analysts needed to make some assumptions about the future. First, analysts assumed that the education levels in each occupation would remain roughly the same over the 2002-12 decade. In reality, the educational characteristics of some occupations change over time. Many occupations—such as registered nurses and police officers—have shown a gradual increase in the education levels of their workers.

Analysts also ignored education levels that were uncommon in an occupation; as stated previously, at least 20 percent of workers in an occupation had to have a given level of education for it to be considered significant. So, for example, even though 18 percent of current massage therapists have a high school diploma or less, none of that occupation's future openings were slated for workers with that level of education.

Another limitation of this study is that it focuses on the number of job openings expected in an occupation. Job openings give only a partial view of the prospects that workers can expect. The number of people who will compete for those openings is also important. For most occupations, BLS analysts do not have enough information about the future supply of workers to analyze the competition for jobs.

Finally, the accuracy of this study is limited by its use of survey data. Surveys are always subject to some error because not every worker is counted and because the information gathered is sometimes incorrect. In addition, many of the occupations studied here could not be counted with enough statistical accuracy because the number of workers surveyed was too small. In those cases, analysts substituted the education levels of similar occupations or groups of occupations that had larger numbers of workers.

Despite the assumptions and limitations of this analysis, there is evidence that counting future job openings using the method described here produces accurate results. When existing jobs are separated into educational categories using this method, the results closely match current numbers.

## For more information

To learn more about the occupations described here and about the hundreds of other occupations expected to provide openings for workers who don't have a bachelor's degree, see the 2004-05 *Occupational Outlook Handbook*, available in many libraries and career centers and online at [www.bls.gov/oco](http://www.bls.gov/oco). The *Handbook* describes the job outlook, education and training requirements, and job duties of nearly 270 occupations.

Another BLS publication, the 2004-05 *Occupational Projections and Training Data* bulletin, explains in detail the methods used in this study and lists the projected job openings and worker education levels for every occupation studied by the BLS Office of Occupational Statistics and Employment Projections. The bulletin is available online at [www.bls.gov/emp/optd/home.htm](http://www.bls.gov/emp/optd/home.htm) and is for sale by calling the Superintendent of Documents toll-free at 1 (866) 512-1800.

The *Occupational Outlook Quarterly* also has two articles that discuss career-training options other than a bachelor's degree: "Apprenticeship: Career training, credentials—and a paycheck in your pocket," in the summer 2002 issue (online at [www.bls.gov/opub/ooq/2002/summer/art01.pdf](http://www.bls.gov/opub/ooq/2002/summer/art01.pdf)), and "Associate degree: Two years to a career or a jump start to a bachelor's degree," in the winter 2002-03 issue (online at [www.bls.gov/opub/ooq/2002/winter/art01.pdf](http://www.bls.gov/opub/ooq/2002/winter/art01.pdf)).

And to help workers prepare for a career, the U.S.

Department of Education offers information about financial aid for people attending 2-year colleges, 4-year colleges, and vocational schools. Call the financial aid hotline toll-free at 1 (800) 4FED-AID (433-3243); write the Federal Student Aid Information Center, P.O. Box 84, Washington, DC 20044-0084; or visit online at [www.studentaid.ed.gov](http://www.studentaid.ed.gov).

Studying potential job openings is only a starting point when deciding on a career. Many other considerations are important, including individual skills and interests, personal circumstances, and the needs of local employers. To explore these and other factors in your career decision, visit State labor market information offices and career centers. Information is available online at [www.servicelocator.org](http://www.servicelocator.org) or by calling the U.S. Department of Labor's toll-free helpline, 1 (877) US2-JOBS (872-5627).

And when you visit a career center or library, check out some other articles in the *Quarterly*. Many, including "Matching yourself with the world of work 2004" (online at [www.bls.gov/opub/ooq/2004/fall/art01.pdf](http://www.bls.gov/opub/ooq/2004/fall/art01.pdf)) and "From hobby to career: Transforming your pastime into a profession," ([www.bls.gov/opub/ooq/2001/Fall/art01.pdf](http://www.bls.gov/opub/ooq/2001/Fall/art01.pdf)) discuss career strategies for jobseekers who have different levels of education and training.

Opportunities are as varied as the workers who seek them. And when it comes to training, finding what is best for you is one of the surest routes to reward. ∞∞

